

UNIVERSITY OF KENTUCKY

A Tradition of Value

1988-89 BULLETIN

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UNIVERSITY OF KENTUCKY

1988-89 BULLETIN

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SUMMER I **NUMBER 2**
The University of Kentucky Bulletin (USPS 384-610) is published six times a year, once in the Spring, three times in the Summer (Summer I, Summer II, Summer III) and twice in the fall (Fall I, Fall II) by the University of Kentucky, Lexington, KY 40506. Second class postage paid at the Post Office, Lexington, KY 40511. Postmaster: Send address changes to the Registrar's Office, Att: Mailing Center, University of Kentucky, Lexington, KY 40506. A cooperative publication of the Registrar's Office and the Publications Bureau of Public Relations.

SOURCES OF INFORMATION

PUBLICATIONS

This Bulletin is distributed to all newly admitted undergraduate students through the Advising Conference, and to graduate students through The Graduate School Office. Additional or replacement copies may be purchased through the University Bookstore.

Reference copies are distributed to all high school counselors in the Commonwealth of Kentucky.

Information about the Community College System may be obtained by contacting the Community College System Office, University of Kentucky, Lexington, KY 40506-0056.

OTHER INFORMATION

Specific information about different parts of the University may be obtained by directing inquiries to members of the administrative staff. The post office address is: University of Kentucky, Lexington, KY 40506. Telephone: (606) 257-9000.

General information, transcripts of credits—University Registrar
Admissions—Director of Admissions
Student Affairs—Vice Chancellor for Student Affairs
Living Accommodations—University Housing Office
A particular college and its programs—Dean of the College, Director of Admissions
Community Colleges—Chancellor for the Community College System
Graduate Work—Dean of The Graduate School
Student Financial Aid—Director of Student Financial Aid
Academic Scholarships—Vice Chancellor for Academic Affairs
General publications about the University—Office of Public Relations
Placement services—Career Planning and Placement Center
Counseling and Testing—Director of Counseling and Testing Center
Extension, Evening, Weekend, and Correspondence Courses—Dean of University Extension
Fort Knox Center, Fort Knox, KY 40121

COMPLIANCE WITH REGULATIONS

The University of Kentucky is committed to a policy of providing educational opportunities to all qualified students regardless of economic or social status, and will not discriminate on the basis of race, color, religion, sex, marital status, beliefs, age, national origin, or handicap.

Compliance with Title IX of the Educational Amendments of 1972, which prohibits sex discrimination, and with Title VI of the Civil Rights Act of 1964 is coordinated by Ms. Nancy Ray, Affirmative Action Office, 203A Administration Building, (606) 257-8927.

Efforts to comply with the laws and regulations applicable to qualified handicapped individuals are also coordinated by the Affirmative Action Office, as required by Section 504 of the Rehabilitation Act of 1973.

Questions concerning compliance with regulations may be directed to UK's Affirmative Action Office, or to the Director of the Office of Civil Rights, U.S. Department of Education, Washington, D.C. Questions about admission to the University should be directed to the appropriate admissions office.

CONFIDENTIALITY OF STUDENT RECORDS

In accordance with the Family Education Rights and Privacy Act of 1974, University of Kentucky students have the right to review, inspect, and challenge the accuracy of information kept in a cumulative file by the institution unless the student waives this right in writing. Records cannot be released in other than emergency situations without the written consent of the student, except in the following situations:

A. to other school officials, including faculty within the educational institution or local educational agency who have legitimate educational interests;
B. to officials of other schools or school systems in which the student intends to enroll, upon condition that the student be notified of the transfer, receive a copy of the record if desired, and have an opportunity for a hearing to challenge the content of the record;
C. to authorized representatives of 1) the Comptroller General of the United States, 2) the Secretary of Education of the United States, 3) an administrative head of an education agency or 4) state educational authorities;
D. in connection with a student's application for, and receipt of, financial aid;
E. where the information is classified as "Directory information." The following categories of information have been designated by the University as directory information: name, address, telephone listing, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational institution attended by the student. Students who do not wish such information released without their consent should notify the Registrar's Office in writing.

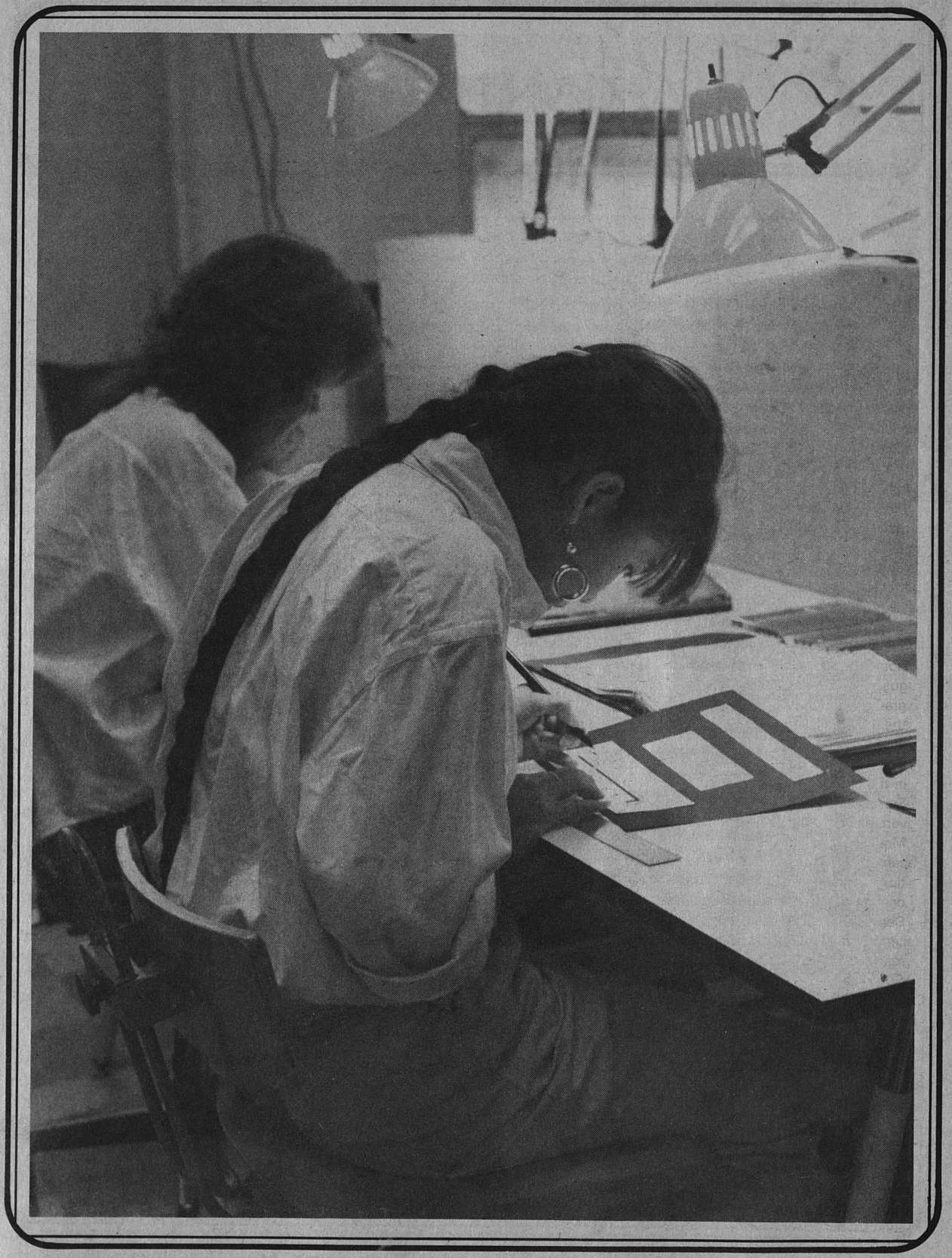
Questions concerning this law and the University's policy concerning release of academic information may be directed to the Registrar's Office, 257-1826.

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CALENDAR

Students should check the *Schedule of Classes* for each semester for any calendar changes which may have been approved after publication of this Bulletin.

1988 Fall Semester

Application for Admission

February 15—Monday—Recommended date for freshmen to submit 1988 Fall Semester application

March 15—Tuesday—Deadline for submission of all application materials, College of Medicine, for Fall 1988

June 1—Wednesday—Undergraduates planning to participate in the Summer Advising Conferences, in preparation for the 1988 Fall Semester, should apply for admission or readmission

June 15—Wednesday—Earliest date to submit application for regular and Early Decision Program admission, College of Medicine, for Fall 1989

July 22—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1988 Fall Semester

August 1—Monday—Deadline for application for Early Decision Program, College of Medicine, for Fall 1989

August 10—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1988 Fall Semester in order to register August 22 and avoid $40 late fee

October 15—Saturday—Undergraduates planning to participate in the November Advising Conference for the 1989 Spring Semester should apply for admission or readmission

November 15—Tuesday—Deadline for application, College of Medicine, for Fall 1989

December 1—Thursday—Deadline for submission of application and receipt of all materials for admission, readmission or transfer to the College of Law for the 1989 Spring Semester

December 9—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1989 Spring Semester

December 14—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Spring Semester in order to register January 9 and avoid $40 late fee

Registration

June 20-July 22—Summer Advising Conferences for new freshmen, Community College transfers, advanced standing (transfer) students, auditors, nondegree and readmitted students enrolling for the 1988 Fall Semester

August 22—Monday—Registration for new students who have been cleared for admission but did not advance register

August 24-30—Wednesday through Tuesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.

September 14—Wednesday—Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office

September 14—Wednesday—Last day to file for repeat option in college dean's office if student is retaking a course in the 1988 Fall Semester

November 7—Monday—1989 Spring Semester Advising Conference for new and readmitted undergraduate students

November 9-16—Wednesday through Wednesday—Advance registration for the 1989 Spring Semester

Add/Drop

August 23—Tuesday—Centralized add/drop for Advance Registered students

August 23—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 30—Tuesday—Last day to enter an organized class for the 1988 Fall Semester

August 30—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

September 14—Wednesday—Last day to drop a course without it appearing on the student's transcript

October 17—Monday—Last day to withdraw from a course

October 17—Monday—Last day to withdraw from the University or reduce course load and receive any refund

Withdrawal

August 23—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 30—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

October 17—Monday—Last day to withdraw from the University or reduce course load and receive any refund

Fee Payment

August 3—Wednesday—Last day Advance Registered students may pay $50 to confirm their 1988 Fall Semester registration

August 23—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 30—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

September 7—Wednesday—Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card

September 16—Friday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.

October 17—Monday—Last day to withdraw from the University or reduce course load and receive any refund

December 16—Friday—Last day to request a refund for the 1988 Fall Semester

December 21—Wednesday—Last day Advance Registered students may pay $50 to confirm their 1989 Spring Semester registration

Degrees and Graduation

September 22—Thursday—Last day for filing an application for a December degree in college dean's office

November 3—Thursday—Last day for doctoral candidates for a December degree to submit a Notification of Intent to schedule a final examination in The Graduate School

November 17—Thursday—Last day for candidates for a December degree to schedule a final examination in The Graduate School

December 1—Thursday—Last day for candidates for a December graduate degree to sit for a final examination

December 16—Friday—Last day for candidates for a December degree to submit a thesis/dissertation to The Graduate School

Other Important Dates—Beginning and End of Semester and Academic Holidays

August 20-22—Saturday through Monday—Fall Orientation for all new undergraduate students

August 24—Wednesday—Class work begins

September 5—Monday—Labor Day—Academic Holiday

November 8—Tuesday—Presidential Election—Academic Holiday

November 24-26—Thursday through Saturday—Thanksgiving Holiday—Academic Holidays

December 9—Friday—End of class work

December 12-16—Monday through Friday—Final Examinations

December 16—Friday—End of the 1988 Fall Semester

December 19—Monday—Final deadline for submission of grades to the Registrar's Office by 4 p.m.

1989 Spring Semester

Application for Admission

December 14, 1988—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Spring Semester in order to register January 9 and avoid $40 late fee

February 1—Wednesday—Deadline for submitting application for admission to College of Dentistry for Fall 1989

February 15—Wednesday—Recommended date for freshmen to submit 1989 Fall Semester application

February 15—Wednesday—Last day for submission of application for admission to the College of Law for the 1989 Fall Semester

March 15—Wednesday—Undergraduates planning to participate in the April Advising Conference for the 1989 Summer Sessions should apply for admission or readmission

March 15—Wednesday—Deadline for submission of all application materials, College of Medicine, for Fall 1989

March 31—Friday—Last day for receipt of all supporting credentials for admission to College of Law for the 1989 Fall Semester

April 7—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1989 Summer Sessions

April 26—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Four-Week Intersession in order to register May 8 and avoid $40 late fee

May 24—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Eight-Week Summer Session in order to register June 7 and avoid $40 late fee

June 1—Thursday—Undergraduates planning to participate in Summer Advising Conferences, in preparation for the 1989 Fall Semester, should apply for admission or readmission.

July 21—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1989 Fall Semester

Registration

January 9—Monday—Registration for new students who have been cleared for admission but did not advance register

January 11-17—Wednesday through Tuesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.

January 31—Tuesday—Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office

January 31—Tuesday—Last day to file for repeat option in college dean's office, if student is retaking a course in the 1989 Spring Semester

April 3—Monday—1989 Summer Session Advising Conference for new freshmen, new advanced standing (transfer) students, auditors, readmitted and nondegree students, Community College transfer students and Community College applicants cleared for the 1989 Fall Semester

April 5-12—Wednesday through Wednesday—Advance registration for the 1989 Fall Semester and both 1989 Summer Sessions

Add/Drop

January 10—Tuesday—Centralized add/drop for Advance Registered students

January 10—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

January 17—Tuesday—Last day to enter an organized class for the 1989 Spring Semester

January 17—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

January 31—Tuesday—Last day to drop a course without it appearing on the student's transcript

March 2—Thursday—Last day to withdraw from a course

March 2—Thursday—Last day to withdraw from the University or reduce course load and receive any refund

Withdrawal

January 10—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

January 17—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

March 2—Thursday—Last day to withdraw from the University or reduce course load and receive any refund

Fee Payment

January 10—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

January 17—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

January 24—Tuesday—Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card

February 2—Thursday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.

March 2—Thursday—Last day to withdraw from the University or reduce course load and receive any refund

May 5—Friday—Last day to request a refund for the 1989 Spring Semester

Degrees and Graduation

February 9—Thursday—Last day for filing an application for a May degree in college dean's office

March 23—Thursday—Last day for doctoral candidates for a May degree to submit a Notification of Intent to schedule a final examination in The Graduate School

April 6—Thursday—Last day for candidates for a May degree to schedule a final examination in The Graduate School

April 20—Thursday—Last day for candidates for a May graduate degree to sit for a final examination

April 28—Friday—Last day for doctoral candidates for a May degree who wish to receive a diploma at Commencement to submit dissertation to The Graduate School

May 5—Friday—Last day for candidates for a May degree to submit a thesis/dissertation to The Graduate School

May 7—Sunday—Commencement Day

Other Important Dates—Beginning and End of Semester and Academic Holidays

January 11—Wednesday—Class work begins

January 16—Monday—Martin Luther King, Jr.'s Birthday Observed—Academic Holiday

March 13-18—Monday through Saturday—Spring Vacation—Academic Holidays

April 28—Friday—End of class work

May 1-5—Monday through Friday—Final Examinations

May 5—Friday—End of the 1989 Spring Semester

May 8—Monday—Final deadline for submission of grades to the Registrar's Office by 4 p.m.

May 8-August 19—College of Pharmacy 15-Week Summer Term

1989 Four-Week Intersession

Application for Admission

March 15—Wednesday—Undergraduates planning to participate in the April Advising Conference for the 1989 Summer Sessions should apply for admission or readmission

April 7—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1989 Summer Sessions

April 26—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Four-Week Intersession in order to register May 8 and avoid $40 late fee

May 24—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Eight-Week Summer Session in order to register June 7 and avoid $40 late fee

June 1—Thursday—Undergraduates planning to participate in Summer Advising Conferences, in preparation for the 1989 Fall Semester, should apply for admission or readmission

July 21—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1989 Fall Semester

Registration

April 3—Monday—1989 Summer Session Advising Conference for new freshmen, new advanced standing (transfer) students, auditors, readmitted and nondegree students, Community College transfer students and Community College applicants cleared for the 1989 Fall Semester

May 8—Monday—Registration for new students who have been cleared for admission but did not advance register

May 9-12—Tuesday through Friday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.

May 15—Monday—Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office

May 15—Monday—Last day to file for repeat option in college dean's office, if student is retaking a course in the 1989 Four-Week Intersession

Add/Drop

May 9—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

May 12—Friday—Last day to enter an organized class for the 1989 Four-Week Intersession

May 12—Friday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

May 15—Monday—Last day to drop a course without it appearing on the student's transcript

May 22—Monday— Last day to withdraw from a course

May 22—Monday—Last day to withdraw from the University or reduce course load and receive any refund

Withdrawal

May 9—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

May 12—Friday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

May 22—Monday—Last day to withdraw from the University or reduce course load and receive any refund

Fee Payment

May 9—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

May 12—Friday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

May 22—Monday—Last day to withdraw from the University or reduce course load and receive any refund

May 22—Monday—Last day to pay registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card

June 1—Thursday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.

June 6—Tuesday—Last day to request a refund for the 1989 Four-Week Intersession

Degrees and Graduation

June 28—Wednesday—Last day for doctoral candidates for an August degree to submit a Notification of Intent to schedule a final examination in The Graduate School

Other Important Dates—Beginning and End of Semester and Academic Holidays

May 8—Monday—Beginning of College of Pharmacy 15-Week Summer Term

May 9—Tuesday—Class work begins

May 29—Monday—Memorial Day—Academic Holiday

June 6—Tuesday—Final Examinations

June 6—Tuesday—End of the 1989 Four-Week Intersession

June 9—Friday—Final deadline for submission of grades to the Registrar's Office by 12 noon

1989 Eight-Week Summer Session

Application for Admission

March 15—Wednesday—Undergraduates planning to participate in the April Advising Conference for the 1989 Summer Sessions should apply for admission or readmission

May 24—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Eight-Week Summer Session in order to register June 7 and avoid $40 late fee

June 1—Thursday—Undergraduates planning to participate in the Summer Advising Conferences, in preparation for the 1989 Fall Semester, should apply for admission or readmission

July 21—Friday—Deadline for applying for admission or readmission to The Graduate School for the 1989 Fall Semester

August 9—Wednesday—Deadline for undergraduate and graduate students applying for admission or readmission for the 1989 Fall Semester in order to register August 21 and avoid $40 late fee

Registration

April 3—Monday—1989 Summer Session Advising Conference for new freshmen, new advanced standing (transfer) students, auditors, nondegree and readmitted students, Community College transfer students and Community College applicants cleared for the 1989 Fall Semester

June 7—Wednesday—Registration for new students who have been cleared for admission but did not advance register

June 8-12—Thursday through Monday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $40 late fee is assessed students who register late.

June 19—Monday—Last day to change grading option (pass/fail to letter grade or letter grade to pass/fail; credit to audit or audit to credit) in college dean's office

June 19—Monday—Last day to file for repeat option in college dean's office if student is retaking a course in the 1989 Eight-Week Summer Session

June 19-July 21—Summer Advising Conferences for new freshmen, Community College transfers, advanced standing (transfer) students, auditors, nondegree and readmitted students enrolling for the 1989 Fall Semester.

Add/Drop

June 8—Thursday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

June 12—Monday—Last day to enter an organized class for the 1989 Eight-Week Summer Session

June 12—Monday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

June 19—Monday—Last day to drop a course without it appearing on the student's transcript

July 6—Thursday—Last day to withdraw from a course

July 6—Thursday—Last day to withdraw from the University or reduce course load and receive any refund

Withdrawal

June 8—Thursday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

June 12—Monday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

July 6—Thursday—Last day to withdraw from the University or reduce course load and receive any refund

Fee Payment

June 8—Thursday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

June 12—Monday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

June 21—Wednesday—Last day to pay registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card

June 30—Friday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.

July 6—Thursday—Last day to withdraw from the University or reduce course load and receive any refund

August 2—Wednesday—Last day Advance Registered students may pay $50 to confirm their 1989 Fall Semester registration

August 3—Thursday—Last day to request a refund for the 1989 Eight-Week Summer Session

Degrees and Graduation

June 23—Friday—Last day for filing an application for an August degree in college dean's office

June 28—Wednesday—Last day for doctoral candidates for an August degree to submit a Notification of Intent to schedule a final examination in The Graduate School

July 12—Wednesday—Last day for candidates for an August degree to schedule a final examination in The Graduate School

July 26—Wednesday—Last day for candidates for an August graduate degree to sit for a final examination

August 3—Thursday—Last day for candidates for an August degree to submit a thesis/dissertation to The Graduate School

Other Important Dates—Beginning and End of Semester and Academic Holidays

June 8—Thursday—Class work begins

July 4—Tuesday—Independence Day—Academic Holiday

August 3—Thursday—End of the 1989 Eight-Week Summer Session

August 3—Thursday—Final Examinations

August 7—Monday—Final deadline for submission of grades to the Registrar's Office by 12 noon

August 19—Saturday—End of College of Pharmacy 15-Week Summer Term

COLLEGE OF LAW

1988 Fall Semester

August 22—Monday—Registration
August 23—Tuesday—Add/Drop
August 23—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
August 24—Wednesday—Class work begins
August 30—Tuesday—Last day to add a class for the 1988 Fall Semester
August 30—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
September 5—Monday—Labor Day—Academic Holiday
September 7—Wednesday—Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
September 14—Wednesday—Last day to change grading option (credit to audit or audit to credit)
September 14—Wednesday—Last day to drop a course without it appearing on the student's transcript
September 16—Friday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
September 22—Thursday—Last day to file an application for a December degree
October 17—Monday—Last day to withdraw from a course
October 17—Monday—Last day to withdraw from the University or reduce course load and receive any refund
November 8—Tuesday—Presidential Election—Academic Holiday
November 9-16—Wednesday through Wednesday—Advance registration for the 1989 Spring Semester
November 24-26—Thursday through Saturday—Thanksgiving Holiday—Academic Holidays
December 1—Thursday—Deadline for submission of application and receipt of all materials for admission, readmission or transfer into the 1989 Spring Semester
December 2—Friday—End of class work
December 3-5—Saturday through Monday—Law Examination Reading Period
December 6-17—Tuesday through Saturday—Law Final Examination Period
December 17—Saturday—End of the 1988 Fall Semester

1989 Spring Semester

January 9—Monday—Registration
January 10—Tuesday—Add/Drop
January 10—Tuesday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
January 11—Wednesday—Class work begins
January 16—Monday—Martin Luther King, Jr.'s Birthday Observed—Academic Holiday
January 17—Tuesday—Last day to add a class for the 1989 Spring Semester
January 17—Tuesday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
January 24—Tuesday—Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
January 31—Tuesday—Last day to change grading option (credit to audit or audit to credit)
January 31—Tuesday—Last day to drop a course without it appearing on the student's transcript
February 2—Thursday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
February 9—Thursday—Last day to file an application for a May degree
February 15—Wednesday—Last day for submission of application for admission for the 1989 Fall Semester
March 2—Thursday—Last day to withdraw from a course
March 2—Thursday—Last day to withdraw from the University or reduce course load and receive any refund
March 13-18—Monday through Saturday—Spring Vacation—Academic Holidays
April 5-12—Wednesday through Wednesday—Advance registration for the 1989 Summer Session and the 1989 Fall Semester
April 21—Friday—End of class work
April 22-25—Saturday through Tuesday—Law Examination Reading Period
April 26-May 6—Wednesday through Saturday—Law Final Examination Period
May 6—Saturday—End of the 1989 Spring Semester
May 7—Sunday—122nd Annual Commencement

1989 Summer Session

June 7—Wednesday—Registration
June 8—Thursday—Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees
June 8—Thursday—Class work begins
June 12—Monday—Last day to add a class for the 1989 Summer Session
June 12—Monday—Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund
June 19—Monday—Last day to change grading option (credit to audit or audit to credit)
June 19—Monday—Last day to drop a course without it appearing on the student's transcript
June 21—Wednesday—Last day for payment of registration fees and/or housing and dining fees in order to avoid cancellation of registration and/or meal card
June 23—Friday—Last day to file an application for an August degree
June 30—Friday—Last day for reinstatement of students cancelled for nonpayment of registration fees and/or housing and dining fees. Requires payment of fees and may require payment of $50 reinstatement fee.
July 1—Saturday—Deadline for application and submission of all materials for transfer from another law school into the 1989 Fall Semester
July 4—Tuesday—Independence Day—Academic Holiday
July 6—Thursday—Last day to withdraw from a course
July 6—Thursday—Last day to withdraw from the University or reduce course load and receive any refund
July 28—Friday—End of class work
July 29-30—Saturday through Sunday—Law Examination Reading Period
July 31-August 3—Monday through Thursday—Law Final Examination Period
August 3—Thursday—End of the 1989 Summer Session

COLLEGE OF MEDICINE

Fall 1988

August 1—Monday—Third-year students begin classes. Last day for third-year students to withdraw from the College of Medicine for a full refund of fees.

August 8—Monday—Last day for third-year students to withdraw from the College of Medicine and receive an 80 percent refund

August 12—Friday—First-year students—registration and orientation

August 16—Tuesday—First-year students begin classes. Last day for first-year students to withdraw from the College of Medicine for a full refund of fees.

August 22—Monday—Second-year students register and begin classes. Last day for second-year students to withdraw from the College of Medicine for a full refund of fees.

August 22—Monday—Last day for first-year students to withdraw from the College of Medicine and receive an 80 percent refund

August 29—Monday—Fourth-year students begin rotations. Last day for fourth-year students to withdraw from the College of Medicine for a full refund of fees.

August 29—Monday—Last day for second-year students to withdraw from the College of Medicine and receive an 80 percent refund

September 5—Monday—First- and second-year students—Labor Day Holiday

September 6—Tuesday—Last day for fourth-year students to withdraw from the College of Medicine and receive an 80 percent refund

September 19—Monday—Last day for third-year students to withdraw from the College of Medicine and receive any refund

October 3—Monday—Last day for first-year students to withdraw from the College of Medicine and receive any refund

October 10—Monday—Last day for second-year students to withdraw from the College of Medicine and receive any refund

October 17—Monday—Last day for fourth-year students to withdraw from the College of Medicine and receive any refund

October 22-November 6—Interviewing—Two-week break for fourth-year students

November 15—Tuesday—Last day for candidates applying to the College of Medicine to submit their applications to AMCAS

November 24—Thursday—Third- and fourth-year students—Thanksgiving Holiday

November 24-26—Thursday-Saturday—First- and second-year students—Thanksgiving Holiday

December 16—Friday—First- and second-year students begin Winter Break (after last exam)

December 17—Saturday—Third- and fourth-year students begin Winter Break

Spring 1989

January 2—Monday—All students register and return to class. Last day to withdraw from the College of Medicine and receive a full refund.

January 9—Monday—Last day to withdraw from the College of Medicine and receive an 80 percent refund

January 16—Monday—Martin Luther King, Jr.'s Birthday Observed—Academic Holiday

January 18—Wednesday—Student Research Day

February 20—Monday—Last day to withdraw from the College of Medicine and receive any refund

March 15—Wednesday—Deadline for submission of all application materials, College of Medicine, for Fall 1989

March 13-18—Monday through Saturday—First- and second-year students—Spring Break

April 26—Wednesday—Student Awards Day

May 5—Friday—End of academic year for fourth-year students

May 6—Saturday—End of academic year for second-year students

May 8-12—Monday through Friday—Senior Week

May 13—Saturday—College of Medicine graduation

May 26—Friday—End of academic year for first-year students

August 11—Friday—End of academic year for third-year students

COLLEGE OF DENTISTRY

Summer 1988

May 31-June 24—Extended session

May 31-August 13—Extramural period

Fall 1988

August 8—Monday—Orientation begins for first- and second-year students. Last day for second-year students to withdraw from the College of Dentistry for a full refund of fees.

August 9—Tuesday—Classes begin for second-year students. Last day for first-year students to withdraw from the College of Dentistry for a full refund of fees.

August 10—Wednesday—Classes begin for first-year students

August 15—Monday—Orientation begins for third- and fourth-year students. Last day for second-year students to withdraw from the College of Dentistry and receive an 80 percent refund.

August 16—Tuesday—Last day for first-year students to withdraw from the College of Dentistry and receive an 80 percent refund. Last day for third- and fourth-year students to withdraw from the College of Dentistry for a full refund of fees.

August 17—Wednesday—Classes begin for third- and fourth-year students

August 23—Tuesday—Last day for third- and fourth-year students to withdraw from the College of Dentistry and receive an 80 percent refund

September 5—Monday—Labor Day—Academic Holiday

October 17—Monday—Last day for second-year students to withdraw from the College of Dentistry and receive any refund (50 percent)

October 18—Tuesday—Last day for first-year students to withdraw from the College of Dentistry and receive any refund (50 percent)

October 25—Tuesday—Last day for third- and fourth-year students to withdraw from the College of Dentistry and receive any refund (50 percent)

November 8—Tuesday—Presidential Election—Academic Holiday

November 24-26—Thursday through Saturday—Thanksgiving Holiday—Academic Holidays

December 21—Wednesday—Winter Vacation begins at noon

Spring 1989

January 9—Monday—Classes resume for all students

January 16—Monday—Martin Luther King, Jr.'s Birthday Observed—Academic Holiday

March 13-18—Monday through Saturday—Spring Vacation

April 28—Friday—ASDA Day—No classes

May 5—Friday—End of academic year for graduating students

May 7—Sunday—University Commencement and College of Dentistry Graduation Program

May 29—Monday—Memorial Day—Academic Holiday

June 2—Friday—End of academic year for continuing students

THE UNIVERSITY

When the University of Kentucky elected to be a university as opposed to a liberal arts college or professional school, it was bound by the traditions of American higher education to function in certain ways. Thus, it established itself as a complex institution with both a liberal arts school and a number of professional schools. It committed itself to a broad program of quality research; it embarked upon an extensive program of graduate studies; and it dedicated itself to accumulating and preserving knowledge and to maintaining an atmosphere which would contribute to high intellectual endeavor.

As the state's comprehensive institution, the University of Kentucky is charged with the missions of teaching, research, and service. These missions are not unrelated; rather, they are complementary. The benefits for teaching that come from a professor's research activities are associated not only with the depth of knowledge of the subject and his or her understanding of the methods of finding new knowledge but also with the professor's commitment to the subject and its advancement. At all levels of undergraduate instruction, the deep, rich knowledge of a subject that the teacher/researcher brings to the classroom can lead to an enhancement of the learning experience. The teacher is able to discuss believable and relevant examples from his or her own research; these examples give a reality and special vitality to the subject.



Teaching

Out of the undergraduate colleges and the graduate schools of America come the greater portion of the nation's leaders and informed citizens. The curricula of a state university should be so designed and its teachings so directed that the state and the nation will have more men and women of intellectual interest and achievements; men and women possessing character, ideas, ingenuity, moral responsibility, and general competence; men and women who can provide the knowledge and technical skills to cope with a national and world situation growing ever more complex and difficult.

Research

It is the business of a state university to advance the frontiers of knowledge in all areas of concern to modern society. Much research, in other words, should be done with no compulsion other than the urge to see beyond the present borders of knowledge.

On the other hand, the research program of a state university, and particularly a land-grant institution, cannot ignore the contemporary requirements of state and nation. Rather, the program should be effectively correlated with non-university research, and it should seek solutions to the acute problems of society whether they are economic, technological, social, cultural, or moral.

Service

The state university has found that it cannot have the desired impact on society unless its teaching is extended beyond the campus classroom, unless its research is in some measure translated into economic and social improvements, and unless its leadership and example elevate the cultural and moral tone of its nearer and farther communities.

Certain divisions, centers, and programs within the University facilitate the institution's contributions to the citizens of the state. Examples include the University's libraries, the Experiment Station and the Cooperative Extension Service of the College of Agriculture, the Community College System, the Center for Business Development, the Center for Human Development, the Center for Professional Development in the College of Education, the Career Planning and Placement Center, The University Press of Kentucky, telecommunications studios, University Extension's programs for independent study, off-campus, evening-weekend courses, Japanese Saturday School, and Saturday Seminars, the University's Center at Fort Knox, the Office of Engineering Services, the Office of Instructional Resources, the Univer-

sity of Kentucky Research Foundation, the Survey Research Center, the University Hospital and related services, the Martin School of Public Administration, the Computing Center, the Council on Aging, the Donovan Senior Citizens Fellowship Program, continuing education programs, the Appalachian Center, and many others.

HISTORY

Over a century ago the miracle of public higher education was mainly a dream. Among the eloquent spokesmen of that dream was John B. Bowman, first regent of the Agricultural and Mechanical College of Kentucky University, who said in 1865:

> *I want to build up a people's institution, a great free university, eventually open and accessible to the poorest boy in the land, who may come and receive an education practical and suitable for any business or profession in life. I want to cheapen this whole matter of education, so that, under the broad and expansive influences of our republican institutions, and our advancing civilization, it may run free, as our great rivers, and bless the coming millions.*
>
> *Hitherto, our colleges and universities have been accessible only to the few, such are the expenses attending them. We therefore want a university with all the colleges attached, giving education of the highest order to all classes. We want ample grounds and buildings and libraries, and apparatus, and museums and endowments, and prize funds, and professors of great heads and hearts, men of faith and energy. Indeed we want everything which will make this institution eventually equal to any on this continent. Why should we not have them? I think we can.*

Bowman's statement was made the year the University of Kentucky was established. Today the institution is among the 93 state universities and land-grant institutions in America which are the fulfillment of this dream.

The school was started as part of Kentucky University under a cooperative plan authorized by the legislature. In 1878, when the people of Kentucky decided to establish a state institution of higher learning, the Agricultural and Mechanical College was separated from Kentucky University and reestablished on land given by Lexington and Fayette County. To provide a separate campus for the new institution, the city of Lexington had donated its 50-acre fairground and park, which had been utilized as a bivouac area for Union troops during the Civil War. Lexington and Fayette County contributed $60,000 for the construction of buildings, and President James K. Patterson, whose service to the institution began in 1869, used his personal savings to supplement the building fund. Thirty years later the legislature changed the name of the institution to State University, Lexington, Kentucky, and gave it additional financial support. In 1916 the name was changed to the University of Kentucky.



David P. Roselle

In the more than fourscore years that have passed since its establishment as a separate state institution, the University of Kentucky has had only nine presidents:

James K. Patterson, 1878-1910
Henry S. Barker, 1910-1917
Frank L. McVey, 1917-1940
Herman L. Donovan, 1941-1956
Frank G. Dickey, 1956-1963
John W. Oswald, 1963-1968
Albert D. Kirwan, 1968-1969
Otis A. Singletary, 1969-1987
David P. Roselle, 1987-

From an enrollment of 273 students in 1876, the University has grown to a vibrant institution of more than 22,000 students and approximately 8,000 faculty and staff. The campus today includes more than 100 major buildings, some history-laden structures dating back to the 1800s with renovated interiors, others, modern teaching and research facilities. In addition, the 14 community colleges are part of the University of Kentucky system, advancing Bowman's dream of providing quality education for all citizens of the Commonwealth.

UNDERGRADUATE ADMISSION

ADMISSIONS PHILOSOPHY

The University of Kentucky is the Commonwealth's only institution of higher education with statewide responsibilities. These responsibilities determine the University's role as the principal institution for comprehensive research and service programs. The University's role results in special emphasis being placed upon upper division undergraduate, graduate, and professional levels of education. Consistent with its programs and emphases, the University seeks, therefore, to admit, enroll, and retain an academically highly qualified and diverse undergraduate student body. The University's admissions policies thus are directed to meeting these ends.

GENERAL INFORMATION

The admission of all students to the University of Kentucky is under the authority of the Director of Admissions. The handling of applications and other documents related to the admissions process is conducted by the Undergraduate Admissions Office, except in the case of application to The Graduate School, the College of Medicine or Dentistry, or the University of Kentucky Center at Fort Knox. All other inquiries concerning admission, requests for applications, completed applications, test results, and other required admissions documents should be directed to:

Undergraduate Admissions Office
100 Funkhouser Building
University of Kentucky
Lexington, KY 40506-0054
(606) 257-7148

The University of Kentucky is committed to a policy of providing educational opportunities to all qualified students regardless of economic or social status, and will not discriminate on the basis of race, color, religion, sex, marital status, beliefs, age, national origin, or handicap.

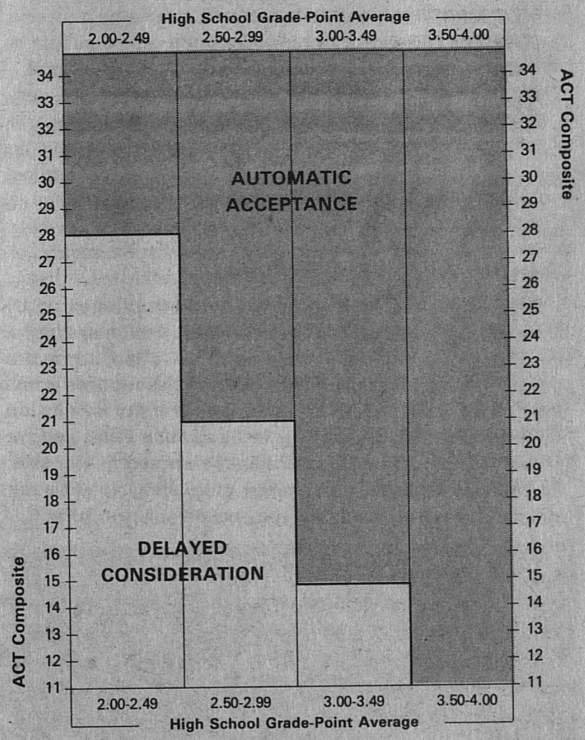
All students attending the University are also enrolled in one of the various colleges, each under the supervision of an academic dean. Each college is made up of several academic departments and offers different major fields of study.

The general University admissions requirements and procedures for freshmen and transfer students are outlined in the sections to follow. **All applicants should be aware that certain colleges and some programs within colleges have admission standards and criteria which are higher than those for general admission to UK. Also, some programs have application procedures and deadlines which differ from those for general University admission.** Applicants should refer to *Special Application Dates and Procedures* for information on deadlines and procedures for selective admissions colleges and programs. Detailed information on admissions criteria is provided in the college sections of this Bulletin.

FRESHMAN ADMISSION TO THE UNIVERSITY

Freshman admission to the University of Kentucky is based upon high school grades, American College Test (ACT) results, and successful completion of the required pre-college curriculum.

FRESHMAN ADMISSION, FALL 1989



AUTOMATIC ACCEPTANCE—Students whose ACT scores and high school GPA fall within this range will be automatically accepted, subject to successful completion of the minimum pre-college curriculum.

DELAYED CONSIDERATION—Students whose ACT scores and high school GPA fall within this range will be considered for admission on a delayed basis, subject to successful completion of the minimum pre-college curriculum.

An applicant who has a high school grade-point average which is less than 2.0 on a 4.0 scale ("C" average) or who has an ACT composite score of 10 or less will not be accepted for admission to the University.

Applicants should keep in mind that admissions decisions are based primarily on the probability for academic success, using high school grades and ACT scores together as predictors for academic success.

The University of Kentucky prefers that applicants shall have taken the ACT examination. Applicants may be considered for admission, however, on the basis of Scholastic Aptitude Test (SAT) scores. For further information, students should contact the Undergraduate Admissions Office.

Student athletes who do not meet standards for automatic acceptance may be admitted if they meet Southeastern Conference and National Collegiate Athletic Association academic eligibility requirements.

Pre-College Curriculum

The University of Kentucky desires that incoming freshmen have the high school preparation necessary for academic success at the college level. To be admitted to the University of Kentucky under the admissions policy outlined previously, an applicant must have completed successfully the following high school courses as a minimum:

Two of these: Biology I, Chemistry I, Physics I
English I, II, III, and IV
Algebra I, Geometry I, and Algebra II
U.S. History and World Civilization/World History

A total of 20 units or more must be completed in high school.

In addition, it is recommended that high school students complete at least two years of a foreign language, one additional year of mathematics beyond Algebra II and one year of fine arts.

Information concerning exceptions to this policy may be obtained from the Undergraduate Admissions Office.

Selective Colleges and Programs

Some colleges and programs within colleges at UK have admissions standards and criteria which are higher than those for general admission to UK. Also, some programs have deadlines and application procedures which may differ from those for general University admission. Applicants should refer to *Special Application Dates and Procedures* for information on procedures and deadlines for selective admissions programs. Detailed information on admissions criteria is provided in the college sections of this Bulletin.

APPLICATION PROCEDURES FOR FRESHMEN

All freshman applicants should take the American College Test by December of the senior year of high school in order to receive consideration for admission by the priority date. High school students may take the test as early as the junior year. High school guidance counselors should be able to provide students with ACT registration forms, information about registration deadlines, test dates, and locations.

Students may apply for admission by submitting an application, available from the Undergraduate Admissions Office. High school transcripts and official ACT score results must be sent to the Undergraduate Admissions Office.

There is an application fee.

Students should refer to the University Calendar on page 5 for general University admission dates.

High School Students with Exceptional Ability

The University realizes that not all first-time applicants are typical graduating seniors and therefore makes provisions for consideration of other types of applicants. Through UK's Exceptional Ability program, high school students may be permitted to enroll in classes at UK before high school graduation. Students of exceptional ability may be considered for admission prior to graduation after a thorough review of their academic performance, ACT scores, and other criteria.

High school juniors of superior ability sometimes wish to begin college study early. UK's High School Junior program offers outstanding juniors the opportunity to enroll in freshman-level classes during the Eight-Week Summer Session. High school juniors considering this program should be aware that the February ACT is the last test date for which results can be available in time for summer acceptance.

Detailed information on the Exceptional Ability program and the High School Junior program may be obtained from the Undergraduate Admissions Office.

Other opportunities for high school students include independent study (correspondence) courses and dual credit programs such as UK's College Connection. More information about these programs appears in the *University Extension* section of this Bulletin.

High School Equivalency Certificates

An applicant for admission to the freshman class who is not a high school graduate but who presents a valid High School Equivalency Certificate and General Education Development test scores may be considered for admission. Such applicants must also take the ACT and have the results reported to the Undergraduate Admissions Office.

TRANSFER ADMISSION TO THE UNIVERSITY

Students at other colleges or universities, including UK community colleges, will be permitted to transfer to the University of Kentucky if they meet **one** of the following criteria:

1. A student who would have been automatically accepted to UK at the time he or she entered the first institution attended will be allowed to transfer at any time to UK provided that he or she has a cumulative grade-point average of 2.0 or better for all work attempted and has a cumulative grade-point average of 2.0 or better for all work attempted at the last institution, provided at least 12 credit hours (or the equivalent thereof) were attempted at the last institution attended.
2. A student who would not have been automatically accepted but has completed 24 semester hours or more and achieved a cumulative grade-point average of 2.0 or better for all college and university work attempted and has a cumulative grade-point average of 2.0 or better for all work attempted at the last institution attended will be allowed to transfer to UK.

Applicants should note that the grade-point average is computed by the Undergraduate Admissions Office and reflects the grade and credit for each course attempted, regardless of the practice of the offering institution of waiving a low grade for a repeated course.

There is an application fee.

Students should refer to the University Calendar on page 5 for general University admission dates.

Selective Colleges and Programs

Some colleges and programs within colleges at UK have admissions standards and criteria which are higher than those for general admission to the University. Also, some programs have deadlines and application procedures which may differ from those for general University admission. Applicants should refer to *Special Application Dates and Procedures* for information on procedures and deadlines for selective admissions programs. Detailed information on admissions criteria is provided in the college sections of this Bulletin.

APPLICATION PROCEDURES FOR TRANSFER STUDENTS

Transfer applicants from other colleges and universities, including UK community colleges, should request an application packet from the Undergraduate Admissions Office. Applicants must submit the following to the Undergraduate Admissions Office:

1. A completed application to the University;
2. One official transcript from each college or university attended, containing a complete record of all courses completed at the time of application;
3. A roster of courses in which the student is currently enrolled;
4. A final official transcript of any additional work completed before entering the University.

Applicants will be notified of their status upon receipt and review of admissions documents. **Candidates tentatively accepted at the time of application should be aware that the University will cancel the application and/or the early registration of an applicant whose final official record, after completion of a current semester, shows ineligibility because of suspension, dismissal, or drop in grade-point average below the required 2.0.**

Accepted students should plan to bring a copy of the catalog of the last school attended when reporting for the Advising Conference.

TRANSFER OF CREDIT

Credit earned at UK Community Colleges

Grades, credits, quality points, and academic status from courses taken at a UK community college are transferred when the community college student enrolls at the University. The applicability of any given courses not offered in the University system towards a University degree will be determined by the dean of the college in which the student enrolls.

Credit Earned at Other Institutions

The University accepts collegiate-level degree credits earned at a fully accredited college or university. "Fully accredited" means that the institution is a member in good standing of one of the six regional academic accrediting associations. Transfer work from institutions outside the United States is evaluated on an individual basis upon receipt of official transcripts.

The general acceptance of course work is done by the Undergraduate Admissions Office. The dean of the academic college or school in which a student will be enrolled determines the applicability of transferred work to each degree program. This is usually done prior to the Advising Conference, since both the acceptability of the course work and its applicability towards a program will have been determined by that time. Consulting with individual departments in advance, however, may help the student in choosing a program and in understanding the requirements for the completion of a degree program at the University.

Students who have taken nontransferable courses at other institutions may, after entrance into the University, request to be examined for credit in a University course in the same discipline.

Students transferring directly from a junior college or two-year branch may not transfer more than 67 semester hours of credit to the University of Kentucky. Students transferring from a four-year college who have previously attended a two-year college will be limited to 67 semester hours of the two-year college work. The work from the four-year college will be evaluated separately.

In some cases, credit earned at a school which is not a member of an accrediting association may be validated for acceptance by the University after the student enrolls and completes 24 semester hours of University work with at least a 2.0 grade-point average. This work must be in a normal degree sequence and approved by the proper academic authorities. However, in other cases, there can be no acceptance by the University of credit earned at unaccredited schools. The student will be notified upon receipt of his or her application and official transcript if the work presented can or cannot be considered for validation.

The transfer applicant should be aware that regardless of the number of transfer hours the University may declare acceptable, all candidates for a bachelor's degree must complete 30 of the last 36 hours of their program from the University.

OTHER CATEGORIES OF ADMISSION

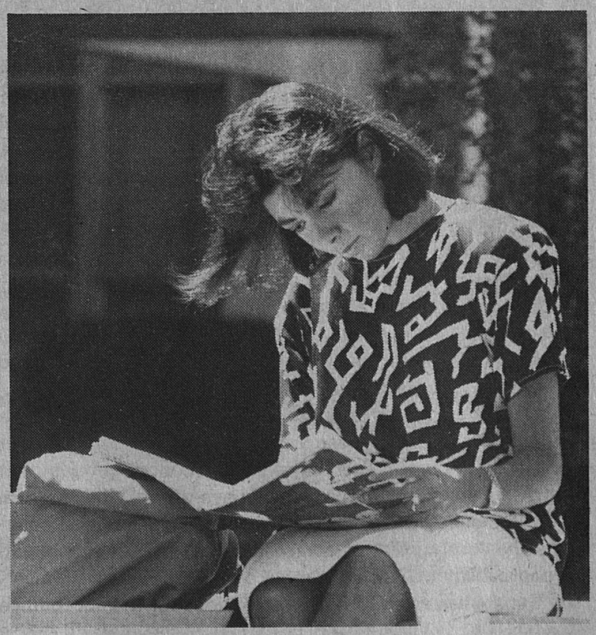
Candidates for Readmission

Former University students in good standing who have not attended another institution since their last enrollment here are eligible for readmission. However, they must file an application for readmission. An exception to this is made on behalf of students who attend only University summer sessions.

Former University students who have been enrolled elsewhere since attending the University must be in good standing at the University and also be eligible as transfer students on the basis of the grade average earned and good standing at another institution.

Applications for readmission cannot be accepted from students under suspension by any unit within the University, regardless of their current status with another institution, unless they are reinstated into the University by the dean of the college or school in which they will enroll, if the suspension is academic, or by the appropriate University office, if the suspension is nonacademic. If a student is reinstated, he or she must file an application for readmission by the stated deadline.

It is only by the filing of an application for readmission in advance that the Undergraduate Admissions Office can be alerted to the fact that a student intends to reenter the University and have the necessary forms prepared in time for registration.



Nondegree Students

Individuals who desire to take courses for credit, but who do not intend to pursue a degree, should apply for admission as nondegree students. To be admitted as a nondegree student, an applicant must meet the following criteria:

1. The high school class of a nondegree applicant must have graduated at least two years prior to the applicant's anticipated semester of enrollment unless the applicant will be on active military duty during his or her tenure as a nondegree student.
2. Former University degree students will not be admitted as nondegree students without a bachelor's degree or its equivalent unless they left the University in good standing or have been reinstated following academic suspension.
3. No one may continue to enroll as a nondegree student after earning 24 semester hours in this status without the special permission of the dean of the college in which the student is enrolled.

Nondegree students may become degree-seeking students after meeting regular University and program admissions criteria. Applicants who earned fewer than 24 semester credit hours at this University must meet the University's standards for automatic acceptance as first-time freshmen. Applicants who have earned 24 or more semester hours will be considered transfer students for admission purposes.

Credit earned as a nondegree student will be evaluated for applicability toward a degree by the dean of the college in which the student is enrolled.

Nondegree students must meet course prerequisites or obtain the consent of the instructor to enroll in a course. Successful completion of course work as a nondegree student does not ensure admission as a degree-seeking student, and no graduate or professional credit is awarded for courses taken while an individual is enrolled as a nondegree student.

Auditors

A student may enroll in the University as an auditor, receiving no grades or credit for courses taken. The fees are the same as the student would pay for enrollment for credit. Auditors cannot change to credit status after the beginning of class work, and cannot be considered for admission to earn credit except by being admitted to a degree program in the University as a regular student by filing the required documents by the deadline for a subsequent semester. A student under suspension cannot be admitted as an auditor.

Transient Students

A transient is a visiting student who has been attending another school. Transient students must meet the same admissions requirements as transfer students. Admission as a transient is granted for only one semester.

Conversely, University students may earn a limited amount of credit toward a baccalaureate degree by enrolling at another school, provided they have the prior approval of their dean and adviser, and provided the other school is fully accredited and the course work meets the University specifications for the acceptance of credit from other schools. The student should consult with an adviser or dean well in advance of enrollment at another institution. If such enrollment is concurrent with that at the University, the student must have the specific approval of the appropriate dean. It is the student's responsibility to determine the acceptability of course work at another school and its applicability toward the degree program. Since the University Senate has established the conditions for the acceptance of credit earned at other schools, improper enrollment at other institutions will necessarily result in the loss to the student of credit earned elsewhere.

A University student who enrolls elsewhere for only a summer session between a spring enrollment at UK and the following fall semester does not need to reapply for admission for the fall semester. However, arrangements must be made for transcripts of summer work to be sent to the Undergraduate Admissions Office immediately following the end of the summer session.

International Students

UK is authorized under federal law to enroll qualified nonimmigrant international students.

Due to the nature of the work involved and the time required to determine whether or not an undergraduate student from another country can be admitted to the University, it is necessary that these students apply for admission at least six months before the opening of the semester in which they wish to enroll. Admission is very competitive and preference is given to those applicants who are best qualified academically. The University's academic requirements for admission must be met, and all necessary documents relating to academic records, financial ability, competency in the English language, and physical health must be received before permission to enroll and the I-20 Form can be issued. All documents should be official or certified as being official. In some cases, it may be necessary for a student from a non-English speaking country to provide, upon request from the University, an accurate translation into English of the official school records, including the content of certain courses.

International students must undergo a physical examination at UK's Student Health Service prior to enrollment. Additionally, international students on nonimmigrant visas must carry medical and hospitalization insurance.

All applicants, in order to be considered for admission, must have at least $8,000 for each academic year of planned attendance. This amount will cover present tuition fees, books, and living expenses from the fall semester through the spring semester. Health insurance, summer school attendance, travel, or support of dependents will require additional funds. All costs are subject to change.

Every student whose native language is other than English and who is not a citizen is required to take the Test of English as a Foreign Language (TOEFL) prior to approval for admission. ("Native language" is defined as an individual's first acquired language of communication.) This test may be waived for such students who can present an official transcript of satisfactory work taken at an accredited American college, or a college in another country where English is the native language.

Applicants should have a score of 525 on the TOEFL to be eligible for general admission to UK. Some colleges and departments require a score of 550.

The Test of English as a Foreign Language is offered by the Educational Testing Service and may be taken at various test centers throughout the world. It is the applicant's responsibility to obtain the necessary information and application forms, and to arrange to take the test by a date which will assure that the results are reported to the University by the required deadlines.

For those students with marginal scores on the Test of English as a Foreign Language (TOEFL), the English Department offers an intensive program in English as a Foreign Language, designed to improve both oral and writing skills in English. Com-

pletion of this program does **not** guarantee admission to the University. For complete details about the program, students should write to Center for English as a Second Language, English Department, 1215 Patterson Office Tower, University of Kentucky, Lexington, KY 40506-0027.

QUESTIONS CONCERNING ADMISSIONS DECISIONS

All applicants to the University of Kentucky have the right to question or appeal admissions decisions. Applicants wanting to appeal should write a letter to the Undergraduate Admissions Office clearly stating the specific circumstances for requesting an appeal.

ADVISING CONFERENCES

All new freshman and transfer students are required to attend an Advising Conference as assigned at the time of admission unless excused by permission of the University Registrar in special circumstances and emergencies. During the conference, students meet with an academic adviser, register for classes, and have the opportunity to learn more about the campus and what to expect from University life.

Advising Conferences for students entering in the fall semester are scheduled in late June or during the month of July. For students accepted for admission to a spring semester, the Advising Conferences are held the preceding November. For the summer sessions, these conferences are usually held in April.

When accepted for admission to the University, the student receives full information about the Advising Conference.

Merit Day

The University of Kentucky invites academically talented students and their parents to attend a special advising conference called Merit Day. This program replaces the June or July Summer Advising Conference and allows Merit Day students a higher priority in class selection. Merit Day is usually held in early spring.

RETENTION

The University attempts to admit only students whose ability and preparation indicate that they have a good chance of succeeding at a major state university. While many students attend school full-time, others work and take classes on a part-time basis. Of those admitted to a freshman class, 40 to 45 percent graduate within 5 years. A total of 55 percent or more of an entering class may graduate within 10 years.

Whether and when a student graduates depends on many factors, such as commitment and motivation, which are impossible to measure ahead of time. University studies have shown that students are most likely to graduate if:

- they have strong academic preparation in high school, including completion of the recommended pre-college curriculum with above-average grades and high scores on college entrance tests.
- they have good study habits and are able to budget their time.
- they work fewer than 20 hours a week, preferably on campus.
- they live in the residence halls, at least during the freshman and sophomore years.
- they are involved in some campus activity on a regular basis.
- they are committed to graduating and attending graduate or professional school.



SPECIAL APPLICATION DATES AND PROCEDURES

For Admission To	Submit	By Deadlines For Fall	Spring	Summer
COLLEGE OF AGRICULTURE—LANDSCAPE ARCHITECTURE				
Freshmen	ACT, Applicaton	Feb. 1		
Transfers from non-Landscape Architecture Programs	Application, Transcript(s)	Feb. 1		
Transfers from other Landscape Architecture Programs	Application, Transcript(s), Portfolio	April 15	Sept. 15	
COLLEGE OF ALLIED HEALTH PROFESSIONS				
Professional Program Applicants (Students who have completed 60 hours or more at UK, UK Community Colleges, or other accredited colleges or universities)	**Allied Health Education** UK, Professional Program Applications, All supporting credentials	June 1*	Oct. 1*	April 1*
	Community Health UK, Professional Program Applications, All supporting credentials	June 1*	Oct. 1*	
	Medical Technology UK, Professional Program Applications, All supporting credentials	Feb. 15*	Sept. 15*	
	Physical Therapy UK and Professional Program Applications	Jan. 1		
	Transcript(s), ACT Scores	Feb. 15		
	Physician Assistant UK and Professional Program Applications	Jan. 1*		
	All supporting credentials	Feb. 15*		
COLLEGE OF ARCHITECTURE				
Freshmen	ACT, Application	Feb. 1		
	Project	March 4		
Transfer Students	Application, Transcript(s)	Feb. 1		
	Project or Portfolio	March 4		
COLLEGE OF ARTS AND SCIENCES—COMPUTER SCIENCE				
Transfer Students (Students who have completed 60 hours or more at UK, UK community colleges, or other accredited colleges or universities)	Application, Transcript(s), Courses in Progress	March 1	Oct. 1	March 1
COLLEGE OF BUSINESS AND ECONOMICS				
Professional Program Applicants (Students who have completed 60 hours or more at UK, UK Community Colleges, or other accredited colleges or universities)	Application, Transcript(s), Courses in Progress	June 1	Oct. 15	April 1
COLLEGE OF COMMUNICATIONS				
Applicants to major programs (Students who have completed 45 semesters of course work)	Application, Transcript(s), Courses in Progress	March 1**	Oct. 1**	March 1**
COLLEGE OF ENGINEERING—UPPER DIVISION				
On-campus Students (currently enrolled)	Application, Transcript(s), Courses in Progress	Feb. 1	Sept. 15	Feb. 1
Off-campus Students	Application, Transcript(s), Courses in Progress	May 15	Oct. 1	March 1
COLLEGE OF LAW				
First-year Students	Law Application	Feb. 15		
	LSDAS Report	March 31		
Transfer Students	Law Application, Transcript(s), Credentials	June 1	Dec. 1	May 15
COLLEGE OF NURSING				
Freshmen (4-year program)	ACT, Application	March 1*		
Transfer Students (4-year program)	Applicaton, Transcript(s), ACT if required	March 1*		
RNs only	Application, Credentials	March 1*		
COLLEGE OF PHARMACY				
Professional Program Applicants (Students who have completed 66 hours or more at UK, UK community colleges, or other accredited colleges or universities)	Application, Transcript(s), Other required credentials	Feb. 1		

*Applications received after the published deadline will be considered on a space-available basis only.

**Transfer students who do not wish to be included in advance registration may apply later—by July 1, for fall; by November 15, for spring; by April 1, for summer.

FEES

RESIDENCY REQUIREMENTS

According to law, the University of Kentucky and all other state-supported institutions of higher education assess tuition fees on the basis of Kentucky or non-Kentucky residence. The policy for determining residence is established by the Commonwealth of Kentucky Council on Higher Education. The current policy is published below. It is subject to change without notice.

Students who are unsure of their residence status should check with the Registrar's Office before applying for admission.

POLICY ON CLASSIFICATION OF STUDENTS FOR ADMISSION AND FEE ASSESSMENT PURPOSES AT PUBLIC INSTITUTIONS OF HIGHER EDUCATION

SECTION 1. PURPOSE. The Commonwealth of Kentucky employs residency requirements in various ways to determine voting rights, income tax liability, employment in certain occupations, etc., and the requirements vary in form and substance for each of these uses. The purpose of this policy is to establish a process and corresponding criteria for the residency classification of students seeking admission to, or enrolled in, public institutions of higher education. Furthermore, it is the intent of the Council on Higher Education that this policy be interpreted and applied in a uniform manner, as described herein, in determining whether students shall be classified as residents or nonresidents for admission and fee assessment purposes.

RATIONALE. Public institutions of higher education were established and are maintained by the Commonwealth primarily for the benefit of qualified residents of Kentucky. The substantial commitment of public resources to higher education is predicated on the proposition that the state benefits significantly from the existence of an educated citizenry. As a matter of policy, access to higher education is provided so far as practicable at reasonable cost to residents of the state. It is the long-standing practice of the Council on Higher Education to require students who are not Kentucky residents to meet higher admission standards and to pay a higher level of tuition than resident students whose presence in the state reasonably assures that they or, in appropriate instances, their parents have already contributed, or will contribute, substantially to the state in their capacity as resident citizens.

SECTION 2. DEFINITIONS. The language of this policy on residency classification contains some legal terms as well as everyday terms which, of necessity, have specialized meaning in the determination of residency for admission and fee assessment purposes. The following definitions shall be controlling in the interpretation and application of this policy. Wherever used in this policy:

(1) The terms "institution of higher education" or "college" shall refer to all institutions, public or private, offering instruction and conferring degrees beyond the secondary school level, such as four-year colleges/universities, seminaries, two-year institutions (community colleges and junior colleges), and postsecondary vocational/technical schools.

(2) The word "domicile" shall denote a person's true, fixed, and permanent home. It is the place where he or she intends to remain, and to which he or she expects to return when he or she leaves without intending to establish a new domicile elsewhere. "Legal residence" and domicile convey the same notion of permanence and are used interchangeably.

(3) The term "emancipated person" shall mean a person:

A. who has attained the age of majority;
B. whose parent has not claimed such person as a dependent on federal and/or state income tax returns for the preceding tax year;
C. who demonstrates the financial ability to provide at least 70 percent of his or her cost of education, i.e., tuition/fees, books/supplies, room and board/maintenance, and transportation, as determined by the institution's financial aid policy and the student's residency classification; and
D. whose parents' income is not taken into account by any private or governmental agency furnishing educational financial assistance to such person, including scholarships, loans, and other assistance.

(4) The term "unemancipated person" shall mean a person who is unable to meet all of the criteria listed in Section 2(3).

(5) The word "parent" shall mean one of the following:

A. a person's father or mother, or
B. a court-appointed legal guardian of an unemancipated person. The word "parent" shall not apply if the guardianship has been established primarily for the purpose of conferring the status of resident on a person.

(6) Attendance at a college or colleges shall be deemed "continuous" if the person claiming "continuous" attendance has been enrolled for consecutive regular semesters since the beginning of the period for which continuous attendance is claimed. Such person need not attend summer sessions or other such intersession in order to render his or her attendance "continuous". The sequence of continuous attendance is broken if the student fails to enroll, except under extenuating circumstances beyond the student's control, e.g., serious personal illness/injury, illness or death of parent, etc., during either the fall or spring semester.

(7) "Full-time employment" means employment for 50 work weeks at an average of 35 hours per week.

(8) A "presumption" refers to a fact which is considered proven unless clear and convincing evidence to the contrary can be established. Each individual must be given the opportunity to rebut the presumption.

(9) "Documentation" refers to the submission of source documents, e.g., official letters, papers, or sworn statements. As a general rule, evidence cited as the basis for domicile must be documented, and the required documentation should accompany the application for residency classification.

SECTION 3. GUIDELINES FOR DETERMINATION OF RESIDENCY STATUS.

(1) Initial classification of residency shall be determined based upon the facts existing when the conditions governing admission for a specific semester/term have been met.

(2) The domicile of an unemancipated person is that of either parent. The domicile of the parent shall be determined in the same manner as the domicile of an emancipated person.

(3) Any unemancipated person who remains in this state when his or her parent(s), having domicile in this state, moves from this state shall be entitled to classification as a resident while in continuous attendance at the degree level in which he or she is currently enrolled. When continuous attendance is broken or the current degree level is

completed, the person's residency classification must be reassessed in accordance with the appropriate sections of this policy.

(4) An unemancipated person whose parent is a member of the Armed Forces and stationed in this state on active duty pursuant to military orders shall be classified as a resident. The student, while in continuous attendance at the degree level in which he or she is currently enrolled, shall not lose his or her resident status when his or her parent is thereafter transferred on military orders. When continuous attendance is broken or the current degree level is completed, the person's residency classification must be reassessed in accordance with the appropriate sections of this policy. This guideline is invalid if the parent is stationed in Kentucky for the purpose of enrollment at an institution of higher education or on temporary assignment of less than one year.

(5) Upon moving to this state, an emancipated person who provides clear and convincing evidence of domicile may apply for resident classification for his or her unemancipated children. Provided that the person is not in this state primarily as a student, his or her unemancipated children may be classified as residents. If the person is in Kentucky primarily for the purpose of enrollment at an institution of higher education, neither that person nor his or her unemancipated children may be classified as residents.

(6) A member of the Armed Forces of the United States stationed in Kentucky on active military orders is considered domiciled in the state and shall be entitled to classification as a resident while on active duty in this state pursuant to such orders. Individuals classified under this section will be reassessed in accordance with the appropriate sections of this policy when the qualifying condition is terminated. This rule is invalid if the individual is stationed in Kentucky for the purpose of enrollment at an institution of higher education or on temporary assignment of less than one year.

(7) An emancipated person who moves to the Commonwealth within six months from the date of discharge from active duty with the military with the stated intent of becoming a legal resident of the Commonwealth shall be permitted to count such time spent in the military service toward meeting the presumptions outlined in Section 4, provided the individual was a legal resident of Kentucky at the time of induction or his or her home of record and permanent address during and at the time of discharge was Kentucky.

(8) In the event of transfer to, or matriculation in, another Kentucky public institution of higher education, the student's residency classification must be reassessed by the receiving institution.

(9) Any person incarcerated in a penal facility located in Kentucky shall be granted resident status during his or her confinement, but his or her residency classification must be reassessed in accordance with the appropriate sections of this policy upon release from confinement. Time served during incarceration shall not be used to establish domicile unless the individual resided in the Commonwealth prior to confinement or the conditions of parole restrict the location of the individual to the Commonwealth.

(10) Any person holding an immigration visa or classified as a political refugee has the capacity to remain in Kentucky indefinitely and shall establish domicile in the same manner as any other person.

(11) Any person holding a temporary, nonimmigrant visa which requires the maintenance of a foreign domicile—visa designation B, F, J, or M—does not have the capacity to remain in Kentucky indefinitely and may not attain Kentucky resident status for fee assessment purposes. Likewise, any person holding a nonimmigrant visa designation C, D, or K may not attain Kentucky resident status for fee assessment purposes due to the transitory or temporary nature of the visa.

(12) Any person holding a nonimmigrant visa—visa designation A, E, G, H, I, or L—may remain in Kentucky indefinitely as long as his or her authorized purpose or established need continues and may attain Kentucky resident status for fee assessment purposes. In assessing the residency status of such a person, other sections of this policy shall apply, and the person's purpose and length of stay as well as other conditions governing his or her presence in Kentucky shall be determined and considered. If this review justifies a resident classification, the person shall be classified as a resident for fee assessment purposes.

(13) In the event that an emancipated person or the parent of an unemancipated person moves out-of-state, domicile, having been established in Kentucky, is retained until steps are taken to establish domicile elsewhere. The same facts and conditions which are presumed in establishing a Kentucky domicile are similarly presumed in determining when a former Kentucky domicile has been abandoned. In the absence of clear and convincing evidence as to the domicile of an emancipated person who at one time had domicile in Kentucky, that person is presumed to have lost his or her Kentucky domicile upon a one-year absence from the state.

SECTION 4. PRESUMPTIONS. *Unless the contrary appears from clear and convincing evidence,* it shall be presumed that:

(1) The domicile of an unemancipated person whose parents are divorced, separated, or otherwise living apart shall be presumed to be Kentucky if either parent is a resident of the Commonwealth regardless of which parent has legal custody or is entitled to claim that person as a dependent pursuant to Kentucky income tax provisions.

(2) Every emancipated person remaining in this state in a nonstudent status (i.e., not enrolled in an institution of higher education) for the 12 months immediately preceding the last date for enrollment in the institution and fulfilling conditions associated with domicile shall be presumed to be a resident for admission and fee assessment purposes.

(3) No emancipated person shall be presumed to have gained resident status while attending any institution of higher education more than half-time (half-time being equal to one-half of full-time), as such status is defined by the governing board of such institution, in the absence of a clear demonstration that he or she had established domicile in the state.

(4) Attending college half-time (half-time being equal to one-half of full-time) or less will not prevent an emancipated person who has full-time employment from establishing domicile.

(5) A student who has been classified nonresident is presumed to continue as nonresident while working part-time.

(6) The domicile of a married person shall be determined in the same manner as the domicile of an unmarried person. While no person shall be presumed, solely by reason of marriage or cohabitation, to have established or to have lost domicile in Kentucky, the fact of marriage or cohabitation and the place of domicile of the spouse or cohabitant are deemed relevant evidence in ascertaining domicile.

(7) A student whose admissions records show him or her to be a graduate of an out-of-state high school or his or her residence to be outside of Kentucky at the time of application for admission is presumed to be a nonresident and will be initially so classified.

SECTION 5. TYPES OF EVIDENCE TO BE CONSIDERED FOR ESTABLISHMENT OF DOMICILE. Evidence submitted on behalf of an unemancipated person must pertain to the domicile of either parent. Initial classifications generally are made on the basis of information derived from admissions materials, and individuals who enroll in college immediately following graduation from high school and remain enrolled are treated as unemancipated persons unless the contrary is evident from the information submitted. In such cases, domicile will be inferred from the student's permanent address, parent's mailing address, and/or location of high school of graduation.

A person claiming emancipated status must document his or her independent status under Section 2(3) and must demonstrate that he or she has established a domicile in Kentucky by his or her own acts. If an emancipated person asserts that he or she has established domicile in Kentucky, he or she has the burden of proving he or she has done so. The following statements pertain to the kinds of evidence and required documentation that will be considered in reviewing an assertion by an emancipated person that he or she is domiciled in Kentucky.

(1) The following facts, although not conclusive, have probative value in support of a claim for resident classification:

A. acceptance of an offer of full-time employment or transfer to an employer in Kentucky or contiguous area while maintaining legal residence in Kentucky;

B. continuous physical presence in a nonstudent status for the 12 months immediately preceding the last date for enrollment in the institution;

C. filing of Kentucky resident income tax returns when absent from the state;
D. full-time employment of at least one year while living in Kentucky;
E. attendance as a full-time, nonresident student at an out-of-state institution of higher education while determined to be a resident of Kentucky; or
F. abandonment of a former domicile and establishing domicile in Kentucky with attendance at an institution of higher education following and only incidental to such change in domicile.

(2) The following facts are not necessarily sufficient evidence of domicile:

A. employment by an institution of higher education as a fellow, scholar, assistant, or in any position normally filled by students;
B. a statement of intent to acquire a domicile in Kentucky;
C. voting or registration for voting;
D. lease of living quarters;
E. payment of local and state taxes;
F. Kentucky automobile registration;
G. Kentucky operator's license;
H. continued presence in Kentucky during vacation periods;
I. marriage to or cohabitation with a Kentucky resident; or
J. ownership of real property in Kentucky.

Domicile shall not ordinarily be conferred by the performance of acts which are auxiliary to fulfilling educational objectives or are performed as a matter of convenience. Mere physical presence in the state for educational purposes is not sufficient evidence of domicile.

(3) The determination of domicile must be based upon verifiable circumstances or actions. Sections 5(1) and 5(2) above list some facts that may be relevant in evaluating a claim to domicile, but other facts pertaining to an individual's situation may be considered. No single fact is paramount, and each situation must be evaluated to identify those facts which are essential to the determination of domicile.

When reviewing the evidence and documentation submitted, institutions may request additional evidence and/or documentation to clarify the person's circumstances and to formulate a classification decision which considers all relevant facts.

RESPONSIBILITIES. The responsibility for registering under the proper residency classification is that of the student. It is the student's obligation, prior to the time of registration, to raise questions about residency classification with the administrative officials of the institution in which he or she is registering for an official determination of status. A student classified as resident who becomes nonresident by virtue of a change of domicile by his or her own action or by person(s) controlling his or her domicile is required to notify the proper administrative officials of the institution at once. A student classified as nonresident will be considered to retain that status until he or she makes written application for reclassification in the form prescribed by the institution and is officially reclassified by the proper administrative officials. The effective date of a residency classification cannot predate the date of application for reclassification.

Each institution is responsible for establishing procedures for the collection of sufficient information in support of residency classifications, maintaining accurate files, and administering this policy in a consistent manner.

SECTION 6. RESIDENCY CLASSIFICATION PROCEDURE. Each institution shall establish a procedure for the initial determination of residency classification based upon this policy. To consider student requests for reclassification, each institution shall establish a committee, hereafter, the "Committee," to consider changes in residency classification. Application for change of residency classification shall be made in writing to the administrative office or to the person designated by the institution for this purpose. To support full consideration of a request for a change in residency classification, each application shall consist of a complete affidavit, the content of which prescribes the necessary documentation to substantiate facts cited. The student must provide all information relevant to a determination of his or her current residency status. Each applicant is encouraged to submit a formal statement indicating the basis for his or her claim to resident status.

The student working with the institutional classification officer is responsible for ensuring that all needed documentation is submitted with his or her affidavit. Incomplete applications may be deferred at the discretion of the Chair of the Committee. The Chair will present each case to the Committee for a decision, and the student will be notified in writing as to the disposition of his or her application.

In the event of a ruling by the Committee which is unsatisfactory to the student, the student may appeal the institutional decision and request that a complete copy of his or her file, e.g., affidavit, documentation, the student's statement if submitted, be submitted by the administrative office or the person designated by the institution to the Executive Director of the Council on Higher Education.

APPEAL PROCEDURE. The Executive Director of the Council on Higher Education shall appoint a person to serve as an appeals officer. The appeals officer shall review all residency appeals from the public institutions of higher education.

A student may appeal the decision of the Committee within 14 calendar days of such decision to the Council on Higher Education by giving written notice to the Chair of the Committee or the person or office designated by the institution. The institutional representative designated to handle appeals is responsible for forwarding a complete record of the matter to the Executive Director of the Council on Higher Education.

(1) The student's written notice of appeal need not be in any prescribed form, but it must clearly state reasons for the appeal.

(2) The institution shall forward a complete copy of the student's file within 14 calendar days of the receipt of a notice of appeal. The student may review the content of his or her file before it is forwarded to the Council on Higher Education. Significant new evidence may warrant a new hearing by the Committee before the matter is referred to the Council on Higher Education.

(3) The appeal shall be considered on the written record alone.

(4) The appeals officer shall review findings of fact, draw conclusions, and formulate a recommendation consistent with the facts and this policy. Within 14 calendar days, the report of the appeals officer shall be forwarded to the institutional representative designated to handle appeals for final disposition by the institution in accordance with established institutional procedures. A copy of that report shall be forwarded to the Executive Director of the Council on Higher Education. The institution shall act on the appeal within 21 calendar days of the receipt of the appeals officer's report.

(5) Within 7 calendar days, the institution shall notify the student of the final disposition of his or her appeal.

SECTION 7. STATEWIDE MEETINGS. To enhance consistency among the institutions in the interpretation and application of this policy, the institutional residency officers shall meet twice a year with Council staff and the appeals officer to discuss the residency policy, institutional classification procedures, and decisions made by the appeals officer.

SECTION 8. EFFECTIVE DATE. These revised guidelines become effective on July 1, 1987, and supersede all previous policies of the Council relating to classification of students for fee assessment purposes.

TUITION AND FEES
1988-1989

Tuition Schedule

	Semester (Full-time)	Eight-Week Summer (Full-time)	Part-time and Four-Week Fee Per Credit Hour
All undergraduate colleges			
Resident	$ 680	$ 342	$ 57
Nonresident	2,040	1,020	170
The Graduate School			
Resident	$ 750	$ 420	$ 84
Nonresident	2,250	1,250	250
College of Law			
Resident	$1,000	$ 500	$100
Nonresident	3,360	1,680	336
College of Pharmacy			
Resident	$ 680	$ 342	$ 57
Nonresident	2,040	1,020	170
College of Dentistry (Annual Charges)			
Resident	$ 3,680		
Nonresident	14,660		
College of Medicine (Annual Charges)			
Resident	$ 4,380		
Nonresident	15,640		

Mandatory Fees*

	Semester (Full-time)	Annual Charges	Eight-Week Summer (Full-time)	Part-time and Four-Week Fee Per Credit Hour
Student Center Fee	$22.00	$ 44.00	$11.00	$2.00
Activity Fee	17.75	35.50		
Health Fee	50.00	100.00		
Total	$89.75	$179.50	$11.00	$2.00

*Pending approval of the Board of Trustees.

For the Fall or Spring Semester, registration in 12 credit hours or equivalent constitutes a full-time load for undergraduate and pharmacy students. Registration in 9 hours constitutes a full-time load for graduate students. Law students must register for 10 hours to be considered full-time.

For the Eight-Week Summer Session, registration in 6 credit hours or equivalent constitutes a full-time load for undergraduates and pharmacy students. Registration in 5 hours constitutes a full-time load for graduate and law students.

HOUSING COSTS
1988-89

ROOM AND MEALS

All undergraduate residence halls*	Per Year
2 meals, 5 days (Monday-Friday)	$2,424
2 meals, 7 days	2,648
3 meals (Monday-Friday) and 2 meals (Saturday, Sunday)	2,766
DinerCard ($1000 deposit)	2,366
DinerCard ($1100 deposit)	2,466
DinerCard ($1300 deposit)	2,666

Greg Page Stadium View Apartments (room only)

Single undergraduate	1,400

Each apartment houses four students and each student is required to pay a $50 deposit. Meal plan is optional.

FOUR-WEEK INTERSESSION (room only)

Double occupancy	169
Single occupancy	211

EIGHT-WEEK SUMMER SESSION (room only)

Double occupancy	338
Single occupancy	423

SEPARATE MEAL CONTRACT RATE

Full-time students living off-campus may also purchase a DinerCard.	
DinerCard minimum deposit	50

Additional deposits in $50 increments are allowed.

*A $14 facilities fee (per academic year) for residence hall programming is included in the listed room and meals rates.

APARTMENTS AND FAMILY HOUSING

Single Graduate/Professional Apartments**†	Per Month
Cooperstown	
efficiency—single occupancy	$238
one bedroom—single occupancy	308
Commonwealth Village, Linden Walk and Rose Lane	
efficiency—single occupancy	250
one bedroom—single occupancy	320

Family Housing** (one-year contract)	Per Month
Cooperstown and Shawneetown	
efficiency	238
one-bedroom apartment	308
two-bedroom apartment	328
Greg Page Stadium View Apartments	
two-bedroom apartment	430

**Includes adequate basic furnishings and utilities. Does not include board or telephone. Deposit of $50 required.

†Graduate/Professional student housing is available 12 months a year. Meal plan is optional.

FEES ARE SUBJECT TO CHANGE WITHOUT NOTICE AND INCREASES MAY BE NECESSARY IN SUBSEQUENT YEARS.

FEE PAYMENT POLICY

STUDENTS WHO ADVANCE REGISTER FOR EITHER THE FALL OR SPRING SEMESTERS MUST MAKE AN ADVANCE PAYMENT OF $50. THIS SUM IS DUE IN THE OFFICE OF STUDENT BILLING SERVICES AT LEAST 15 DAYS PRIOR TO THE START OF CLASSES EACH SEMESTER. THIS SUM WILL BE APPLIED TO THE STUDENT'S REGISTRATION FEES. FAILURE TO MAKE THIS PAYMENT BY THE DEADLINE WILL RESULT IN CANCELLATION OF THE STUDENT'S ADVANCE REGISTRATION SCHEDULE, AND THE STUDENT WILL BE REQUIRED TO REGISTER AGAIN DURING THE LATE REGISTRATION PERIOD AT THE OPENING OF THE TERM. STUDENTS WHO MUST REGISTER AT THE BEGINNING OF THE TERM AS A RESULT OF CANCELLATION WILL BE CHARGED A $40 LATE REGISTRATION FEE. STUDENTS WHO CANCEL THEIR REGISTRATION BEFORE THE FIRST DAY OF CLASSES WILL RECEIVE A FULL REFUND OF THE $50 ADVANCE PAYMENT.

THE REMAINDER OF REGISTRATION FEES IS PAYABLE IN FULL AT THE BEGINNING OF CLASSES EACH SEMESTER. Students who have not paid their fees by the 10th day from the start of classes will have their registration and/or meal card cancelled. Between the 10th and 17th day students may be reinstated to classes and/or meal card by paying their fees and a $50 reinstatement fee. After the 17th day, students may not be reinstated for that semester. Furthermore, they will be considered delinquent for half the amount of the assessed fees, and will be unable to enroll again or receive a transcript until the delinquency is cleared. See the section on Delinquency.

Late Registration Fee

All continuing students are expected to advance register each semester for the next semester. New students are assigned a specific date for registration. Any students who register after the regular registration period will be charged a late registration fee of $40.

Auditors

All auditors are charged the same fee they would pay for credit.

Zero-Credit Courses

Some University courses are offered for 0 credit hours. The fees for these courses are based on the number of hours per week the course meets, so that the cost of a 0-credit course which meets one hour per week is the same as the cost of a 1-credit course for a student in a particular classification (i.e., resident, nonresident, graduate, undergraduate). Zero-credit courses are counted as part of the student load for fee payment purposes and for purposes of issuing ID cards.

There is no fee for a course numbered 749, or 769, if the student is approved to take the 769 course for 0 credit hours. In a few departments zero-credit courses are actually laboratories which are a required part of another course. They are numbered separately for scheduling purposes, but no additional fee is charged.

REFUND POLICY

Tuition refunds for students who officially withdraw through the Registrar's Office, or who change their status from full-time to part-time or further reduce their part-time status through Add/Drop, will be made according to the following schedule. All dates are those designated in the official University Calendar.

Withdrawal Date

Regular Day Students	Evening-Weekend/Off-Campus Students	Refund
Before first day of classes	Before second week of classes	100%
First day of classes to last day to add a class		80%
After last day to add a class until mid-term date	After second week of classes but before mid-term date	50%

After official mid-term date per University Calendar—No Refund

Refunds are based solely on the date of withdrawal, regardless of whether or not students attend any class(es). No refunds are made automatically. Students must request a refund through the Registrar's Office by the **last day of the term in which they officially reduced their course load or withdrew**. Requests must be accompanied by evidence of complete withdrawal (withdrawal card, add/drop slip) or evidence of change of status (add/drop slip, ID) and should be directed to the Registrar's Office, 107 Gillis Building.

A student not paying tuition fees and subsequently leaving or officially withdrawing from school will be held liable for one-half of those fees. In the case of nonpayment, he or she will be declared delinquent subject to the penalties imposed by the institution for financial delinquency.

Questions concerning fee payment procedures may be directed to Judith Marshall, Ombudsman for Business Affairs, 110 Administration Building, (606) 257-1841. Questions concerning tuition refunds may be directed to the Registrar's Office, 107 Gillis Building, (606) 257-1826.

Financial Delinquency

The University expects the student to be financially responsible and not to be delinquent in financial obligations to the University or to any department or division thereof, including room and board payments to sanctioned fraternal student organizations. Such obligations do not include fines and penalties assessed against the student by other than University offices and departments.

Financial obligations that are not met within 10 days after the date due are reported in writing to the proper office. Obligations to any division or department are reported to the office designated by the Vice Chancellor for Administration—Lexington campus.

The appropriate business office notifies the student of the financial obligation. If the student does not settle the obligation by the date designated on the notice, he or she will, subject to regulations promulgated by the Vice Chancellor for Administration—Lexington campus, be considered delinquent, and that office shall notify the University Registrar.

After the University Registrar has been notified that a student is delinquent, he will not allow the student to register or to transfer credits, nor will he award the graduation diploma, until he has been notified in writing by the appropriate business office that the obligation has been settled.

HEALTH FEE

For the regular fall and spring semesters, all full-time students pay a health fee which entitles them to medical and mental health care at the Student Health Service. Part-time students may prepay the health fee or may use the Health Service on a fee-for-service basis. The health fee is voluntary for the summer sessions. Questions about the health fee should be directed to Jean Cox, 233-5355.

Students who are enrolled in Lexington but will be off campus **and** out of the Central Kentucky area for a given fall or spring semester may be refunded the mandatory health fee. However, all such refunds must be approved by the Dean of Students.

Health Insurance

The University strongly urges every student to have insurance to cover those expenses related to hospitalization, accident care, and surgical services. The University assumes no responsibility for payment of these expenses and they are not covered by the health fee. As a service to students who need their own insurance policy, because they are no longer covered by their parents' plan or are married, the University makes available an excellent, reasonably priced student group insurance plan that provides coverage on campus, at home or while traveling. Options to cover students' dependents are available. Advance registered students will receive detailed information about the group insurance program by mail or it can be obtained by calling the Student Health Service. Additionally, information about the UK Student Insurance Plan is available in the Student Center (9 a.m.-3 p.m.) during the fee payment period at the beginning of each semester.

STUDENT ID CARDS

All students admitted to the University of Kentucky (both full-time and part-time) are expected to obtain a student ID card. This is a permanent card validated each semester when fees are paid. **The card is the property of the University of Kentucky** and is to be returned to the Dean of Students Office upon termination of student status.

This card will be provided without cost. The Student ID Office is located in Room 106 Student Center and is open 10:00 a.m.-4:30 p.m., weekdays.

Students enrolled part-time in the Evening-Weekend College may obtain a non-photo ID card from the Evening-Weekend College Office in Frazee Hall. This card is reissued each semester. Full-time evening students should obtain a photo ID card. Upon transfer to daytime classes, presentation of the Evening-Weekend College ID from the previous semester to the Student ID Office will allow those students to obtain a photo student ID at no cost if requested prior to the date registration would be cancelled for nonpayment of fees.

A $5 processing charge will be collected for the replacement of any lost, stolen, or destroyed student ID card. After receiving two replacement ID cards, students must obtain authorization from the Dean of Students for further replacement.

For special problems relating to the student ID card, students should contact the Dean of Students Office.

PERSONAL EXPENSES (not payable to the University)

Books and Supplies. Range from $100 up, depending on the student's major field of study and schedule of classes for the semester.

Laundry. For students living in the residence halls, laundry facilities for personal items are provided. Other students must make their own arrangements. Local cost for this service is comparable to that in any city.

Linen and Towel Service. This voluntary service is provided on a contractual basis for occupants of the residence halls. Information concerning linen and towel service can be obtained from the University Housing Office.

Miscellaneous. Expenses for transportation, entertainment, and other incidentals depend on the preferences and circumstances of each student.

STUDENT FINANCIAL AID, AWARDS, AND BENEFITS

The University of Kentucky is particularly interested in students with strong motivation for higher education. Many such students, because of limited resources, find it difficult to finance a university education. The University provides financial assistance, to the extent possible, for such students through the Office of Student Financial Aid. One-half of the students currently enrolled at the University receives some form of financial aid.

Each year the amount of money required to help eligible financial aid applicants is greater than the sum of available resources. In making awards, decisions are made according to date of application and financial need. **Students should apply as early as possible and preferably before April 1.** Qualified students who apply after this date will receive assistance, but will receive less help because certain funds will be exhausted before they can be accommodated. **Students should not enroll in classes with the intent of obtaining financial aid after the semester is underway.**

Applicants for University financial aid are given equal consideration, regardless of race, color, religion, sex, marital status, beliefs, age, national origin, or handicap.

For more information on financial aid, students should write or call:

Office of Student Financial Aid
128 Funkhouser Building
University of Kentucky
Lexington, KY 40506-0054
(606) 257-3172

APPLYING FOR FINANCIAL ASSISTANCE

Entering Freshmen

Freshman applicants should indicate an interest in financial aid on the ACT Profile or on the University application for admission. The required forms will be mailed to them. Assistance and applications may also be obtained from high school counselors or by contacting the Office of Student Financial Aid. **Early application is important.** Application material for the fall semester is available in January.

By following the procedures listed below, new students may be considered for scholarships awarded by the Office of Student Financial Aid, Pell Grants, Kentucky State Grants, Supplemental Education Opportunity Grants, Perkins Loans, Nursing Loans, Health Professions Loans, and the College Work-Study Program. Additionally, students who complete the following procedures will have taken the first step in applying for a Guaranteed Student Loan.

1. Submit the Kentucky Financial Aid Form (KFAF) to the College Scholarship Service no later than April 1, designating the University of Kentucky to receive the analysis. UK's College Scholarship Service identification number is 1837. Be sure to send the appropriate fee along with the KFAF. Out-of-state applicants may substitute the Financial Aid Form (FAF) for the KFAF.
2. Complete and return the University of Kentucky Financial Aid Application (FAA) to the Office of Student Financial Aid by April 1.
3. Submit a Financial Aid Transcript from each post-secondary school previously attended, whether or not aid was received from the institution.

All financial assistance is conditional upon the applicant's enrollment at the University in a degree program. Every effort is made to notify applicants of amounts and kinds of assistance awarded in June. Financial aid is credited to each student's University account and/or disbursed by check at the beginning of each semester. **Aid recipients should plan to have enough money for initial expenses for books, meals, and incidentals for the first three weeks of the semester until their aid is processed.**

New Regulations: Federal regulations now require a number of applicants to verify the information they report. Students and parents need to be accurate and precise when completing all financial aid forms. Early income tax preparation is encouraged.

Major changes in federal regulations and methodology of determining a student's financial need may produce results which differ from those in prior years. In particular, independent students, including graduate, professional, and married students, may be affected.

In 1988 financial aid recipients may have to pay income tax on the portion of scholarships and grants used to pay for items that are not directly related to classroom instruction.

Continuing University Students and Transfers

Continuing students and transfer students **must reapply** for financial aid (including scholarships) each year by submitting the UK Financial Aid Application (FAA) and the Kentucky Financial Aid Form (KFAF). Reapplication is required in order to reflect changes in student or family resources that could affect the amount of an award. Students may obtain application material by contacting the Office of Student Financial Aid. Both the KFAF and FAA must be completed and returned according to the previously listed procedures for new students. Students are required to complete a KFAF and a FAA to obtain a Guaranteed Student Loan.

Every effort will be made to notify applicants in June of the amounts and kinds of assistance awarded.

Medical and Dental Students

Medical students should apply for financial aid through the Office of Education, College of Medicine, MN 104 A. B. Chandler Medical Center. Dental students may apply in the College of Dentistry, Financial Aid Office, D-155 A. B. Chandler Medical Center.

CONTINUED ELIGIBILITY FOR STUDENT FINANCIAL AID

In order to continue to receive financial aid, students must maintain satisfactory academic progress toward a degree. Normally, full-time undergraduate and graduate students must earn 24 and 18 credit hours respectively in a calendar year. In addition, undergraduates must have a cumulative grade-point average of at least 2.0 at the end of their sophomore year. Students enrolling for less than full-time can earn proportionally fewer credit hours.

An undergraduate student may receive federally-funded financial aid for not more than 10 semesters unless he or she is enrolled in a five-year program, in which case, 12 semesters of aid may be received. A graduate or professional student may not receive federally-funded financial aid for more than 10 semesters of graduate or professional study.

Students may reestablish satisfactory progress by completing the required number of credits at their own expense in a subsequent enrollment period. Details on maintenance and reestablishment of satisfactory progress may be obtained from the Office of Student Financial Aid.

GRANTS

The grants described below are forms of financial aid that do not require repayment. Students can apply for all of these grant programs by completing the KFAF and FAA.

Pell Grants

The federally funded Pell Grant Program provides grants to eligible undergraduate students working on their first baccalaureate degree. Pell Grants currently range in value from $250 to $2,100 per school year and are based upon the financial circumstances of the family and applicant.

The U.S. Department of Education determines eligibility according to financial need. Applicants will receive a Student Aid Report (SAR) in four to six weeks after applying. The SAR authorizes the University to release funds. Students should mail all copies of these forms to the Office of Student Financial Aid immediately upon receipt. Eligible students who bring their SARs to campus when they enroll for classes, rather than mailing them, will encounter a delay in receiving their funds.

Supplementary Educational Opportunity Grants

The Higher Education Act of 1980 provides Supplementary Educational Opportunity Grants for undergraduate students who need financial aid to enter or remain in college. The maximum amount of the grant is $4,000. Usually this grant is not awarded in the maximum amount, as there are more eligible applicants than available funds.

Kentucky Higher Education Assistance Authority

The KHEAA Grant Program was established by the Kentucky General Assembly in 1974 and is administered by the Kentucky Higher Education Assistance Authority. KHEAA Grants are nonrepayable one-year monetary awards based on financial need and may be renewed for a total of eight semesters if financial need is established. The amount of the grant is based on the student's financial need.

To be eligible for a KHEAA Grant, a student must be an undergraduate, a U.S. citizen or permanent resident, a Kentucky resident, and must be enrolled or accepted for enrollment as a full-time student at an eligible institution located within the Commonwealth of Kentucky.

KHEAA offers assistance to those students who are pursuing careers in education, who plan to teach science or mathematics, or who are Kentucky high school graduates with outstanding academic records. More information may be obtained by contacting KHEAA, 1050 U.S. 127 South, Frankfort, KY 40601.

LOANS

Loans are available to qualified undergraduate, professional and graduate students. Funds are not sufficient, however, to provide loans to cover all expenses for a semester or year at the University. Loans supplement the student's personal savings or earnings, assistance from parents, or other financial assistance. When possible, loans are combined with other types of financial assistance to reduce the amount a student must borrow.

Honor Loans

A limited number of honor loans have been established by alumni and other friends of the University. Interest is usually not charged on these loans while the borrowers are in school. These loans are restricted to students in a specific college and/or major field of study. Interested students should contact the Office of Student Financial Aid for additional information.

Short-term Loans

University student organizations and the University's Women's Club have provided funds from which a student may borrow up to $100 for up to 60 days. Students in need of short-term loans should contact the Office of Student Financial Aid. Usually four to five days are required for processing these loans.

Short-term loans are not available for payment of tuition. Only students who have paid their tuition and are in good financial standing with the University may apply.

Carl D. Perkins Loans

These loans, formerly called National Direct Student Loans, are made available on a fund-matching basis between the University and the Federal Government.

A student must demonstrate the need for a loan and the academic ability to do acceptable work at the University. The amount of loan is determined primarily by the needs and resources of the student. However, the aggregate loan over a number of years cannot exceed $9,000 for undergraduates and $18,000 for graduate and professional students.

Interest does not accrue and payments are not required while a borrower is a half-time student. The interest rate is 5 percent per year, but does not begin to accrue until the beginning of the ninth month after the borrower ceases to be a half-time student. For this program, "half-time" means half a normal load or a minimum of six hours for undergraduate students.

Health Professions Loans

Health Professions Student Loans are available for students in the Colleges of Medicine, Dentistry, and Pharmacy. These are cooperative loan funds made available on the same basis as the Perkins Loan Program described previously.

The law requires that each borrower be enrolled or accepted for full-time enrollment in good standing in the Colleges of Medicine, Dentistry, or Pharmacy and be in need of a loan to continue his or her professional education.

A student may borrow up to $2,500 plus tuition in one academic year. Interest on the loan is 9 percent. The borrower must sign a note for the loan, and repayment begins one year after the borrower ceases to be a full-time student. Repayment

is to be completed within 10 years thereafter. Interest does not accrue on the loan prior to the beginning of the repayment period. A loan is cancelled on receipt of proof of death or total, permanent disability.

Nursing Loans

The Nursing Student Loan Program for full-time students in the College of Nursing is established on the same basis as the Perkins and Health Professions Student Loan Programs. A full-time nursing student at the University may borrow up to $2,500 in one academic year and an aggregate of $10,000. The borrower must sign a note. Repayment of the loan begins nine months after the borrower ceases to be a full-time student in the nursing program status and must be completed within 10 years thereafter. Interest begins to accrue at the beginning of the tenth month after the borrower graduates or leaves school and is 6 percent per year. The loan is cancelled upon receipt of proof of death or total, permanent disability of the borrower.

PLUS Loans and Supplemental Loans for Students

PLUS Loans are educational loans made to parents of dependent students. Supplemental Loans for Students (SLS) are educational loans made to graduate and professional students and independent undergraduate students attending eligible schools. The annual and aggregate loan maximum for each eligible student is $4,000 per academic year, to a total of $20,000. Parents of dependent students may borrow up to $4,000 per year for each eligible student, to a total of $20,000 per student.

The interest rate is variable, not to exceed 12 percent. The interest on these loans begins upon disbursement, and the first payment is due **within** 60 days. The minimum monthly payment is $50, but can be more depending upon the amount borrowed. The loan must be repaid within 10 years.

A separate application, available from the Office of Student Financial Aid, is required.

State Guaranteed Loan Program

The state of Kentucky participates in the State Guaranteed Student Loan Program (GSL) through an agreement with the Department of Education. Through this program, undergraduate students with a freshman or sophomore classification may borrow up to $2,625 per academic year. Students with a junior, senior, or fifth-year classification may borrow up to $4,000 per academic year. Graduate students may borrow up to $7,500 per academic year. The amount of the loan may not exceed the cost of attending or the cost of attending less other aid received minus family contribution, whichever is the lesser amount. Federal regulations now require that **all** GSL applicants, including those with adjusted gross family incomes of $30,000 or less, must show need to qualify for a federally-subsidized GSL. The aggregate loan limits are: undergraduate students, $17,250; graduate students, $54,750.

For students borrowing for the first time, the interest rate will be 8 percent and repayment will begin six months after the borrower leaves school. Students who have outstanding Guaranteed Loans as of January 1, 1981, will be able to continue to borrow at the rate of their previous loans. In addition, a 5.5 percent origination fee may be charged on all loans.

Students must complete a Kentucky Financial Aid Form (KFAF) and Financial Aid Application (FAA) to apply for a Guaranteed Student Loan. Both forms are available from the Office of Student Financial Aid.

Early application is essential. The interval between initial application and receipt of funds by eligible applicants is a minimum of 12 to 16 weeks.

Each of the states participates in the State Guaranteed Loan Program or the Federally Insured Student Loan Program, which is similar. Kentucky residents unable to secure a loan through a local bank or agency may apply directly to the Kentucky Higher Education Assistance Authority. Further information may be obtained by contacting KHEAA, 1050 U.S. 127 South, Frankfort, KY 40601.

SCHOLARSHIPS

There are numerous scholarship opportunities for students at the University of Kentucky. The amounts of the awards range from partial tuition for one year to full costs for four years.

Scholarship programs for which financial need is an important requirement are administered by the Office of Student Financial Aid. Students with substantial financial need should read the preceding information and contact the Office of Student Financial Aid.

Scholarship programs for which the primary consideration is academic merit are administered by the Office of Academic Affairs. To be eligible to apply, entering freshmen must have an ACT composite score of at least 27 (or equivalent on other acceptable nationally-normed examinations). There is also a special scholarship category for community college and transfer students. Continuing students who have demonstrated high academic performance may apply for an Academic Excellence Scholarship. All scholarships are awarded on a competitive basis. Consideration is given, as appropriate, to the applicant's test scores, grades, educational goals, extracurricular activities, work experience, and writing ability.

The deadline for new students to apply for these merit scholarships is February 1. The deadline for transfer students and continuing students is usually in early March. For more information, students should contact the Office of Academic Affairs, 07 Administration Building.

In addition to the scholarship awards administered by the Office of Student Financial Aid and the Office of Academic Affairs, many academic departments and colleges have funds of their own that can be granted to deserving students. Interested students should inquire about scholarship opportunities in the college in which they are enrolled or plan to enroll.

THE COLLEGE WORK-STUDY PROGRAM

The College Work-Study Program (CWS) provides jobs for students who have financial need and who must earn a part of their educational expenses. Preference is given to students with the greatest financial need. Work-study is usually combined with other kinds of aid.

To be eligible, a student must demonstrate financial need as determined by the needs analysis and must be enrolled at least half-time during the academic year. Students who are not enrolled for the summer months may be eligible to work full-time under CWS. Students who work full-time are obligated to save from their summer earnings for fall semester expenses. Summer applications are available in the Office of Student Financial Aid after March 1.

The amount a student will be permitted to earn will be determined by his or her financial need. Students will not be permitted to earn in excess of the amount specified on their Notice of Award. Hourly rates range from $3.35 to $7.00 per hour, based on such factors as campus, year in school, and location of assignment.

STUDENT EMPLOYMENT SERVICE

The Student Employment Service assists students in finding part-time jobs during the school year and full-time jobs during the summer. This service is a referral service whereby employers at the University and in the Lexington area voluntarily list jobs for students.

A student is required to fill out a brief application to indicate skills, interests, available work schedule, and any financial aid awarded. If a student has been awarded financial aid, a copy of that award should be submitted with the employment application. Additional forms may be necessary for some of the career-related job opportunities.

Students seeking part-time employment should contact the STEPS Office, 252 East Maxwell Street, (606) 257-3843.

SPECIAL AWARDS

The Herman L. Donovan Fellowship for Senior Citizens

The Donovan Fellowship, named in honor of the late Herman L. Donovan, University President from 1941-1956, is open to persons who are 65 years of age or older. Interested individuals may enter the University and attend regular courses without the payment of fees. Students may work toward a graduate degree or undergraduate degree, audit classes for the joy of learning, or take individual courses for credit. The program is available at the Lexington campus and at all community colleges.

Donovan Fellows participate in the many intellectual, social, and cultural programs which characterize the University. In addition, several special programs and events are available to Donovans. These include an educational forum featuring topics of special interest, a music program, art classes, radio drama, gerofitness, and Great Decisions.

Inquiries about the Donovan Fellowship should be addressed to the Council on Aging, Ligon House, University of Kentucky, Lexington, KY 40506-0442.

Undergraduate Research and Creativity Program

The Oswald Undergraduate Research and Creativity Program began in 1964 with the express purpose of encouraging research and creative activities on the part of undergraduate students at the University of Kentucky.

The objectives of the program are twofold: (1) to stimulate creative work on the part of undergraduate students, and (2) to provide a measure of recognition for individuals who demonstrate outstanding achievement. This recognition emphasizes the importance which the University places upon academic excellence. The Undergraduate Research and Creativity Program makes a significant contribution toward stimulating students to better academic efforts.

Undergraduates submit entries in the fields of Social Sciences, Biological Sciences, Physical and Engineering Sciences, Design (including architecture, landscape architecture, interior design), Fine Arts, Humanities/Critical Research, and Humanities/Creative. Generally, students enter research papers done either for class or on their own in the science categories and in Humanities/Critical Research. Short stories, original plays or poetry are appropriate for Humanities/Creative. Students who are working on musical compositions, paintings, sculpture, architectural models, or photographic essays will want to enter their efforts in the Fine Arts category. Many fine works of art and serious research papers receive recognition from the Oswald Competition each year. This competition is unique on college campuses and provides an excellent opportunity for undergraduates to test their skills and to begin to see their academic work in a serious, professional light.

Awards are $250 for first place in each category, $100 for second place. The Vice Chancellor for Academic Affairs presents the awards and a certificate of achievement to each winner at the annual Awards program in the spring.

Any undergraduate (full- or part-time, enrolled for either semester) is eligible to enter. Students should contact the Office of Academic Affairs, 207 Administration Building, for information and applications.

Other Awards Programs

Many academic departments at UK give special awards and prizes to students each year. Generally, special awards are cash prizes and are given on the basis of academic achievement or outstanding scholarship.

VETERANS BENEFITS

Benefits for Veterans and Eligible Dependents

Federal and state benefit programs for veterans and eligible dependents are coordinated through Veteran Services, Gillis Building.

The veteran or eligible dependent (widow, wife of totally and permanently disabled veteran, child of deceased or totally and permanently disabled veteran) should report to Veteran Services, Gillis Building, during advance registration or on the Advising Conference date. At that time, the applicant will be given information about enrolling for benefits.

Those students who have already applied for federal or state benefit programs should bring with them certificates showing entitlement or eligibility.

Students who depend on these benefits to meet their living expenses should bring enough money to cover expenses for a minimum period of eight weeks to allow for processing and receipt of the first benefit check.

Students who receive veterans educational benefits should be aware that the Veterans Administration requires "standards of progress" which differ somewhat from the University's standard policy regarding probation, dropping classes, changing majors, and other areas. This information is in the *Veteran Services Newsletter*, a publication which supplements this Bulletin and lists complete details of policies which specifically affect the recipients of veterans benefits. The *Veteran Services Newsletter* is available through Veteran Services, Gillis Building.

Further information on V.A. educational benefit programs can be obtained from the Veterans Administration Regional Office, 600 Federal Place, Louisville, KY 40202.

Children of Kentucky War Veterans Tuition Waiver Program

Under the provisions of KRS 164.505 and 164.515 certain children of Kentucky war veterans are eligible for assistance from the Commonwealth of Kentucky. All persons eligible under this program must, in addition to meeting the requirements for admission, submit to Veteran Services the necessary documents establishing their eligibility under the program.

Generally, children of Kentuckians who were killed in military action or permanently and totally disabled in war-time military services are eligible for exemption from the payment of the registration fee. This waiver does not cover special fees or additional fees which are charged for certain courses.

For additional information on the provisions of KRS 164.505 and .515, contact the Kentucky Center for Veterans Affairs, Department of Military Affairs, Commonwealth of Kentucky, 600 Federal Place, Louisville, KY 40202.

ROTC FINANCIAL ASSISTANCE

Army ROTC Scholarships

Two-, three- and four-year scholarships are available through the Army Reserve Officer's Training Corps program. These scholarships pay full tuition, laboratory fees, $180 per semester for textbook costs, and $100 per month tax-free subsistence allowance during the school year. The recipient may incur a four-year active duty obligation.

Length of scholarship, when and where to apply:

1. Four years; August 15 (Early Board); December 1; junior or senior year of high school, directly to: Army ROTC Scholarship, Fort Monroe, VA 23651.
2. Three years; March 1, college student with three academic years remaining, directly to: Professor of Military Science, Army ROTC, University of Kentucky, Lexington, KY 40506-0028.
3. Two years; February 1, college student with two academic years remaining, directly to the Army ROTC Officer in 2. above.

Interested students may obtain scholarship applications from the Professor of Military Science. Four-year applicants may obtain applications from high school counselors, or by writing directly to Fort Monroe, Virginia.

Applicants who apply for the early selection board (August 15) and who are not selected will automatically be reconsidered by the December board.

All scholarship applicants are evaluated by a board which considers the following criteria: ACT/SAT scores; high school academic record; extracurricular and/or athletic activities; personal interview; and results of a physical aptitude examination. Winners must pass an Army medical examination to receive the scholarship.

Advanced Program

All contracted cadets receive subsistence payment of $100 per month during the school year. Active duty commitments vary from 90 days to four years, depending upon component of the Army selected.

Basic and Advanced Camps

These camps held during the summer are both six weeks in duration and each pays over $700 to the student for attendance.

Basic Camp, or Camp Challenge, is held at Fort Knox, Kentucky, and is attended voluntarily by students who may not otherwise be eligible for entry into the Advanced Program. No military obligation is incurred and students may withdraw at any time. Completion of training does qualify the student for entry into the Advanced Program.

The Advanced Camp is a requirement of the Advanced Course and is normally attended between the junior and senior year.

Simultaneous Membership Program

This program is open to Advanced Course students and enables them to join the U.S. Army Reserve or National Guard as officer trainees while enrolled in college. Pay could exceed $3,000 per year and in some cases include one-half tuition reimbursement. Students should see the Professor of Military Science for details.

Air Force ROTC Scholarships

The types of financial assistance available through Air Force ROTC are briefly described below. For further details on eligibility and requirements, students should contact the Department of Aerospace Studies, Barker Hall, University of Kentucky. Additional information may be found in this Bulletin under Aerospace Studies.

Scholarships. Scholarships are available to qualified male and female students who enroll in the Air Force ROTC cadet program. These scholarships provide full repayment of tuition, laboratory fees, an allowance for books, and a nontaxable subsistence allowance which is currently $100 a month.

Four-year Scholarships. High school students are eligible for four-year Air Force ROTC scholarships. Applicants interested in obtaining a four-year scholarship will be evaluated on the basis of: results of the American College Test (ACT) or Scholastic Aptitude Test (SAT); high school academic record; extracurricular and athletic activities; personal interview; ability to qualify on an Air Force medical examination.

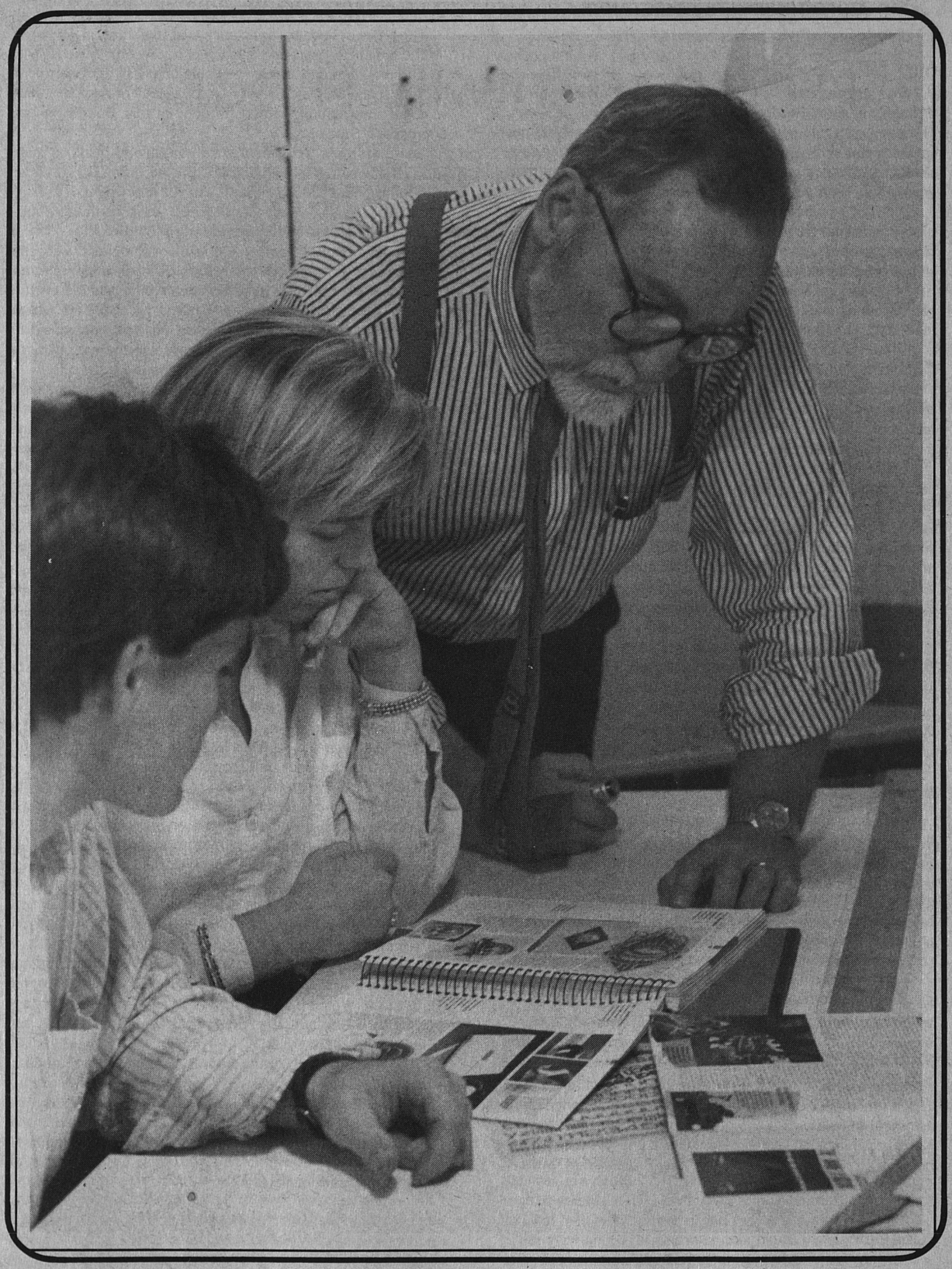
High school students who feel they can meet the basic eligibility requirements for a four-year scholarship must submit an application to Air Force ROTC before December 15 of the year prior to enrollment in the program. All selections for four-year scholarships are made at the Air Force ROTC headquarters.

High school students should contact their school guidance counselor or principal late in the junior year or early in the senior year for questionnaires. These questionnaires are screened to determine if applicants meet basic qualifications for scholarships. Questionnaires may also be obtained from the Professor of Aerospace Studies, Barker Hall, University of Kentucky, Lexington, KY 40506-0028, or by writing directly to Air Force ROTC/RR, Maxwell AFB, AL 36112-6663.

Other Scholarships. Scholarships are also awarded to cadets in the Air Force ROTC program on a competitive basis for 2, 2 1/2, 3 and 3 1/2 years. Initial selection is made on campus by a board composed of Air Force ROTC officers. Final selection is made by a central selection board at the Air Force ROTC headquarters. Applicants for these scholarships should contact the Professor of Aerospace Studies on campus.

Two-Year Program. Qualified students attending the University of Kentucky or transfer students from other institutions who did not enroll in the first two years of Air Force ROTC may receive a commission through the Two-Year Program. Those accepted receive the nontaxable subsistence allowance of $100 a month. The basic requirement for entry into this program is that the student have two academic years remaining, either at the undergraduate or graduate level. Entry into the program is competitive. Applicants must qualify on a written examination (the Air Force Officer Qualifying Test), have a grade-point average (GPA) of 2.5 or better, and be accepted into the Air Force ROTC program. Students interested in applying should contact the Professor of Aerospace Studies during the sophomore year.

Commission and Active Duty Requirements. All students who successfully complete the professional officer course, usually taken during the junior and senior years, and a summer field training course, will be commissioned as second lieutenants in the United States Air Force. Students incur a service commitment ranging from four to eight years, depending on the specific program qualifications.



SPECIAL ACADEMIC PROGRAMS

THE ACADEMIC COMMON MARKET

The Academic Common Market is an arrangement among 13 southern states which allows students to pay in-state tuition while studying outside their home states. Students may participate in the Academic Common Market to take advantage of many academic programs not available in their home states. The states which comprise the Academic Common Market include Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Students interested in further information about this program should contact Dr. Paul G. Sears, 11 Administration Building, University of Kentucky, Lexington, KY 40506-0032.

ACCELERATED PROGRAMS

The University of Kentucky recognizes that students need opportunities for acceleration in the undergraduate education process and thus has adopted a broader policy for accelerated programs. Among the opportunities available are special programs for high school students and a variety of credit-by-examination programs. Many students use these acceleration opportunities as means for earning their degrees in less time. Others prefer to use the time gained to explore areas outside their majors or to do more work in their major fields.

Accelerated Programs for High School Students

High school students who wish to begin the acceleration process while still in high school should inquire about admission to UK's High School Junior Summer program, or apply for admission as an applicant with exceptional ability prior to high school graduation. Both the High School Junior Summer program and the Exceptional Ability program are outlined in greater detail in the *Undergraduate Admission* section of this Bulletin.

While still in high school, students may begin their college careers through independent study courses and dual credit programs, such as UK's College Connection program. More information about independent study and dual credit opportunities can be found in the *University Extension* section of this Bulletin.

Credit-by-Examination Programs

Once a student has been accepted for admission to and enrolled in the University, there are several means to earn degree credit by successfully completing examinations.

Proficiency Examination Program (PEP)

The Proficiency Examination Program of The American College Testing Program involves tests within the subject matter areas of arts and sciences, business, criminal justice, education, and nursing. PEP tests may be recognized as appropriate credit for meeting degree requirements. Working with the Undergraduate Admissions Office, colleges and departments will determine appropriate cutoff scores, as applicable. The academic units will also have the responsibility for determining the amount of the awarded credit that will apply to the curricular requirements in each academic major.

Lower division credit in nursing may be awarded to students who are already registered nurses and who earn scores of 45 or higher on the following PEP tests:

Fundamentals of Nursing (403)
Maternal and Child Nursing, Associate Degree (453)
Adult Nursing (554)
Psychiatric/Mental Health Nursing (503)

Additional information concerning PEP tests may be obtained from the Counseling and Testing Center or the Undergraduate Admissions Office.

Advanced Placement Program (AP)

The University of Kentucky recognizes the examinations of the College Board Advanced Placement Program offered by high schools throughout the nation. Currently, UK ranks among the top 200 schools in the U.S. which receive a large number of AP score results. A high school senior who wishes to have AP scores evaluated for possible academic credit or placement should have the results forwarded to the Undergraduate Admissions Office. UK's code is 1837.

Students who receive credit for a particular course on the basis of Advanced Placement results may use this credit just as if they had taken the course at the University of Kentucky. CB Achievement Tests are not used by the University of Kentucky for placement purposes.

Academic departments have indicated the current policy (see chart) for students who score a 3 or better on the Advanced Placement Examination. For those subject areas marked with an asterisk (*), students are encouraged to submit examinations to the appropriate departments for evaluation. No specific score guarantees placement or credit, but each examination is evaluated on its own merit. Each year a number of students do receive credit or placement in these disciplines.

Inquiries about the University of Kentucky's Advanced Placement policy should be directed to:

Undergraduate Admissions Office
100 Funkhouser Building
University of Kentucky
Lexington, KY 40506-0054

AP Test	Score	Credit Awarded	Credit Statement
American History	3	HIS 108, 109	3 credit hours each for HIS 108, 109 with a grade of P.
Art Studio*			
Biology	4 or 5	BIO 150, 152 BIO 151, 153	Recommended for biology majors, preprofessional students or students who intend to take advanced courses in the life sciences. 3 credit hours each for BIO 150, 152 with a grade of P. 2 credit hours each for BIO 151, 153 with a grade of P.
		or BIO 104, 106 BIO 108; 105 BIO 107, 109	3 credit hours each for BIO 104, 106, 108; 1 credit each for BIO 105, 107; 2 credit hours for BIO 109 with a grade of P.
Calculus AB	3	MA 113	4 credit hours for MA 113 with grade of P.
	4 or 5	MA 113	4 credit hours for MA 113 with grade of A.
Calculus BC	3	MA 113, 114	4 credit hours each for MA 113, 114 with a grade of P.
	4 or 5	MA 113, 114	4 credit hours each for MA 113, 114 with a grade of A.
Chemistry	3	CHE 105, 107	3 credit hours each for CHE 105, CHE 107 with grade of P.
	4 or 5	CHE 105, 107	3 credit hours each for CHE 105, CHE 107 with grade of A.
Computer Science	3	CS 101	3 credit hours for CS 101 with a grade of P upon successful completion of a PASCAL programming project assigned by the Computer Science Department.
English Literature/Composition **or** English Language/Composition	3	ENG 161	3 credit hours for ENG 161 with grade of A. Automatic admission to ENG 105, regardless of ACT English score or SAT Verbal score. ENG 105 proficiency examination not required. (see *University Writing Requirement*).
European History	3	HIS 104, 105	3 credit hours each for HIS 104, 105 with grade of P.
French Language	3	FR 201	3 credit hours for FR 201 with grade of P.
	4 or 5	FR 201, 202	3 credit hours each for FR 201, 202.

Guide for Advanced Placement

AP Test	Score	Credit Awarded	Credit Statement
French Literature	3	FR 304	3 credit hours for FR 304 with grade of P.
German Language	3	GER 201	3 credit hours for GER 201 with grade of P.
	4 or 5	GER 201, 202	3 credit hours each for GER 201, GER 202 with grade of P.
Latin	3	--	6 credit hours for Latin at the 200 level upon completion of University Latin course at the 300 level or above.
	4 or 5	--	6 credit hours at the 200 level and 3 credit hours at the 300 level upon completion of University Latin course at the 300 level or above.
Music*			
Physics B	3	--	The Department of Physics and Astronomy awards placement only, no credit. Exemption from PHY 211 and 213.
Physics C	3	--	The Department of Physics and Astronomy awards placement only, no credit. Exemption from PHY 231, 232, 241, 242.
Spanish Language	3	SPI 202	3 credit hours for SPI 202 with grade of P.
	4	SPI 210	3 credit hours for SPI 210 with grade of P.
	5	SPI 210, 310	3 credit hours each for SPI 210, 310 with grade of P.
Spanish Literature	3	SPI 202	3 credit hours for SPI 202 with grade of P.
	4	SPI 320	3 credit hours for SPI 320 with grade of P.
	5	SPI 320, 322	3 credit hours each for SPI 320, 322 with grade of P.

*Examination is referred to the department. No specific score guarantees credit or placement.

College Level Examination Program (CLEP)

The University Senate has endorsed the University's participation in this national testing program of The College Board. The CLEP tests are divided into two categories: **General Examinations** and **Subject Examinations.**

The **General Examinations** measure college-level achievement in five basic areas of the liberal arts: English composition, humanities, natural sciences, mathematics, and social sciences and history. All CLEP General Examinations may be recognized as appropriate credit for meeting degree requirements. Colleges and departments within the University, in consultation with the Undergraduate Admissions and Registrar's Offices, will determine and publish appropriate cutoff scores. The amount of awarded credit that may be used in meeting curricular requirements will be determined by the colleges.

CLEP General Examinations

English Composition with Essay—credit awarded for ENG 105 with scaled score of 450, as of May, 1986 (scaled score of 560, 1978-April, 1986)
Humanities—no credit awarded
Natural Sciences—credit awarded for BIO 103 with scaled score of 421
Mathematics—no credit awarded
Social Sciences and History—no credit awarded

The **Subject Examinations** cover specific material which is common to courses in many universities. UK has recognized the majority of CLEP Subject Examinations since 1972.

Credit for University courses has been awarded to students who obtain the listed scores on the appropriate CLEP Subject Examinations, as listed in the following chart.

University of Kentucky Policy Guide for CLEP Subject Examinations

CLEP SUBJECT EXAMINATION	Scaled Score To Earn Credit	Equivalent UK Course	Credit Hours	Grade
COMPOSITION AND LITERATURE				
American Literature (free-response section required)	53 or above	ENG 251, 252	6	credit only
Analysis and Interpretation of Literature		no credit awarded		
College Composition		no credit awarded		
English Literature (free-response section required)	53 or above	ENG 221, 222	6	credit only
Freshman English		no credit awarded		
FOREIGN LANGUAGES				
College French-Levels 1 and 2	50-69	FR 201	3	credit only
	70 or above	FR 201, 202	6	credit only
College German-Levels 1 and 2	50-69	GER 201	3	credit only
	70 or above	GER 201, 202	6	credit only
College Spanish-Levels 1 and 2	50-54	SPI 102, 201	7	credit only
	55-59	SPI 102, 201	7	grade of B
		SPI 202	3	credit only
	60-64	SPI 102	4	grade of A
		SPI 201, 202	6	grade of B
	65 or above	SPI 102, 201, 202	10	grade of A
HISTORY AND SOCIAL SCIENCES				
American Government	50-59	PS 101	3	grade of C
	60-64	PS 101	3	grade of B
	65 or above	PS 101	3	grade of A
American History I: Early Colonization to 1877 (free-response section required)	48-49	HIS 108	3	credit only
	50-54	HIS 108	3	grade of C
	55-59	HIS 108	3	grade of B
	60 or above	HIS 108	3	grade of A
American History II: 1865 to the Present (free-response section required)	48-49	HIS 109	3	credit only
	50-54	HIS 109	3	grade of C
	55-59	HIS 109	3	grade of B
	60 or above	HIS 109	3	grade of A
Educational Psychology	55	EDP 548	3	credit only
General Psychology	51	PSY 100	4	credit only
Human Growth and Development		no credit awarded		
Introductory Macroeconomics	50	ECO 202	3	credit only
Introductory Microeconomics	50	ECO 201	3	credit only
Introductory Sociology (free-response section required)	53	SOC 101	3	credit only

University of Kentucky Policy Guide for CLEP Subject Examinations

CLEP SUBJECT EXAMINATION	Scaled Score To Earn Credit	Equivalent UK Course	Credit Hours	Grade
Western Civilization I:				
Ancient Near East to 1648	48-49	HIS 104	3	credit only
(free-response section required)	50-54	HIS 104	3	grade of C
	55-59	HIS 104	3	grade of B
	60 or above	HIS 104	3	grade of A
Western Civilization II: 1648				
to the Present	48-49	HIS 105	3	credit only
(free-response section required)	50-54	HIS 105	3	grade of C
	55-59	HIS 105	3	grade of B
	60 or above	HIS 105	3	grade of A
SCIENCE AND MATHEMATICS				
Calculus with Elementary				
Functions	50	MA 113	4	credit only
College Algebra		no credit awarded		
Trigonometry		no credit awarded		
College Algebra-Trigonometry		no credit awarded		
General Biology	50-59	BIO 103	3	credit only
	60 or above	BIO 104, 106	6	credit only
General Chemistry	55 or above	CHE 105, 107	6	credit only
BUSINESS				
Computers and Data Processing		no credit awarded		
Introduction to Management	50	MGT 301	3	credit only
Introductory Accounting	50	ACC 201, 202	6	credit only
Introductory Business Law	50	MGT 341	3	credit only
Introductory Marketing	50	MKT 300	3	credit only

Additional information on taking CLEP examinations may be obtained from the Counseling and Testing Center, 301 Frazee Hall. Students should contact the Undergraduate Admissions Office to inquire about receiving credit for any of the examinations.

Special Departmental Examinations

Almost any course in the University is available for credit by special examination, regardless of whether a student has audited the course, is currently enrolled in it, or has studied it independently. These examinations are prepared and administered by the department which teaches the course and are usually equivalent to a final examination. There is *no* fee required to take the examination, but the student must be enrolled in school and in good standing.

Any undergraduate student who wishes to take a special examination must apply in writing to the chairperson of the department. Graduate students' requests should be addressed to the director of graduate studies in the department offering the course. The application should include some evidence that the student is, in fact, reasonably prepared for the examination.

More information concerning special examination credit appears in the *Academic Requirements* section of this Bulletin.

English Examination: Students who have a standard score of 25 or above on the English section of the ACT may elect to take a special writing proficiency examination administered by the English Department Writing program. Students who pass this examination are eligible to fulfill the University Writing requirement by successfully completing ENG 105, Writing: An Accelerated Course. Students who do not pass this examination are required to take the normal sequence of ENG 101-102. For complete information, students should contact the Writing Program Office, 1221 Patterson Office Tower, (606) 257-7002.

Program on Noncollegiate-Sponsored Instruction (PONSI)

Students, particularly those 25 years of age and older, may be eligible to receive credit for extrainstitutional learning. The American Council on Education through its Program on Noncollegiate-Sponsored Instruction (PONSI) has evaluated over 2,000 courses sponsored by over 140 corporations, organizations, and agencies drawn from business, industry, and government. On the basis of the PONSI evaluations, recommendations have been made for awarding credit for college-level courses. The University recognizes these recommendations as appropriate credit for meeting degree requirements. The University's colleges and departments are responsible for determining the amount of credit that will apply to a student's curriculum.

Information on PONSI appears in *The National Guide to Educational Credit for Training Programs*. Inquiries regarding this program should be directed to the Undergraduate Admissions Office.

THE HONORS PROGRAM

The University of Kentucky Honors program seeks outstanding students, especially those interested in developing independent and critical thinking, and offers them a special program and a special identity within the framework of the larger institution. The Honors program is an important part of the University's commitment to academic excellence in undergraduate education.

The Honors curriculum includes four semesters of courses in the history of ideas which trace the development of Western civilization from antiquity to the present and provide the basis for a liberal education. Most juniors and seniors in the Honors program also take an Honors seminar, which varies in content each semester. Upperclassmen also pursue independent study, either under the direct supervision of an individual faculty member or in special research seminars.

The Honors program and curriculum are described in detail in the *Honors Program* section of this Bulletin.

THE UNIVERSITY SCHOLARS PROGRAM

There are students at the University of Kentucky who are particularly gifted and highly motivated and whose well-defined academic and career plans include graduate or professional study. The University Scholars program offers these students the opportunity and the challenge of integrating their undergraduate and graduate or professional courses of study into a single, continuous program culminating in both a baccalaureate and master's degree. The time devoted to such a program is determined by the student's needs; however, it normally can be less than that required in a conventional program.

Admission to the Program

Applicants for the University Scholars program must meet the following admissions requirements:

1. The program is open to undergraduates with senior standing who have completed at least 90 hours of course work and should have satisfied all general studies requirements. Application to the program should be made at the end of the student's junior year.
2. The master's program should be in the field of the undergraduate major.
3. The undergraduate grade-point average should be greater than or equal to 3.5 in the student's major and 3.2 overall.
4. An applicant must provide evidence of superior scholarship in the proposed area of study. Examples of such evidence include a project, a term paper, or other creative endeavors that indicate achievement beyond what is normally expected.
5. The Graduate Record Examination must be taken prior to entering the program.
6. Students who apply to the program should follow the current procedures for application to The Graduate School, subject to the above conditions. Application materials should include a letter from the appropriate director of graduate studies in which he or she evaluates the student's evidence of superior scholarship (see item 4 above). The application and supporting evidence will be reviewed by a committee appointed by the Dean of The Graduate School.

Degree Requirements and Curriculum

Students in the University Scholars program must meet these requirements:

1. The total number of credit hours for the combined program may be 12 fewer than the total required for both the bachelor's and master's degrees. (The requirements for the bachelor's degree are unaffected.)
2. Students in this program should not take more than 16 credit hours per semester. Permission to exceed that number must be given by the appropriate director of graduate studies and the Dean of The Graduate School.
3. The student must complete at least 36 hours of graduate level courses in the combined program, 15 credit hours of which must be in the 600 level or above for a Plan B master's degree. Students pursuing Plan A must complete at least 30 hours of graduate level courses in the combined program of which 12 credit hours must be at the 600 level or above. (Students should consult The Graduate School Bulletin for detailed information concerning Plan A and Plan B for master's degrees.)
4. Each student must have an undergraduate and a graduate adviser. A jointly planned program must be prepared for each student.
5. In order to participate in the University Scholars program, a department must submit to The Graduate School a plan and illustrative examples of typical programs.

COUNCIL ON AGING

The University of Kentucky has a long-standing interest in individuals of or nearing retirement age. In 1962, the Board of Trustees established the Council on Aging to serve as the focal point for programs for older persons. The council is an integral part of the Sanders-Brown Center on Aging.

The Council on Aging sponsors a variety of education programs for older adults. One of the most outstanding programs is the Herman L. Donovan Senior Citizens Fellowship program (described below). The Writing Workshop for People Over 57 is an annual event of the council. The workshop attracts noted authors of fiction, nonfiction, poetry and special areas. Participants have come from all over the United States, Canada, and Mexico.

Other programs include the Forum series, a bi-weekly program series on a variety of topics, classes in music, art, radio drama, physical fitness, Great Decisions, and the Emeritus Corps, a volunteer group serving educational needs of the campus and local community. Any person over 60 years of age can participate in these noncredit courses and activities.

The Herman L. Donovan Senior Citizens Fellowship Program

The fellowship provides an opportunity for any person 65 years of age and over, regardless of place of residence, to enroll for regular courses without the payment of fees. The fellowship is available at the Lexington campus and at each of the community colleges. Courses may be taken for credit toward degrees or audited for no credit. All prerequisites and entrance requirements are waived for auditors.

Donovan Fellows attend regular classes and participate in the many intellectual, social, and cultural programs which characterize the University.

Inquiries about the Donovan Fellowship should be addressed to:

Council on Aging
Ligon House
University of Kentucky
Lexington, KY 40506-0442

LIBRARIES

The University of Kentucky Libraries' collection contains more than 2 million volumes and currently receives 29,651 periodical and serial titles, including government document serials. The libraries serve the University community, citizens of the state, and scholars at large by providing books, periodicals, and other information services, plus the expertise of professional librarians. The social sciences and humanities collections are housed in the Margaret I. King Library. Specialized collections are housed separately in 12 branch libraries, serving the disciplines of agriculture, architecture, art, biological sciences, chemistry and physics, education, engineering, geology, law, mathematical sciences, medical sciences, and music.

The University of Kentucky has been a depository for federal government publications since 1907. Most of these, with the exception of agriculture and law, are housed in the King Library Government Publications Department, along with official publications of Canada, the United Nations, the European Economic Community, Kentucky, and selected states.

The library system has a substantial collection of over 184,000 maps. General interest maps are located in the King Library Map Room, and geological maps are in the Pirtle Geology Library.

The library system houses and services 3.5 million units of microform. Newspaper holdings include many major U.S. and foreign titles in addition to a comprehensive collection of Kentucky newspapers and 265 current newspaper subscriptions.

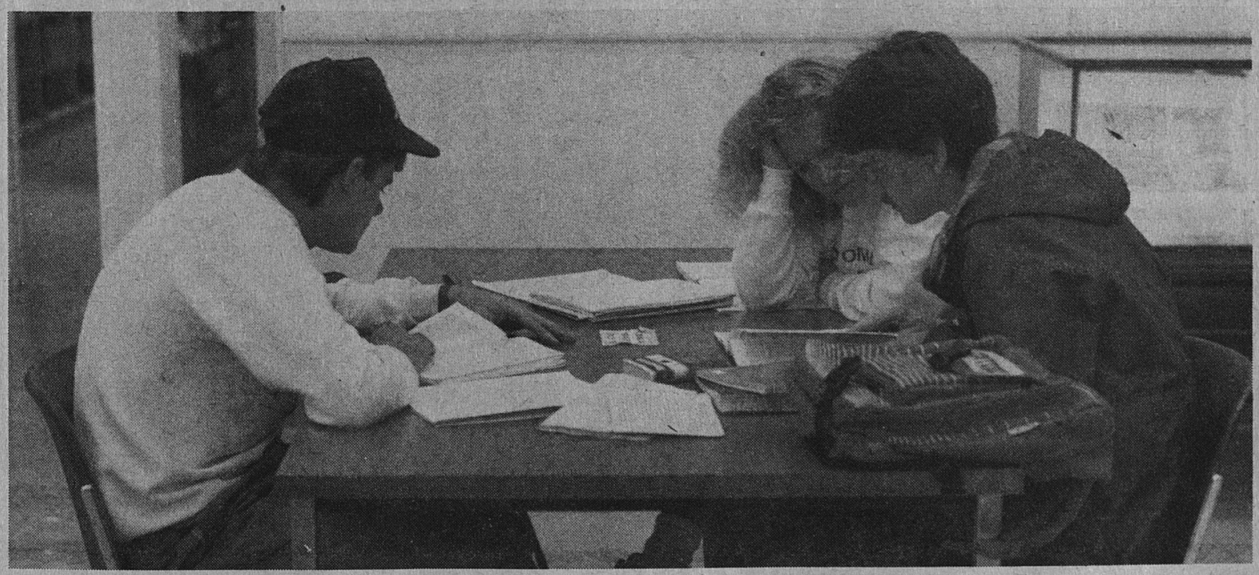
Large collections of rare books, photographs, and manuscripts are located in King Library's Special Collections Department. The Modern American History Collection includes outstanding manuscript holdings in modern political history supplemented by 2,207 interview tapes and over 11,839 audio recordings and film. Although emphasis is placed on Kentucky and Ohio Valley history and literature, this department also holds the Cortot collection of musicology, an important Milton collection, and one of the top collections in the country of nineteenth century American and English literary manuscripts and autograph letters.

A minicomputer-based, integrated library system provides circulation control, online catalog searching, and other automated services. The Reference Department offers computer-assisted instruction to individuals, introductory orientation to the library for beginning students and in-depth presentations to classes of advanced students. Instructional services are also provided by branch libraries upon request. All library units and branches publish library guides and brochures on the use of various library tools.

The library system has long been a member of the Center for Research Libraries in Chicago. This center's collection consists of infrequently used research material plus current issues of a selected number of heavily used science and technology journals. Faculty and students may borrow these materials through the Interlibrary Loan Department of King Library or through the libraries in law, medicine and agriculture.

The system holds membership in the Association of Research Libraries, an organization of American and Canadian research libraries. It is also a member of the Southeastern Library Network (SOLINET), a computer-based system of shared cataloging. The network now provides member libraries with the ability to make interlibrary loan requests online.

The collection of books, periodicals, cassettes, microforms, maps, and manuscripts in the University's libraries has been selected for the purpose of supporting the educational programs of the University in teaching, research, service, and the promotion of general culture.





CULTURAL OPPORTUNITIES

Otis A. Singletary Center for the Arts

This facility is a center of cultural activity for the campus, the community, and the state. The calendar of events for the Otis A. Singletary Center for the Arts includes outstanding performances and presentations throughout the year. Students are welcome to enjoy the wide range of programs in the 1500-seat concert hall and the 400-seat recital hall, both of which have been designed for acoustical excellence. Most programs are free, and many others offer student discounts on tickets.

Theatre

The Department of Theatre offers several staged productions each year, providing a range of dramatic performances for the educational and regional community. Special student rates are available for all main-stage productions.

All University students are invited to audition for the plays presented. Participation is possible not only as a performer, but also in other theatre-related activities such as scene, lighting, and costume design and construction, promotion, and front-of-house management. Similar opportunities are made available through a summer theatre program.

The State Drama Festival is cosponsored annually by the Kentucky High School Speech League and by the Department of Theatre.

University Concerts

The School of Music offers a variety of recitals and concerts by faculty and students. Faculty ensembles include the Faculty Brass Quintet, the Kentucky Wind Quintet, and the Concord Trio. Student musical organizations include the Symphony Orchestra, the Symphonic Band, the University Choristers, the University Chorale, the UK Jazz Ensembles, Opera Workshop, and the Collegium Musicum.

Faculty recitals, faculty ensemble concerts, and concerts by student organizations are usually free to students, faculty, staff, and members of the community. A calendar of performances is published each semester. Inquiries may be directed to the School of Music, College of Fine Arts.

University Artist Series

Sponsored by the Singletary Center for the Arts and the College of Fine Arts, the University Artist Series features concerts by world-famous classical musicians. The acclaimed series is presented to give students and the general public an opportunity to enjoy the highest standards of artistic excellence. Students may purchase the series package or single tickets at discount prices.

The Central Kentucky Chamber Music Society

The Central Kentucky Chamber Music Society offers a series of concerts featuring outstanding chamber music ensembles of national and international reputation. Tickets are available singly or by subscription. Some free tickets are available to students.

The Lexington Philharmonic Orchestra

The Lexington Philharmonic Orchestra is conducted by George Zack and performs regularly in the Concert Hall of the Singletary Center for the Arts. The orchestra plays a varied repertoire and features outstanding guest soloists at each concert. Tickets are available singly or by subscription. Some free tickets are available to students.

The Center Sunday Series

The Center Sunday Series provides quality entertainment on Sunday afternoons at the Singletary Center for the Arts. Events include concerts and recitals, lectures, and occasional theatre and dance productions. The performances and lectures often feature University faculty and students, and most events are free of charge. The diversity and excellence of this series has made it popular with both campus and community audiences.

Martin Luther King Jr. Cultural Center

One of the newest cultural and educational facilities on campus is the Martin Luther King Jr. Cultural Center. Dedicated and opened in 1986, the center was established as an indication of the University's commitment to a positive and hospitable environment for Afro-American students, faculty, and staff. Throughout the year the center sponsors concerts, theatre productions, exhibits, lectures, workshops, film and video programs, children's programs, and seminars, all of which present and promote the unique artistic and intellectual achievement of Afro-American people. The center's first year of programs included presentations by Ruby Dee, Coretta Scott King, and the Boys Choir of Harlem.

University Art Galleries

The Center for Contemporary Art in the Fine Arts Building offers a series of exhibitions each year, including group shows, special exhibitions in various media, the work of major individual artists, and the annual faculty exhibition. Painting, drawing, graphic arts, photography and sculpture, as well as experimental forms and media, are subjects of these exhibitions. The Student Center Gallery maintains a similar program, under the supervision of a student board, and the Raymond Barnhart Gallery in the Reynolds Building serves the needs of the studio program in art. The Pence Hall Gallery, under the auspices of the College of Architecture, combines exhibits of architectural interest featuring painting, drawing and sculpture. The four galleries provide a varied and balanced fare for students, staff, and faculty.

University of Kentucky Art Museum

The University of Kentucky Art Museum, located in the Otis A. Singletary Center for the Arts, displays special exhibitions throughout the year. In addition, a permanent collection of African, Pre-Columbian, and 19th and 20th century European and American works is on view. The Art Museum is open to the public, 12 noon-5 p.m., Tuesday through Sunday. Admission is free.

Anthropology Museum

Since its establishment in 1934, the primary purposes of the Museum of Anthropology have been to collect, preserve, research and interpret the cultural objects of the human environment, especially those of Kentucky's prehistory.

The exhibit facilities in Lafferty Hall interpret the museum collections and research for the University community, school groups and the general public. The permanent exhibit, "Cultural History of Kentucky," displays archaeological material recovered by Museum excavations.

The collections are used for research by faculty members, graduate and undergraduate students, and scholars from other institutions and countries.

The Museum of Anthropology is open to the public, free of charge, from 8 a.m.-4:30 p.m., Monday through Friday, except holidays.



LIVING ACCOMMODATIONS

The University of Kentucky offers a high standard of residence hall living. Many educators believe that students develop a sense of identity, security, belonging, enthusiasm and stimulation for learning outside the classroom. Certainly the experiences of many current University students indicate this is true. Many recommend living in the residence halls as the best way to make friends and meet new people and generally to become involved in campus life. The residential setting of the University of Kentucky is intended to contribute further to the goals of the student's education by insuring a pleasant environment for living.

The University's Housing Office is responsible for the processing of housing applications and waiting lists, assignment of rooms and undergraduate apartments, and notification of assignments. Questions about any of these areas should be directed to:

University Housing Office
125 Funkhouser Building
University of Kentucky
Lexington, KY 40506-0054
(606) 257-1866

APPLYING FOR HOUSING

In order to insure a reasonable cost to students living on campus, occupancy of residence halls must be kept near capacity. With that objective in mind, the University reserves the right to require freshman students to live in University residence halls if space is available. *However, during the past few years the shortage of space has prevented the assignment of all students who applied for housing. Students are urged to submit the housing application prior to the time they apply for admission to the University.*

Students should note that application for admission to the University (and acceptance) and application for University housing (and acceptance) are two separate processes. Acceptance for one does not guarantee acceptance for the other. Also, the fact that the Housing Office has received the student's application does not guarantee a room. Usually, beginning freshmen who apply for housing early (**before Christmas**) can be reasonably sure that housing will be available when they enter school the following fall.

Students who would like to live in University housing should indicate this in the appropriate section of the ACT student profile if planning to apply for admission by Enter-ACT. Students may also indicate the need for University housing on the regular application for admission. In either case, each applicant will receive more complete information about the residence halls, along with a housing contract and application. These should be completed and returned to the Office of Student Billing Services, 257 Student Center, as soon as possible, along with a $100 installment.

Students who decide they would like to live in University housing, after having applied for admission, should write directly to the Housing Office to request an application.

Room Assignments

Room assignments are made according to the date the completed housing application, first installment, and housing contract are received in the Housing Office. Receipt of the residence hall or apartment assignment is confirmation of housing for the student. The notice of an assignment contains the name of the residence hall and the room number.

If housing demand exceeds capacity, the University may offer **limited, temporary** living arrangements, until a permanent room assignment can be made. Vacancies become available through students who decide not to come to school, or come but do not stay.

Roommates

Students of the same sex may request their own roommates on the housing application. To obtain this assignment, two actions are necessary. First, each student must request the other as the roommate preferred, and, second, both applications must arrive in the same envelope. Within the limits of academic classification, residence halls may be selected, provided space is available. Normally, freshmen are not assigned to coed residence halls or to the Greg Page Stadium View apartments.

FOOD SERVICES

The University's Food Services is a system of several campus restaurants designed to satisfy the food preferences and schedules of a diverse student body. All students who live in residence halls are required to purchase a meal contract. Residents of University apartments are not required to purchase meal contracts, but many find it convenient to do so.

Meal contract owners are issued a Meal Card or a DinerCard, depending on the meal plan purchased. Students use their cards for each food purchase at any of the campus restaurants. DinerCards may also be used at the convenience stores operated by UK Food Services.

Three Meal Card plans are offered to students:

1. **19 meals per week.** This plan offers one breakfast, one lunch, and one dinner, Monday through Friday, and two meals on Saturday and Sunday.
2. **14 meals per week.** This option provides two meals per day, seven days per week.
3. **10 meals per week.** This option provides two meals per day, Monday through Friday.

The DinerCard is the most popular Food Services plan for students. The DinerCard works much like a checking account. The student makes a cash deposit at the beginning of the semester and purchases are deducted, with the balance being displayed each time the student uses the DinerCard.

Three DinerCard plans are available to students:

1. **Beginning deposit of $650.** This amount is suggested for the student who will be eating most meals on campus.
2. **Beginning deposit of $550.** This amount is suggested for the student who plans on eating two meals a day on campus, five

or six days a week.

3. **Beginning deposit of $450.** This is the minimum amount of deposit for the resident student.

Students may supplement their accounts as needed, by making deposits in $50 increments.

RESIDENCE HALLS AND UNDERGRADUATE APARTMENTS

UK's residence halls have several features that make them attractive to students. Housing rates include utilities, local telephone service, basic cable television service, and furniture. All residence halls are staffed by well-trained hall directors and resident advisers and 24-hour security is provided. Students living in the residence halls can take advantage of convenient access to study areas and lounges, UK Food Services, laundry facilities, and game and television rooms. Students may also benefit from refrigerator and linen rental programs.

North Campus Residence Halls

On the north side of the campus, there are four residence halls for women, one for men, and one which is coed.

The smallest of UK's residence halls, Jewell Hall accommodates 102 women and features a large, comfortable study room, game room, and spacious lobby. Patterson Hall, UK's oldest residence hall, houses 122 women and offers study facilities, a large lobby, and front porch. Situated between Patterson and Jewell, Boyd Hall includes a large game room, study room with a fireplace, and carpeted rooms for 140 women. A total of 188 women live in Blazer Hall, an air-conditioned facility with a large lounge, study facilities, and a sun roof. The Courtyard Restaurant, designed to serve North Campus residents, is located in Blazer Hall.

Holmes Hall, for 301 men, features carpeted rooms with sinks. Holmes' ground floor includes study facilities, a game room, and a large lounge used as the 24-hour study area for North Campus.

Keeneland Hall is designed for 311 upperclass men and women. The facilities in Keeneland are arranged as suites of double rooms with connecting bathrooms. This hall has corridor study rooms, kitchens, a lounge, and a game room.



Central Campus Residence Halls

Central campus residence halls include Donovan Hall for women and Haggin Hall for men.

Donovan Hall has space for 340 women and contains a lounge, game room, study facilities, and the Oak Room dining area.

Adjacent to Donovan Hall is Haggin Hall, with a capacity for 575 men. Constructed in a square with an open courtyard, Haggin Hall has air-conditioned, carpeted rooms for students, a central lounge and study area, and a recreation room.

South Campus Residence Facility

The South Campus facility is the University's 2,664-bed Blanding-Kirwan student residential complex. The complex is composed of eight three-story halls for 172 students and two 23-story towers, each housing 644 students. These buildings are air-conditioned and fully carpeted. The Blanding-Kirwan Complex Commons serves those students who live in the complex with a cafeteria, grill, the Pond library, television rooms, fee payment and check cashing service, and several study rooms.

Undergraduate Apartments

Located on the southeast side of campus, near Commonwealth Stadium, are the Greg Page Stadium View apartments. There are 149 air-conditioned, carpeted, and furnished apartments for upperclass men and women. Each apartment has two bedrooms, kitchen-dining area, living room, and bath. Four students occupy each apartment. Students may have meal contracts if desired.

Office of Residence Life

The Office of Residence Life is responsible for developing programs and activities in residence halls and apartments. Residents are encouraged to participate in student government, community service projects, recreational activities, and other special events.

RATES

The cost for living in University Housing is listed in the *Fees* section of this Bulletin.

First Installment

The first installment of $100 must accompany the student's application. This installment, as well as subsequent payments, must be made by mail to the Office of Student Billing Services, 257 Student Center, University of Kentucky, Lexington, KY 40506-0030. Receipts will be mailed to the student's permanent address.

Rate Changes

Upon action taken by the Board of Trustees, rates are subject to change at any time prior to the beginning of the academic year.

Mailing of Assignments

Assignments are **not** mailed until after the June 1 and December 1 cancellation deadlines.

Cancellations and Refunds

Before the semester begins:

A $90 refund of initial payment will be made if notice to cancel a room application is given in writing to the Housing Office on or before June 1 for fall applicants, or December 1 for spring applicants.



No refund will be made if cancellation of a room reservation is requested after June 1 for the fall semester, or after December 1 for the spring semester.

If a student is rejected for admission to the University, $100 will be refunded.

No refund will be made for applications submitted and cancelled after June 1 for the fall semester, or after December 1 for the spring semester.

If a student is dropped for academic reasons, a $90 refund will be issued.

After the semester begins:

For the regular semester (16 weeks), students living in the residence halls who withdraw from the University of Kentucky will be assessed a charge for room and board of $100 through the first week. Students withdrawing after the first week will be assessed a charge computed at the rate of eight percent of the total semester charge for each week in residence through the twelfth week. Any fractional part of a week will be considered a full week.

Students withdrawing from the residence halls to enter married student housing units will be assessed a charge for room and board at the rate of six and a quarter percent of the total semester charge for each week in residence. Any fractional part of a week will be considered a full week.

GRADUATE AND FAMILY HOUSING

The Cooperstown housing area provides separate facilities for single graduate or advanced students. Commonwealth Village and University apartments on Rose Lane and Linden Walk also house graduate students. Students living in these facilities may prepare their own meals or have University meal contracts.

Apartments for married students and families include the Shawneetown housing area and some units in Cooperstown and Greg Page Stadium View apartments.

Further information on graduate and family housing may be obtained from:

Apartment Housing Office
Building C, Cooperstown
University of Kentucky
Lexington, KY 40506-0132

OFF-CAMPUS HOUSING

The Commuter Student Office maintains a listing of non-University housing which students may utilize in their personal search for off-campus housing. Rooms, apartments, and houses listed are neither inspected nor to be considered as "approved" by the University. The only requirement is that the prospective landlord sign a statement of nondiscrimination on the basis of race, religion, creed or national origin as provided by law. This listing of off-campus housing is available in 106 Student Center. For further information, students may call (606) 257-6598.

STUDENT PARKING AND TRANSPORTATION

Students are required to have valid parking permits or passes to park on campus during restricted hours. Students who do not have valid parking permits are restricted to park in the K areas at Commonwealth Stadium. Commuter and residence hall parking permits are issued by student classification, in accordance with the availability of parking spaces and on a first-come, first-served basis. Those students not otherwise eligible for commuter or residential parking permits are eligible for K parking permits for Commonwealth Stadium K parking areas. Handicapped parking is available near the residence halls and classroom buildings.

Students parking at Commonwealth Stadium may ride the LexTran buses to and from the residence halls and central campus from 7 a.m. to 6:30 p.m., Monday-Friday. Evening shuttle service is also provided from 6:30 p.m. to 11:30 p.m., Monday-Thursday. All bus service is free.

Information concerning student parking and shuttle service is available from the Parking and Transportation Department, 305 Euclid Avenue, (606) 257-5757 for parking and (606) 257-1930 for buses.

STUDENT SERVICES AND ACTIVITIES

DEAN OF STUDENTS OFFICE

Staff members in the Dean of Students Office advise many student organizations and assist individuals and groups with program development. They are available at any time to discuss personal, academic, and extracurricular concerns with students. The Dean of Students is responsible for several areas, programs and services described in the following sections.

University Discipline

University of Kentucky students are citizens of two communities—the academic community and the city of Lexington. All students are subject to institutional disciplinary procedures when offenses are committed against the University or its community of scholars. *The Code of Student Conduct* adopted by the Board of Trustees, effective August 16, 1987, sets expectations for student behavior which are consistent with the goals and purposes of this academic institution and establishes procedures which insure equality and fairness in dealing with all students. While the University is a place where the search for truth is carried on through free inquiry, it is not a sanctuary for those who seek freedom from moral, social and legal obligations. As residents of the city of Lexington, students have the same rights and responsibilities as other citizens.

Fraternities and Sororities

There are 22 national fraternities and 16 national sororities represented on the University of Kentucky campus. The primary responsibility for the operation of these groups rests with the undergraduates, with the assistance of the house director, alumni and University advisers. The advisers are two assistant deans who are concerned with all areas of fraternity and sorority operations: rushing, pledging, scholarships, housing, finance, leadership, personal growth and University involvement.

Sororities hold a formal rush period the week prior to school opening. This rush is followed by open bidding throughout the year for candidates to fill available vacancies.

Fraternities have an intensified rush period at the beginning of the school year. Open rushing takes place throughout the remainder of the school year.

The Interfraternity Council and Panhellenic Council, composed of representatives from all houses on campus, are the governing bodies for Greek Life. They also jointly publish the *Kentucky Greek* newspaper six times during the academic year. The Greek Activities Steering Committee programs all Greek social, University and community activities.

The Office of Fraternities and Sororities is located in Room 575, Patterson Office Tower. The Interfraternity Council and Panhellenic Association can be contacted at this same location.

Religious Affairs

While the University does not directly sponsor religious activities, it both welcomes and supports the diverse religious traditions and organizations on campus. A member of the Dean of Students Office staff serves as coordinator of religious affairs and assists the work of many religious organizations which, through a campus ministry and student organizations, include Ba'Hai, Baptist, Campus Crusade for Christ, Christian Student Fellowship, Church of Christ, Episcopal, Hillel Foundation, Inter-Varsity Christian Fellowship, Lutheran, Methodist, Navigators, Roman Catholic, Unitarian Universalist, and United Campus Ministry (Presbyterian, Christian Church—Disciples and United Church of Christ).

Health Education/BACCHUS Office

This office promotes an awareness of health issues and life style practices through programming and dispersion of information. The major program goal is to educate students so they can take responsibility for their own well-being, develop positive health habits, and skillfully take care of themselves when ill.

The office sponsors BACCHUS (Boost Alcohol Consciousness Concerning the Health of University Students). This national university program promotes the responsible use of alcohol and has 185 chapters throughout the United States and Canada. BACCHUS works to decrease alcohol abuse on campus through a peer education program, alcohol awareness events, screening and referral for alcohol problems, and alcohol issues workshops.

Handicapped Student Services

Handicapped Student Services provides disabled students with several services. These include communication with faculty concerning student needs, assistance with class scheduling to ensure classroom accessibility and adequacy of time between classes, applicant screening for handicapped parking permits, and coordination of campus arrangements to meet student needs. The Handicapped Student Services Office acts as a liaison with the state's Office of Vocational Rehabilitation Services.

Two very specialized programs, the Attendant Care Program and the Lexington Volunteer Recording Unit, are available to students. The Attendant Care Program provides attendants for quadriplegics and other severely disabled students who may need assistance with activities of daily living. The Lexington Volunteer Recording Unit provides printed textbooks transcribed onto cassette tapes for blind, visually impaired, and learning disabled students.

All disabled students are urged to register with Handicapped Student Services and obtain information on the various types of assistance available to them. This office is located in Room 2, Alumni Gym, (606) 257-2754.

Campus Recreation

The Department of Campus Recreation is organized with the belief that it is a responsibility of the University to provide opportunities for all students, faculty, and staff to participate in wholesome physical activities. The Department of Campus

Recreation offers several sports programs and activities designed to meet the needs of those who participate.

Activities include intramural sports, club sports, co-recreational activities, special events, and leisure recreation. Opportunities are available for individual, dual, and team sports competition. Teams may be organized in the following divisions: residence halls, fraternities, sororities, independents, and faculty and staff.

The Seaton Center Complex offers attractive, well-equipped indoor and outdoor facilities. The Coliseum Pool is available for recreational swimming during open hours.

Further information may be obtained from the Department of Campus Recreation, Room 135, Seaton Center, (606) 257-2898 (evenings and weekends, 257-1497).

The Student Center

The University of Kentucky Student Center is owned and operated by the University of Kentucky as a service to all members of the academic community. The facility blends a mixture of programs and services to meet the various needs of students, faculty, and staff. Operating from early in the morning until late at night, the Student Center is a *community* center offering cultural, recreational, and organizational outlets for the University popuiation.

While on campus, students can take in a movie at the theatre, browse through the University Bookstore, stop at the Sweet Shoppe, or relax with friends in one of several lounges. The staff and students of the Student Center are interested in providing an atmosphere of social and intellectual interaction within an informal setting. Comments and suggestions from students are always welcomed.

More information concerning the Student Center may be obtained by calling the Director's Office at (606) 257-5781.

The Commuter Student Office

The Commuter Student Office in 106 Student Center is designed to help fulfill the needs of the student who lives off-campus. The office provides housing and car-pool information, a lounge with a free telephone, special educational programming for commuter students, on-campus day social programs for commuters, information pertinent to commuter student needs through newsletters and mailings, and special parking arrangements.

Special parking is available for up to one hour in spaces located on Funkhouser Drive next to the Chemistry-Physics Building. Commuter students can obtain a free permit from the Commuter Student Office.

More information may be obtained by contacting the Commuter Student Office at (606) 257-6598.

Student Organizations

Student organizations are an outgrowth of student interest and are developed to meet a variety of student needs. Many provide programs which supplement the classroom experience and extend beyond campus boundaries into areas of community service. All provide learning situations and leadership training for the individual who becomes involved.

There are over 200 registered student organizations on the University of Kentucky campus. These include government organizations, political organizations, social sororities and fraternities, honors and leadership organizations, recognition societies, departmental organizations, professional fraternities, and special interest groups such as the Black Student Union, Cosmopolitan Club, and various religious, athletic, and military groups.

INTERNATIONAL AFFAIRS

The Office of International Affairs provides coordination, leadership, and service to the University and community for many internationally related activities. The office has three primary focuses: attracting funded international research and service programs to the University of Kentucky; providing services to international students; and informing and counseling American students, faculty, and staff on opportunities for study, work, research, and travel abroad.

Services for international students include counseling related to visa and immigration matters, housing, finances, and problems of adjustment and orientation. Opportunities for wider contact within the University and Lexington community are offered through the International Hospitality and International Classroom programs.

The Office of International Affairs assists academic departments in inviting scholars to teach or conduct research at UK. The Office of International Affairs is responsible for issuing visitors the proper documents to obtain visa entry into the United States and also provides advice regarding the hiring and retention of internationals who are already in the United States.

The Office of International Affairs maintains an up-to-date library with information on study, travel, work, and volunteer programs abroad and provides counseling for students wishing to study abroad. Students may purchase International Student Identity Cards, Youth Hostel Passes, and Eurail Youth Passes in this office.

Opportunities for study abroad include programs at the University of Haute Bretagne, the University of Caen, the University of Heidelberg, and the University of Copenhagen. In addition to serving as the Fulbright campus coordinator, the Office of International Affairs administers scholarship programs such as the Travelling Scholars Program, the Peace Corps Internship, the Deauville Scholarship, and the Heidelberg Scholars Program.

For further information, students should contact the Office of International Affairs, Bradley Hall, University of Kentucky, Lexington, KY 40506-0058, (606) 257-4067.

MINORITY AFFAIRS

Minority Student Affairs

The Office of Minority Student Affairs assists both students and University faculty and staff in the development of coordinated programs and supportive services for minority students. The office provides students with information on special graduate and career opportunities for minorities, as well as nonacademic counseling. Supplemental academic support is provided through individual tutorial arrangements on a limited basis.

The newly established Martin Luther King Jr. Cultural Center functions under the auspices of Minority Student Affairs. The objective of the King Cultural Center is to assist students by providing programs and activities which emphasize the importance of self esteem, cultural awareness, and social responsibility. Throughout the year the center sponsors concerts, theatre productions, exhibits, lectures, workshops, film and videotape programs, children's programs, and seminars. The King Cultural Center library contains popular and scholarly books, journals, magazines, and videotapes related to African and Afro-American studies. The King Cultural Center is located in 124 Student Center and is open 10 a.m.-6 p.m., Monday-Friday.

All minority students, including currently enrolled students and those seeking future admission to the University, should register with the Office of Minority Student Affairs, 557 Patterson Office Tower, or the Office of Recruitment and Learning Services, 660 South Limestone.

Recruitment and Learning Services

The Office of Recruitment and Learning Services was established in 1978 to assist students in exploring possible career opportunities and occupational choices and to provide information about learning opportunities available at UK. The Learning Services component provides various support services to students encountering difficulties in handling the college experience. These support services include free tutoring in any content area, basic study skills, reading improvement, memory training, test-taking techniques, test anxiety reduction and problem-solving skills. Each service is independent of the others, thereby permitting students to participate in any or all areas.

Health Careers Opportunity Program

The objective of this program is to recruit for the Colleges of Medicine, Dentistry, and Pharmacy minority and disadvantaged white students who have been identified as potential health professionals and provide appropriate support services to aid in their preprofessional preparation and professional health curricula.

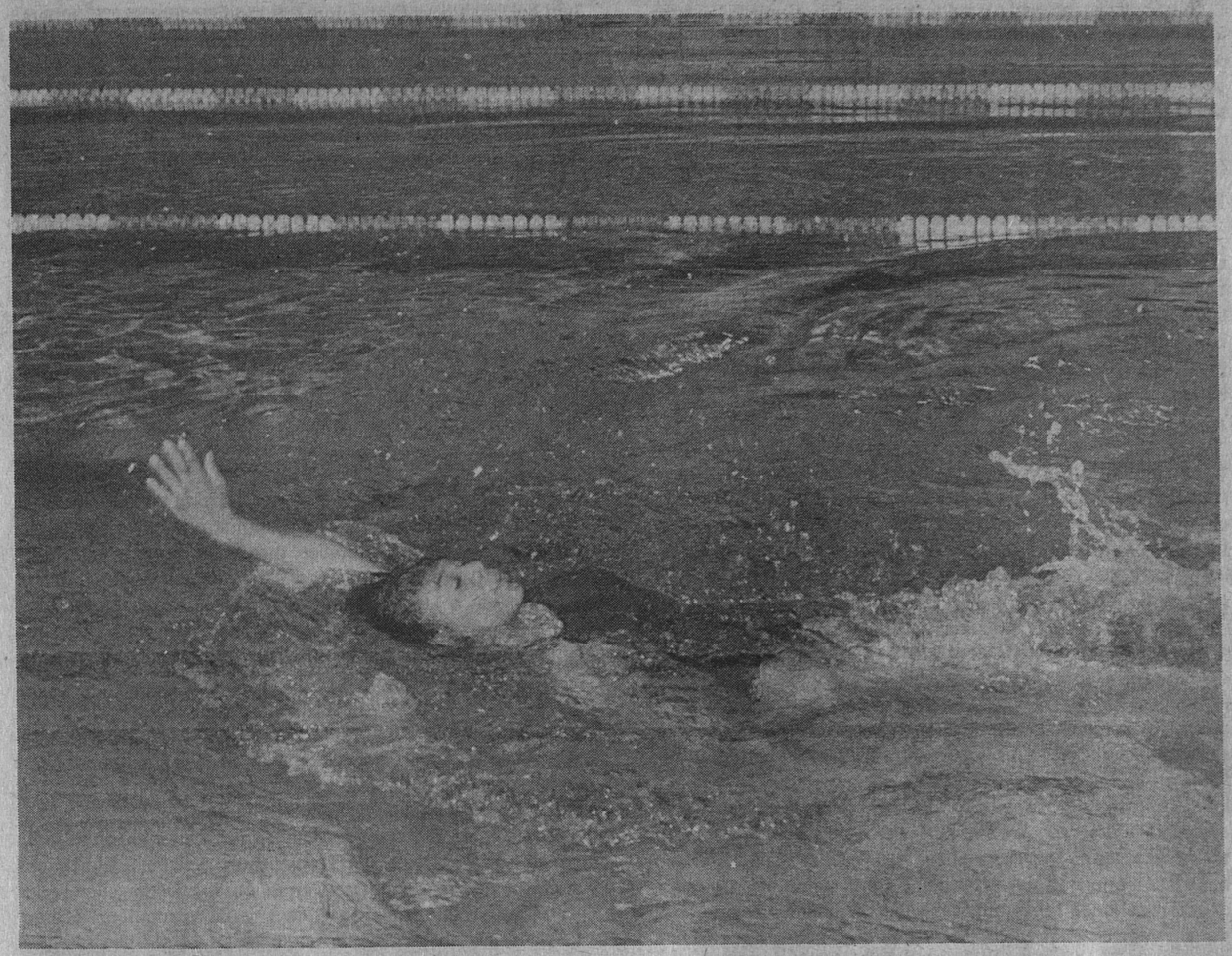
Minority or disadvantaged students, including students currently enrolled in a preprofessional health program or those interested in becoming health professionals, should contact the Health Careers Opportunity Program, 909 Rose Street.

Professional Education Preparation Program

The goals of this program are to recruit high school graduates from medically and dentally underserved counties of the Commonwealth and to support and encourage them in seeking medical or dental degrees. These goals are addressed by offering a variety of academic, social, and clinically-oriented experiences.

High school students who have high grade-point averages, acceptable scores on college entrance examinations, and interest in the study of medicine or dentistry should contact the Professional Education Preparation Program Office, 909 Rose Street.





ATHLETICS

The University of Kentucky sponsors athletic teams in both men's and women's sports and holds membership in the NCAA and the Southeastern Conference. The University fields representative teams in a variety of varsity sports: basketball, football, baseball, tennis, golf, track, swimming, and riflery for men; and basketball, golf, gymnastics, riflery, swimming, tennis, track and cross country, and volleyball for women. These various teams provide wholesome entertainment for the student body, faculty, staff, alumni, and general public.

In order for a student athlete to remain eligible for competition, subsequent to the student athlete's first academic year in residence, he or she must satisfactorily complete 24 semester hours of degree credit, acceptable toward a baccalaureate degree in a designated program of study. These hours must have been earned since the beginning of the student athlete's last season of competition. Certification of good academic standing and satisfactory progress is reported to the SEC and NCAA.

The Athletics Association helps support the band, cheerleaders, and the Student Athletic Committee; aids the Kentucky High School Athletic Association by supplying facilities for district, regional and state tournaments in all sports; offers athletic scholarship aid for a number of student athletes competing in most of its major sports; and provides grants to the University of Kentucky for academic scholarships.

PROFESSIONAL SERVICES

Health Services

The University has a comprehensive health care program for all Lexington campus students, both full-time and part-time. For the regular fall and spring semesters, all full-time students pay a health fee which entitles them to medical and mental health care at the Student Health Service. Part-time students may prepay the health fee or use the Health Service on a fee-for-service basis. The health fee is voluntary for the summer sessions.

The Student Health Service provides an outpatient clinic for UK students. The physicians at the Health Service represent many medical specialties and nearly all medical services are readily available. The Student Health Service is in the Medical Plaza across Rose Street from the University Hospital.

The Medical Service provides consultation and treatment of both acute and chronic illnesses. There are health maintenance and preventive medicine programs which include evaluation and continuing treatment of students with long-term health problems; communicable disease control programs; allergy clinics; and gynecology clinics for female students.

There is a **Surgical Clinic** in the Health Service where students who have surgical problems and injuries receive care.

The goal of the **Mental Health Service** is to assist students with personal and emotional problems which may interfere with their capacity to function effectively.

A walk-in clinic is also available to students. No appointment is necessary. The regular clinic hours are 8 a.m.-4:30 p.m., Monday-Friday, and 9 a.m.-11 a.m. on Saturday (The Saturday hours may vary.). After hours, urgent care is available at the University Hospital Emergency Room.

Student Health Service records are strictly confidential and can be released only with the student's signed authorization.

Health Insurance

The health fee benefits do not include those health services that are covered by traditional insurance policies: hospitalization, accident care and surgical services. Further, the University of Kentucky, including the Student Health Service and the University Hospital, assumes no responsibility for the cost of these services. It is essential that students or their parents have insurance to cover these expenses.

As a service to students who need health insurance, the University of Kentucky makes available an excellent group plan. Students entering the University in the fall receive an insurance packet in late August. Students entering in the spring and summer may obtain information by contacting the Student Health Insurance Office, Medical Plaza, University of Kentucky, Lexington, KY 40536-0223.

University Counseling and Testing Center

The University Counseling and Testing Center has a staff of trained psychological counselors whose primary function is helping students work through educational, vocational and personal problems. Some typical student concerns are: ineffective study skills and habits, need for improved reading skills, difficulty in adjusting to the college environment, lack of a specific field of interest, vocational planning, choosing an academic major, inadequate interpersonal relations, feelings of depression, emotional insecurity, and more specific problems of a personal nature. All interviews are confidential and voluntary; no student is required to have counseling. Tests of personality, vocational interests, study skills, and many others may be used to aid in self-understanding and in increasing efficiency. Individual testing is available only upon referral by a center staff counselor.

Class, group, and individual help in reading and learning skills acquisition is offered through the center's Learning Skills program on a noncredit basis. There is a $10 fee per semester for the learning skills workshops. Computer-aided instruction in speed reading, GRE and GMAT preparation, mathematics, and English skills is available from 8 a.m.-4 p.m., Monday-Friday, and during some evening and weekend hours. Additional information about the Learning Skills program may be obtained by calling (606) 257-8673.

Some counseling activities are conducted in groups. Groups are arranged each semester and encompass many areas: first, counseling within a group setting where members may give views and receive feedback from peers; second, interpersonal growth groups, usually unstructured with members setting goals for the group; third, social skills groups, designed to develop a member's abilities to form and grow within any given relationship.

The Counseling and Testing Center also maintains an active outreach program, offering workshops and lectures to students, faculty, and staff on a variety of mental health topics. In addition, the professional staff is available to faculty, staff, and departments for consultation regarding students, personnel, or programs. There is no charge for consultations or outreach presentations.

The services of the center are available at no charge to all students who are enrolled in **credit** classes at the University. Faculty and staff pay minimal fees for individual appointments. Appointments may be made by calling (606) 257-8701; referral from another campus agency is not necessary. The Counseling and Testing Center is located in 301 Frazee Hall.

Career Planning and Placement Center

Established for the purpose of assisting undergraduates, graduate students, alumni, and community college students with employment opportunities, the Career Planning and Placement Center provides numerous career-related services. Career advisers assist students with individual skills assessment and life/work values, career exploration, resumé writing, interviewing techniques, job hunt strategies, and identification of job vacancies and salary averages. The center serves as a credential repository and mailing service for students and alumni. The center also provides information on summer employment opportunities and coordinates cooperative education opportunities for students in agricultural economics, chemistry, computer science, and engineering.

The Career Library at the center contains information to assist students in their career decisions and job placement. Workshops and seminars are conducted throughout the year on such topics as resumé writing, interviewing techniques, computerized career services, hidden job markets, and effective job search strategies.

Through the center, students who are within three semesters of graduation and alumni seeking employment have an opportunity to schedule on-campus interviews with representatives of various businesses, industries, government agencies, and educational institutions.

Seniors and postgraduate students are encouraged to register for full-time employment opportunities with the center. Students seeking career-related summer employment should register during the fall semester of their sophomore and junior years.

The Career Planning and Placement Center offers career services to students in all majors and academic disciplines. Individuals in need of career assistance are encouraged to drop by the center or call (606) 257-2746 for an appointment. The Career Planning and Placement Center is located in 201 Mathews Building.

ACADEMIC REQUIREMENTS

Certain conditions concerning the number and level of courses required, the patterns they must follow, the amount of time to be spent as a full-time student, grades and conduct have been established by the University Senate for all University of Kentucky students who are pursuing a degree. Those which relate to academic requirements are listed below. Others will be found in the University Senate Rules, pertinent portions of which are printed in the booklet *Student Rights and Responsibilities*, which is available to all students through the Dean of Students Office.

STUDENT LOAD

With the exceptions noted below, the maximum load to be carried during any semester by any student in an undergraduate college (including residence and correspondence courses) is 19 credit hours or the amount specified in the curriculum for the particular semester, whichever is larger.

The maximum allowable load to be carried during any summer term for undergraduate students (including residence and correspondence courses) is 9 credit hours in the eight-week summer session and 4 credits in the four-week intersession.

A student may be permitted by the dean of his or her college to carry such extra credit hours as in the dean's judgment, based upon the student's past performance, the student can complete successfully.

A student on academic probation can take no more than 15 credit hours in a semester, 3 credit hours in the four-week intersession, or 7 credit hours in the eight-week session.

Students in the combined Bachelor's/Master's degree program (University Scholars program) should not take more than 16 credit hours per semester. Permission to exceed that number must be given by the Director of Graduate Studies and the Dean of The Graduate School.

The professional colleges and The Graduate School may set lower maximum loads which are consistent with their degree requirements.

The maximum allowable load to be carried during any summer term for graduate students is 9 credit hours in the eight-week summer session and 4 credit hours in the four-week intersession. The maximum load for graduate students in any combination of the four- and eight-week sessions is 12 credit hours.

A student may be registered simultaneously at the University of Kentucky and at another institution only with the approval of the dean of the college in which the student is registered at the University of Kentucky, the credit hours obtained at the other institution being considered a part of the student's maximum load. If the simultaneous registration has not been authorized, the transfer of credit from the other institution may be denied.

CLASSIFICATION

A student in any undergraduate college is classified by the University Registrar as a sophomore upon completion of 30 credit hours, a junior upon completion of 60 credit hours, and a senior upon completion of 90 credit hours.

A law student is classified as a second-year student upon completion of 24 credit hours and as a third-year student upon completion of 53 credit hours. However, a student is not classified as a second-year student until that student has been in residence for at least two semesters, nor as a third-year student until that student has been in residence for at least three semesters.

A pharmacy student is classified as a second-year student upon completion of 28 credit hours and as a third-year student upon completion of 56 credit hours.

Credit granted by examination is included in determining a student's classification.

GENERAL MARKING SYSTEM

The general marking system uses a series of letters, to which are assigned grade-point values. The system is based neither on an absolute numerical system nor on a distribution curve, but on the following descriptions:

Grade A represents exceptionally high achievement as a result of aptitude, effort, and intellectual initiative. It is valued at four grade points for each credit hour.

Grade B represents a high achievement as a result of ability and effort. It is valued at three grade points for each credit hour.

Grade C represents average achievement. It is valued at two grade points for each credit hour.

Grade D represents the minimum passing grade (not to be used for graduate students). It is valued at one grade point for each credit hour.

Grade E represents unsatisfactory performance and indicates failure in the course. It is valued at zero grade points and zero credit hours. A student receiving this grade can obtain credit in the course only by repeating the entire work of the course in class, or by special examination in accordance with the procedures outlined under Special Examinations. In rare cases in which undue hardship is involved in repeating the work in class, the dean of the college in which the student is enrolled may approve repeating the work by correspondence.

Grade F represents failure in a course taken on a pass-fail basis.

Grade I—incomplete—means that part of the regularly assigned work of the course remains undone. It is given only when there is a reasonable possibility that the student can complete the work within the allowable period of time for removal of an **I** grade and that a passing grade will result from completion of the work. An **I** grade will not be given when the student's reason for incompleteness is unsatisfactory to the instructor.

A grade of **I** must be replaced by a regular final letter grade not later than 12 months from the end of the academic term in which the **I** grade was awarded or prior to the student's graduation, whichever occurs first. In the event the grade of

I is not replaced by a regular final letter grade within the allowable period, the University Registrar shall change the **I** grade to a grade of **E** on the student's permanent academic record and adjust the student's grade-point standing accordingly. A graduate who had an **I** grade on his or her academic record at the time of graduation (and which grade was subsequently changed to an **E** by the Registrar) may be allowed a maximum of 12 months following the end of the term in which the course was taken to satisfactorily complete the course and receive a grade change.

For each **I** grade assigned, the instructor shall complete an appropriate file record on a standard form provided by the University Registrar, which shall include the following: (a) the name of the student; (b) the course number and hours of credit; (c) semester and year of enrollment; (d) signature of the instructor; (e) a brief statement of the reason(s) for recording the incomplete; (f) specific instructions on how alternate grades on the work to be completed will affect the final grade; (g) the specific time requirement (not to exceed 12 months) set by the instructor for removal of the **I** grade and consequences of not removing the **I** grade; and (h) signature of the student, if feasible.

The instructor shall provide a completed copy of this record to the student, the department chairperson, the dean of the college in which the student is enrolled, the dean of the college offering the course, and the University Registrar at the time the **I** grade is reported.

The term *student* in this context excludes only students in The Graduate School and the Colleges of Medicine and Dentistry.

Grade P represents a passing grade in a course taken on a pass-fail basis. It may also be assigned by the University Appeals Board in cases involving a violation of student academic rights.

Grade S—satisfactory work in progress or final grade in courses carrying no academic credit. The grade **S** may be recorded for students in courses of research, independent work, or seminar type, if at the end of a semester the student, because of the nature or size of the project, has been unable to complete the course. The project must be substantially continuous in its progress. When the work is completed, a final grade will be substituted for the **S**.

Grade **S** may also be recorded as a permanent mark in courses carrying *no* academic credit. The grade may not be given to a student who has done unsatisfactory work or to one who has failed to do a reasonable amount of work.

Grade W—withdrew—shall not be given unless the student withdraws officially or is assigned by the University Appeals Board. The University Appeals Board may assign a **W** in cases involving a violation of student academic rights. No grade will be recorded for a student who officially withdraws or is dropped from a class during the first three weeks of a semester (or a proportionate amount of time in the summer term or other courses of less than a full semester's duration). Students who withdraw after these dates or who are dropped from class shall be given a grade of **W** as reported by the instructor of a class.

Official Withdrawal from a Course: Any student may withdraw from any class (except for those used to meet the University Writing requirement) before the midpoint of the term. In order to withdraw, the student must submit a completed withdrawal form to his or her dean. The dean shall report the withdrawal to the University Registrar. Any student withdrawing during the first three weeks of the course in the fall or spring semester (or a proportionate amount of time in the summer term or other courses of less than a full semester's duration) shall be removed from the class roll, and no grade or record of enrollment shall appear on the student's transcript. Any student withdrawing after the first three weeks of the course but before midterm shall receive a grade of **W**. A student may withdraw from a class during the last half of the term upon approval of a petition certifying urgent nonacademic reasons including but not limited to: illness or injury of the student; serious personal or family problems; serious financial difficulties.

Before acting on such a petition, the dean will consult with the instructor of the class. If such a petition is approved by the dean of the student's college, the dean shall inform in writing the instructor of the class of the action, and the student shall be assigned a grade of **W**.

A student may also petition the dean to withdraw from a class during the latter half of the term if he or she has excused absences in excess of one-fifth of the class contact hours in a course where attendance is required or is a criterion for a grade.

Audit. Any change from audit to credit or credit to audit by a student regularly enrolled in a college must be accomplished by the last date to drop a course without a grade in any given term. No credit can be given for a class audited, nor is the student permitted to take an examination for credit. No instructor is authorized to admit anyone as an auditor to any classes unless the auditor has registered as such.

Repeat Option. An undergraduate student has the option to repeat once as many as three different courses which have been completed with only the grade, credit hours, and quality points for the second completion used in computing the student's academic standing and credit for graduation. A student also may use the repeat option when retaking a course on a Pass-Fail basis (provided the course meets the requirements for being taken Pass-Fail), even though the course was originally taken for a letter grade. If a failing grade (F) is earned on the second attempt, the original grade will continue to be used in calculating the grade-point average and the second attempt shall constitute exhaustion of one of the student's three repeat options under this provision. **A student seeking to exercise the repeat option must notify in writing the dean of the college in which he or she is enrolled and the adviser no later than the last day for dropping a course without a grade of any kind appearing on the transcript (three weeks from the first day of classes in regular semesters).** If a student officially withdraws from the second attempt, then the grade, credit hours, and quality points for the first completion constitute the grade in that course for official purposes, and the second attempt constitutes exhaustion of one of the three options to repeat a course under this provision unless, at the time of withdrawal, the instructor and the dean of the college grant permission to attempt the same course again. (Note: The repeat option cannot be used to raise the student's standing for admission to the University of Kentucky Graduate School.)

Pass-Fail Option. Undergraduate students above the freshman level and not on academic probation may select a maximum of four elective courses, with certain restrictions, to be taken on a Pass-Fail basis. Students in the Honors Program above the freshman level may, with advance written approval of the Director of the Honors Program, select additional elective courses to be taken on such a Pass-Fail basis. Credit hours successfully completed under this option will count toward graduation but will not be used in calculating grade-point standing. Courses taken on a Pass-Fail basis are limited to those considered as elective in the student's program and such other courses or types of courses as might be specifically approved by the Senate Council for a college or department. Prerequisites for such courses may be ignored at the student's own hazard. The student is expected to participate fully in the course and

take all examinations as though enrolled on a regular basis. Students may not change from a Pass-Fail basis nor from a regular basis to a Pass-Fail basis after the last day to drop a course without a grade in any given term. Courses offered *only* on a Pass-Fail basis shall not be included in the maximum number of elective courses which a student may take under these provisions.

Except for courses offered only for Pass-Fail, the instructor shall not be notified by the Registrar's Office or by another office of the University of those students who are taking the course Pass-Fail. The instructor shall submit a regular grade to the Registrar's Office which will take the appropriate action to change the grade into the Pass-Fail grading track for records.

Grade-Point Average

The grade-point average is the ratio of the number of points gained to the number of credit attempted, W, P, S, and I being ignored.

SPECIAL MARKING SYSTEMS

College of Architecture

The grading system below does not affect the interpretation of other letter grades in the University Marking System such as F, I, P, W, and S. Nor does it change the college requirement that in all studio work in architecture the minimum passing grade from level to level in the studio sequence must be a grade of C.

A	4.0	B	3.0	C	2.0	D	1.0
A-	3.7	B-	2.7	C-	1.7	D-	0.7
B+	3.3	C+	2.3	D+	1.3	E	0

Landscape Architecture, College of Agriculture

The grading system below does not affect the interpretation of other letter grades included in the University Marking System such as F, I, P, W, and S. Nor does it change the Landscape Architecture program policy that requires a student to achieve a C grade or better in major design studios in order to advance to the next level.

A	4.0	B	3.0	C	2.0	D	1.0
A-	3.7	B-	2.7	C-	1.7	D-	0.7
B+	3.3	C+	2.3	D+	1.3	E	0

College of Law

The College of Law uses a special letter grading system in which the following grades are given with the respective quality point values indicated:

A+	4.3	B+	3.3	C+	2.3	D+	1.3	E	0
A	4.0	B	3.0	C	2.0	D	1.0		
A-	3.7	B-	2.7	C-	1.7	D-	0.7		

A student's academic grade record is expressed as a grade-point average computed by multiplying the semester hours of credit for each course by the quality point value of the grade received in the course. These products are added together, and the sum is divided by the total semester hours attempted. The grade-point average thus derived is the basis for each student's academic status as indicated in the published rules and policies of the Law Faculty.

College of Medicine

A represents exceptionally high achievement in performance. It is valued at four quality points for each credit hour.

B represents the expected level of achievement or performance in each course. This grade reflects student competence in all areas of course requirements. It is valued at three quality points for each credit hour.

C represents marginal performance. It is valued at two quality points for each credit hour.

E represents failure or unacceptable performance in a course. It is valued at zero quality points for each credit hour.

P represents a passing grade in a course taken on a pass-fail basis. It is not used in quality point calculations.

W denotes withdrawal from the college or from an elective course. **W** must be approved or recommended by the Student Progress and Promotion Committee. Withdrawal from a required course is not permitted, except when a student withdraws from the college. A student can withdraw from an elective and the **W** will remain on the record.

U represents unsatisfactory performance in a specific area of course requirements. It is given instead of an **E** grade when evidence exists that the student might earn a **C** grade upon completion of make-up work. In the interim the **U** will be valued at one quality point for each credit hour. A **U** grade must be replaced by a **C** or **E** grade before the student can be promoted to the next year. The quality point calculation will then be the average of the **U** and the **C** or **E** grade.

I represents incomplete work at the time grades are submitted for courses. It is given only when there is a reasonable possibility that a grade of **C** or better will be earned upon completion of the work. All **I** grades in required courses must be removed by a passing grade before a student can be promoted to a subsequent year. If a student later withdraws from the college, an outstanding **I** grade can revert to a **W** grade at the discretion of the Student Progress and Promotion Committee.

College of Dentistry

Honors, Pass and Unsatisfactory are the designations for College of Dentistry students. The H, P, U designations are utilized *only* for dental students. The few graduate and/or undergraduate students in essentially dental classes are graded as is the rest of the University.

OTHER REGULATIONS

Late Registration

After the sixth day of classes in either semester or the fourth day of that term of the summer session in which the student is enrolled, no student may register for an organized class. On recommendation of the dean concerned, the University Registrar may set a later date for final registration in classes that do not start on the first day of a semester or a summer session, or for the registration of a group of students who were not present at the regular registration time.

Attendance and Completion of Assignments

For each course in which the student is enrolled, the student shall be expected to carry out all required work including laboratories and studios, and to take all examinations at the class period designated by the instructor.

Each instructor shall determine the policy regarding completion of assigned work, attendance in class, absences at announced or unannounced examinations, and excused absences in excess of one-fifth of class contact hours. This policy shall be presented in writing to each class at its first or second meeting. Students' failure to comply with the announced policy may result in appropriate reductions in grade as determined by the instructor.

Excused Absences

The following are defined as excused absences:

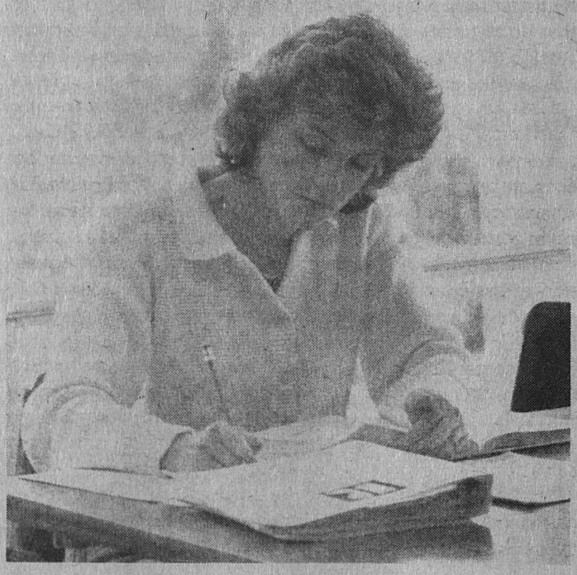
1. Illness of the student or serious illness of a member of

the student's immediate family. The instructor shall have the right to request appropriate verification.

2. The death of a member of the student's immediate family. The instructor shall have the right to request appropriate verification.
3. Trips for members of student organizations sponsored by an academic unit, trips for University classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor **prior** to the occurrence of such absences, but in no case shall such notification occur more than one week after the absence. Instructors may request formal notification from appropriate University personnel to document the student's participation in such trips.
4. Major Religious Holidays. Students are responsible for notifying the instructor **in writing** of anticipated absences due to their observance of such holidays no later than the last day for adding a class.

Students missing work due to an excused absence bear the responsibility of informing the instructor about their excused absence within one week following the period of the excused absence (except where prior notification is required), and of making up the missed work. The instructor shall give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred. The student shall be given the opportunity to make up exams missed due to an excused absence during the semester in which the absence occurred, if feasible. In those instances where the nature of the course is such that classroom participation by the student is essential for evaluation, the instructor shall, if feasible, give the student an opportunity to make up the work missed during the semester in which the absence occurred.

If attendance is required or serves as a criterion for a grade in a course, and if a student has excused absences in excess of one-fifth of the class contact hours for that course, a student shall have the right to petition for a **W**, and the faculty member may require the student to petition for a **W** or take an **I** in the course.



Final Examinations

If a final examination is given, it is to be administered during the examination period as scheduled by the University Registrar for the semesters of the regular school year. These examination periods utilize the last five days of each semester, and are preceded by a study day or weekend on which no classes or examinations are scheduled.

Final examinations, where appropriate, are administered during the last class day of the intercession and the summer session.

During the last week of classes of a regular session or during the three-day period prior to the last day of class in the intersession or summer session, no examination is to be given except for laboratory practicals or "make-up" examinations. In cases of "take home" final examinations, students are not required to return the completed examination before the regularly scheduled examination period.

Final examinations may be given at times other than the regularly schedule times in the following instances:

Faculty: In the case of conflicts or undue hardship for an individual instructor, a final examination may be rescheduled at another time during the final examination period upon the recommendation of the chairperson of the department and with the concurrence of the dean of the college and the University Registrar.

Students: Any student with more than two final examinations scheduled on any one date is entitled to have the examination for the class with the highest catalog number rescheduled at another time during the final examination period. In case this highest number is shared by more than one course, the one whose departmental prefix is first alphabetically will be rescheduled. The option to reschedule must be excercised in writing to the appropriate instructor two weeks prior to the last class meeting. If a conflict is created by rescheduling of an examination, the student is entitled to take the rescheduled examination at another time during the final examination period. In the case of undue hardship for an individual student, a final examination may be rescheduled by the instructor.

Special Examinations

Any full-time or part-time student enrolled in the University, and in good academic standing, has the right to request a special examination for credit in any course offered in the University System, regardless of whether the student has audited the course, is currently enrolled in it, or has studied for it independently.

Application for a special examination must be made in writing. (Students should obtain application forms in the Registrar's Office.) Undergraduates should address requests to the chairperson of the department in which the course is given, or to the office of the academic unit responsible; graduate students, to the director of graduate studies in the department in which the course is given. Approval of requests from undergraduate students rests with the department chairperson; from graduate students, with the Dean of The Graduate School, acting upon recommendation of the director of graduate studies.

The request for special examination may be denied by the department chairperson or the office of the administrative unit responsible, or the Dean of The Graduate School, acting upon recommendation of the director of graduate studies, if it is decided that the student has not furnished evidence that he or she is reasonably prepared to take the examination, or that the course is of such a nature that credit by examination is inappropriate. (The fact that a student has failed the course within the last semester may be regarded as evidence that the stu-

dent is unprepared to take a special examination.)

The instructor may schedule the examination at his or her convenience, but must offer it within a reasonable time after the student has submitted his or her request.

The examiner must inform the University Registrar of the student's grade in the course. A student currently enrolled in the class who successfully completes a special examination will be formally removed from the official roll, unless the student is dissatisfied with the results, in which case he or she may continue in the course and be graded in the usual manner. The instructor then may or may not include the results of the special examination in computing the final grade.

Credit earned by special examination may be counted as residence credit by the dean of the student's college. The limits on maximum loads are waived in cases where the excess is due to special examination credits.

The student, with the department chairperson's consent, may take the special examination on a Pass-Fail basis, including any course not otherwise available under the Pass-Fail option. Credit derived in this manner does not reduce the number of courses permitted under the Pass-Fail rules.

SCHOLASTIC PROBATION, ACADEMIC SUSPENSION AND REINSTATEMENT

General Regulations for Undergraduate Students

Academic Probation and Suspension

The academic probation and suspension systems that are used to determine a student's academic standing University-wide are based on quality point deficit. The base for determining the deficit is the number of quality points which would result from multiplying the number of hours attempted by two. Deficit is the difference, if any, between this base and the number of quality points earned.

Individual colleges may establish policies regarding academic probation and suspension with regard to a student's academic standing within the college in addition to the University-wide policies given here. If a college establishes such a policy, the policy must be approved by the University Senate and made available in writing to the students.

A student suspended from a college or program may transfer to another college or program which has a 2.0 grade-point average admission requirement for transfer students, even if the student has a GPA lower than 2.0, provided he or she is not subject to the provisions for suspension from the University. However, the student must meet all other admission criteria established by the college or program. If the student would have been placed on academic probation by the college to which he or she is transferring had he or she been previously enrolled in that college, then the college may place the student on probation at the time of admission.

Scholastic Probation

The academic record of each freshman student will be reviewed after the first full semester. If a student has incurred a deficit of five or more quality points at the end of the first full semester, the dean shall place the student on scholastic probation or warn the student that he or she is making unsatisfactory progress. If the student has demonstrated that he or she cannot or will not do satisfactory work, the student shall be subject to academic suspension from the University, but the dean may place the student on scholastic probation if the individual case justifies it.

An undergraduate student is placed on scholastic probation by the dean of the college when:

1) Except for first semester freshmen, the student at the end of any semester or session has a cumulative deficit in excess of five quality points;

2) The student has earned a total of 90 semester hours (senior standing) or more and has a cumulative grade-point standing of less than 2.0.

Removal from Probation

An undergraduate student may be removed from probation by the dean of the college when:

1) The student on scholastic probation has not earned 90 semester hours (senior standing), and at the end of a semester or session has reduced the cumulative deficit to five quality points or less;

2) The student on scholastic probation has earned 90 semester hours (senior standing), and at the end of a semester or session has a cumulative grade-point standing of 2.0.

Academic Suspension

The following undergraduate student who has not previously been academically suspended is subject to academic suspension from the University, but a dean may continue a student on scholastic probation if the individual case justifies it:

A student who acquires an additional deficit in excess of five quality points during any semester or session while on scholastic probation;

A student who has a cumulative deficit in excess of 15 quality points at the end of any semester or session while on scholastic probation;

A student who has been on scholastic probation for three consecutive semesters; or

A student who demonstrates that he or she cannot or will not do satisfactory work.

General Rules Pertaining to Students Under Academic Suspension

A student who is under academic suspension may not enroll in any courses offered by the University of Kentucky, nor take any examination for University of Kentucky credit.

A student who has been academically suspended a second time will not be readmitted to the University except in unusual circumstances and then only upon recommendation of the dean of the college in which the student plans to enroll and approval of the University Senate Council.

Reinstatement

After they have remained out of the University for at least a semester and a summer session (a semester for students academically suspended at the end of a summer session), students who have been academically suspended may be reinstated by the dean of the college in which they plan to enroll when they present evidence that they are capable of performing at the level required to prevent being suspended a second time. After being reinstated, students must apply for readmission to the University.

General Rules for Reinstated Students

A student who has been academically suspended will, upon reinstatement, be placed on scholastic probation and be subject to final academic suspension from the University if:

The student acquires any additional deficit during any semester or session while on scholastic probation;

The student has not reduced the deficit by eight quality points or eliminated it by the end of the second semester following the reinstatement;



The student has failed to meet the requirements for removal from scholastic probation by the end of the third semester following the reinstatement.

Once reinstated students have been removed from scholastic probation, they will be subject to the same conditions for subsequent academic suspension as students who have not previously been academically suspended.

Readmission After Two or More Years (Academic Bankruptcy)

Undergraduate students who have been readmitted through the usual channels after an interruption of two or more years, and who have completed at least one semester or 12 credit hours with a grade-point average of 2.0 after readmission, may choose to have none of their previous University of Kentucky course work counted toward graduation and toward the computation of their grade-point standings. The calculation of the grade-point average after readmission begins with the semester of readmission.

In addition, the dean of the student's college may permit such a readmitted student who has elected not to count past work to receive credit for selected courses without including those grades in the computation of the student's grade-point standing.

Part-time as well as full-time students can take advantage of the academic bankruptcy rule. Students need not have been originally suspended from the University to qualify for this option. Attendance at a community college in the UK system is equivalent to attendance at UK itself for the purposes of this option. A student can petition for academic bankruptcy for work done at a community college. This option is not available to a student who transfers in more than 24 credit hours taken at another institution during the first two years after leaving the University of Kentucky.

College of Engineering

Probation and Academic Suspension

In addition to the University rules on probation and academic suspension, the following rules apply in the College of Engineering.

Definition: Engineering standing is defined as the overall grade-point average for all course work taken while enrolled in the College of Engineering. Excluded are correspondence courses and transient work. (The term **semester standing** refers to the grade-point average for a single semester.)

1. A student who fails to achieve an engineering standing of 2.0 at the end of any semester will be placed on academic probation.

2. A student, regardless of engineering standing, whose semester standing is less than 2.0 for two consecutive semesters will be placed on probation.

3. A student who, at the end of the first probationary semester, achieves a semester standing of 2.0 but fails to bring the engineering standing up to 2.0 will be continued on probation.

4. A student who, at the end of a probationary semester, fails to have achieved a semester standing of 2.0 will be dropped from the College of Engineering.

5. A student who, at the end of the second consecutive probationary semester, fails to have achieved an engineering standing of 2.0 will be dropped from the College of Engineering.

6. A student who fails to achieve an engineering standing of 1.5 at the end of any semester shall have his or her record reviewed and may be dropped from the college without a preliminary probationary semester.

7. A student who has been dropped a single time for academic deficiency may be reinstated into the College of

Engineering after an absence of one year. A student will be reinstated as a first semester probationary student and subject to final suspension according to these rules.

8. The dean may use discretion in applying these rules where a particular case justifies less severe action.

College of Allied Health Professions

Probation and Suspension Policy for Professional Program Students

Allied Health professional students are subject to the general University regulations pertaining to academic probation and suspension. In addition, the following standards apply to Allied Health professional students:

Professional Program Probation

A student will be placed on professional program probation when:

1. the semester grade-point average falls below 2.0 in courses required by the professional program, or
2. a failing grade is earned in any course required by the professional program.

Removal from Professional Program Probation

A student may satisfy the deficiency warranting probation and will be removed from professional program probation when:

1. in the semester following professional program probation, a 2.0 or above semester grade-point average is achieved in courses required by the professional program, and
2. a passing grade is earned in any previously failed courses required by the professional program.

Professional Program Suspension

A student will be suspended from the professional program when:

1. a 2.0 semester grade-point average in courses required by the professional program is not earned either at the end of the probationary semester, or in any subsequent semester, or
2. a course required by the professional program is failed a second time, or
3. two courses required by the professional program are failed,

unless alternative action is recommended by the Program Director and approved by the Dean of the College of Allied Health Professions.

The Graduate School

When graduate students have completed 12 or more semester hours of graduate course work with an average of less than 3.0, they will be placed on academic probation. Students will have one semester to remove the scholastic probation by attaining a cumulative 3.0 average in graduate course work. If the probation is not removed, the student will be dismissed from The Graduate School.

A student who has been dismissed from The Graduate School for these reasons may reapply for admission to The Graduate School after two semesters or one semester and the eight-week summer term.

Exceptions to this policy can be made only by the Graduate Dean.

With the approval of the Graduate Dean, a student may repeat a graduate course and count only the second grade as part of the graduate grade-point average. This action will be initiated by petition of the Director of Graduate Studies and may be done only once in a particular degree program or in post-baccalaureate status.

Professional Colleges

Pharmacy

Pharmacy standing is the overall grade-point average for all professional and nonprofessional work accomplished by the student while enrolled in the College of Pharmacy.

Any student who fails to achieve a pharmacy standing of 2.0 at the end of any semester will be dropped from the college or placed on academic probation.

Any student who fails to achieve a pharmacy standing of 1.5 at the end of any semester will have his or her record reviewed by the College of Pharmacy faculty and may be dropped from the college without a preliminary probationary semester.

Any student who, at the end of the first probationary semester, fails to have achieved a semester standing of 2.0 at the end of this semester shall be dropped from the college.

Any student who, at the end of the first probationary semester, achieves a 2.0 standing for that semester but fails to bring the pharmacy standing up to 2.0 will be continued on probation or be dropped from the college.

Any student who, at the end of the second consecutive probationary semester, fails to have achieved a 2.0 pharmacy standing shall be dropped from the college.

A student who has been dropped for academic deficiency may be readmitted on probation according to University regulations except that the student's academic requirements will be those outlined above.

Any student who, regardless of pharmacy standing, fails to have achieved a 2.0 standing for two consecutive semesters may be placed on probation.

Law

All students in the College of Law must maintain a satisfactory cumulative grade-point average or be dropped from the college for poor scholarship. Any student who receives a grade-point average below 1.5 for his or her first semester of law study may be dropped by the dean on recommendation of the Law Faculty Academic Status Committee for poor scholarship. Any student who fails to achieve a 2.0 cumulative grade-point average at the end of the first two semesters will automatically be dropped for poor scholarship. In addition, any student whose cumulative average falls below 2.0 at the end of any subsequent semester will also be dropped from the college.

Any student who receives a grade of E in a required course must reregister for the course and complete all its requirements. Both the initial and subsequent grade will be reflected on the student's record and counted in the computation of class standing.

Any student dropped for poor scholarship may petition the Law Faculty Academic Status Committee for readmission. A recommendation to the dean for readmission is within the discretion of the committee; however, in most cases, the following policies will guide the committee: a student dropped after the first semester will be required to petition the full faculty for readmission; in the case of students dropped at the end of the second semester, a student with a cumulative grade average of 1.9 and above will normally be readmitted, a student with a cumulative average of 1.7 to 1.89 may be readmitted but will be carefully scrutinized, and a student with a cumulative average below 1.7 will normally not be readmitted; any student dropped at the end of the third semester or thereafter will be subject to case-by-case analysis.

Any student readmitted after being dropped at the end of the second semester must make material progress toward raising his or her cumulative grade-point average to 2.0. Such student must raise his or her cumulative average to 2.0 by the end of the fourth semester. In addition to the foregoing academic standards for readmission, the committee may impose additional academic standards in individual cases; and in any case may impose other reasonable conditions of readmission including, but not limited to, limitation of outside work, specification of schedule of study (including specification of particular courses and limitation of hours), and the limitation of extracurricular activities. The committee may also require the repetition of courses either with or without substitution of the grades awarded in the courses retaken. Students who fail to comply with the requirements and conditions of readmission will be dropped from the college a second time, and will not be readmitted without approval of the University Senate Council upon the recommendation of the dean following action by the full law faculty. Any student aggrieved at any time by recommendation of the Academic Status Committee may petition the full law faculty for review.

A student who is required by the Academic Status Committee to repeat 14 or more hours of the freshman curriculum in his or her third and fourth semester will be considered as enrolled in his or her first and second semesters.

A student who has once been dropped for poor scholarship and who fails to have a 2.0 cumulative average at the end of the semester or summer session in which he or she completes the 88th hour of course work will not be allowed to graduate from the College of Law. Such student will not be allowed to enroll in additional hours of course work in an attempt to achieve a 2.0 cumulative average.

All Undergraduate and Professional Colleges

Each student has access to rules that deal with scholastic probation, academic suspension, and reinstatement through the printed class schedule, this Bulletin, and *Student Rights and Responsibilities*.

GRADUATION REQUIREMENTS

To be eligible for any degree, a student must have completed the requirements as approved by the University Senate, except that curriculum substitutions may be made by the college affected if not inconsistent with these rules. Curriculum requirements must include, in addition to specified credits, a specified grade-point average which may in no case be less than 2.0. Every baccalaureate degree program must include four divisions or components: (1) University Studies, (2) premajor or preprofessional, (3) major or professional, and (4) free electives.

The student must file an application for graduation with the dean of the college within 30 days after the beginning of the semester or 15 days in the summer session in which the student expects to complete the work.

University Writing Requirement

The University requires demonstrated competency in writing. Competency may be demonstrated in one of the following ways—(1) Students who have a standard score of 24 or below on the English section of the ACT must satisfactorily complete ENG 101, Writing I, and ENG 102, Writing II. (2) Students who have a standard score of 25 or above on the English section of the ACT may elect to take a special writing proficiency examination, administered by the English Department Writing program. Students who pass this examination are eligible to fulfill the University Writing requirement by successfully completing ENG 105, Writing: An Accelerated Course. Students who do not pass this examination are required to take the normal sequence of ENG 101-102. For complete information on the writing proficiency examination, students should contact the Writing Program Office, 1221 Patterson Office Tower, (606) 257-7002.

Full-time students must enroll in either ENG 101 or 102 each semester until they have satisfied the Writing requirement, unless they qualify for ENG 105, in which case they may enroll during either semester of the freshman year.

Only in unusual circumstances (such as illness, injury, serious financial difficulties, serious personal or family problems) will a student be permitted to withdraw from a course needed to fulfill the University Writing requirement. Only the dean of the student's college can authorize such withdrawals, in consultation with the instructor and the Director of the Writing Program.

Change in Program Requirements

When requirements for an undergraduate degree program are changed after a student has enrolled in it, the student has the option of fulfilling either the old or the new requirements.

In fulfilling the old requirements, if a student finds that necessary courses have been eliminated or substantially revised, he or she may substitute other courses with the approval of the dean of the college. In this eventuality, however, the student shall not be forced to comply with the new requirements.

However, if a student interrupts work in the program or the University for more than two semesters, then the dean of the college shall determine which requirements the student shall fulfill.

If the curriculum revision is required by an external accreditation or certification body, and this body submits a written statement to the University that the accreditation of a program or certification of its graduates is in jeopardy unless students fulfill the new requirements, the option of fulfilling the old requirements shall not apply.

When The Graduate School or degree program requirements are changed after a student has begun a course of study, the student shall have the option of fulfilling either the old or new requirements.

If the student elects to fulfill the old requirements but finds that necessary resources (e.g., courses, instruction in particular skills) are no longer available, the student may make reasonable substitutes with the approval of The Graduate School Dean upon recommendation of the Director of Graduate Studies.

In the event that a student interrupts work on a graduate degree (i.e., is not enrolled) for one calendar year or more, The Graduate School Dean shall determine, upon recommendation of the Director of Graduate Studies, whether the old requirements or the new requirements shall apply. In the event a student has not completed the requirements for the graduate degree five years after the effective date of a change in degree requirements, the new requirements shall apply unless determined otherwise by The Graduate School Dean.

The colleges offering professional degrees (Law, Medicine, Dentistry, Pharmacy) reserve the right to change curriculum requirements provided the program change has gone through the University's approval process. Any such change in curriculum, however, shall not result in a longer tenure for students enrolled in the program who are making satisfactory academic progress.

Residence Requirement

Residence—a requirement for a degree which specifies the minimum period during which a student must be registered on the main campus—is intended to provide an adequate contact with the University and its faculty for each student who is awarded a degree.

For an undergraduate degree, regardless of the length of time the student has attended the University, a minimum of 30 of the last 36 credits presented for the degree must be taken from the University, but not necessarily on the main campus. Requests for waiver of this requirement for veterans or other students must be approved by the dean of the student's college.

Credit by Correspondence and Examination

No more than 30 credit hours of the total required for an undergraduate degree may be gained by correspondence. No more than one-third of the requirements for a major may be gained by correspondence.

No credit will be given in The Graduate School or in the professional colleges for courses done by correspondence.

No more than half of the credit toward an undergraduate degree may be earned by any combination of CLEP examinations, PEP examinations, PONSI courses, departmental examinations, and Advanced Placement examinations.

Commencement Honors

Students who attain a grade-point average of 3.6 or higher for at least three years of work at the University (excepting correspondence study) shall be graduated "With High Distinction."

Students who attain a grade-point average of 3.4 to 3.6 for at least three years of work at the University (excepting correspondence study) shall be graduated "With Distinction."

Students with a minimum of two but less than three years of work at the University will receive the appropriate commencement honors if they attain a grade-point average of 0.2 greater than those specified for three years of residence work.

The bachelor's degree with honors in a student's major or a degree with honors from a professional college will be conferred upon a student whom the faculty of the student's department, or college, in the case of a professional college, and the dean of the student's college recommend receive the degree. A student may be required to complete work in addition to that required for the bachelor's or professional degree to receive a degree with honors.

The degree with honors from a professional college is based solely upon work done in the professional college.

All students in the Honors program of the University who do not have a grade-point standing of 3.5 or better but are in the top 10 percent of their college's class are eligible to graduate in the Honors program if they satisfy the other requirements and have approval of the Honors Program Director.

Work done in the University of Kentucky Community College System shall be counted as work at the University of Kentucky in calculating the grade-point average for honors.

Concurrent Degree Programs

A double major occurs when an undergraduate student takes courses in such a manner as to complete the degree requirements simultaneously or near-simultaneously in two programs either in the same college or in different colleges. If there is a generic relationship, work in one major field may be applicable to the other field and vice-versa. The student must indicate the double major to the University Registrar and to the student records office in the college(s). The student must have an adviser in both major fields and must submit two acceptable fields of concentration plans. The student who completes the requirements for a double major in programs awarding the same degree shall receive that degree and the transcript shall indicate both majors. The student who completes the requirements in programs awarding different degrees shall receive two degrees.

Concurrent enrollment for degree purposes in more than one graduate program is permitted only with the approval of the student's graduate adviser(s), Directors of Graduate Studies in the programs, and the Dean of The Graduate School.

Subsequent to the receipt of a doctoral degree, a student is not eligible to receive a master's degree based on the work which led to the doctorate.

A Second Bachelor's Degree

A student who has already received one bachelor's degree is eligible to qualify for a second bachelor's degree. For a second bachelor's degree in the same college, the college will set the requirements. For a second bachelor's degree in a different college, the student will be eligible upon completion of the requirements for a second curriculum.

A Second Master's Degree

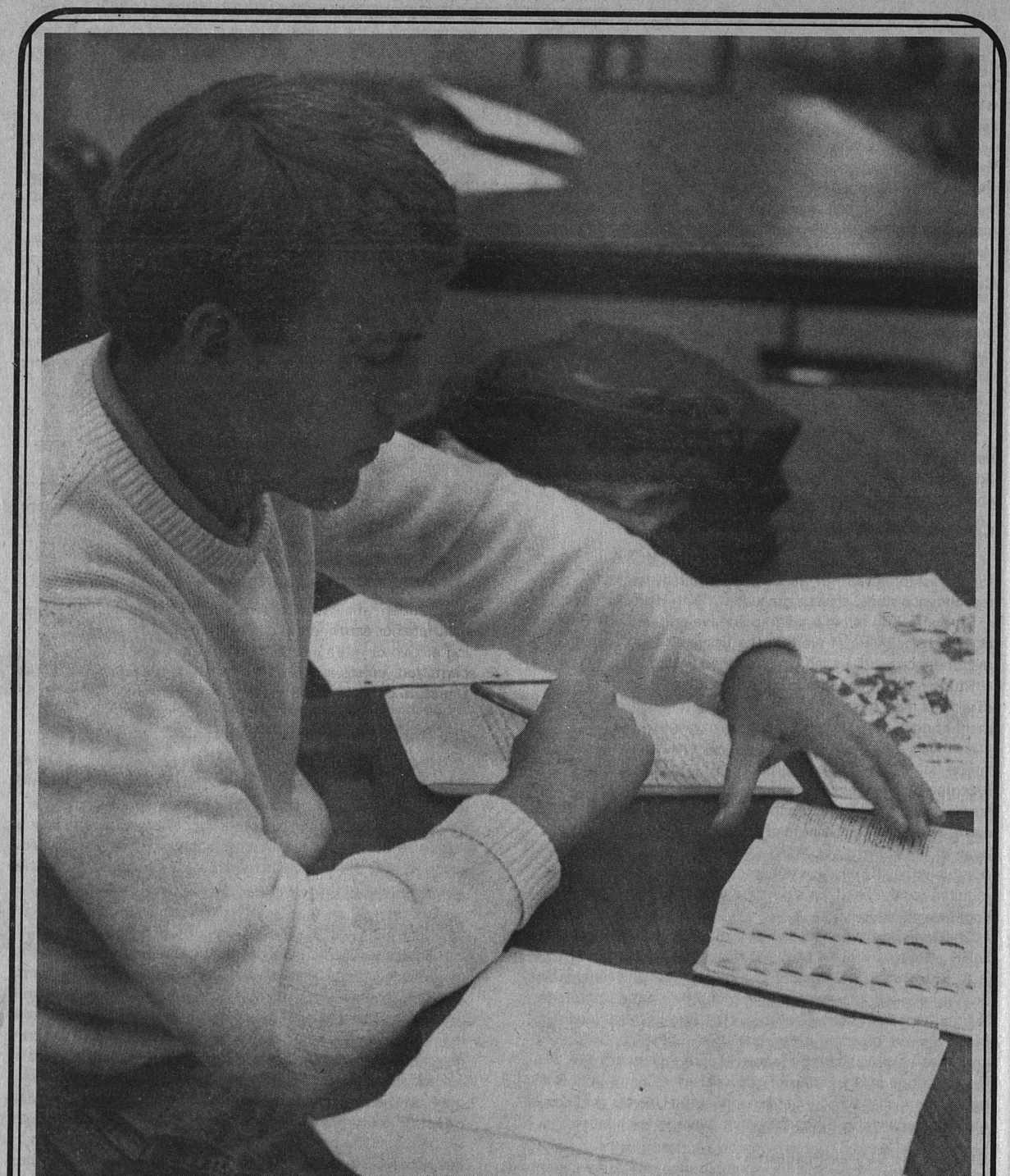
A student may receive two master's degrees. However, simultaneous enrollment in two or more programs and the granting of two or more master's degrees at the same time is not permitted, unless approved by the student's advisers and the Directors of Graduate Studies in the programs.

The University Scholars Program

The University Scholars program enables gifted and highly motivated students to integrate their undergraduate and graduate or professional courses of study into a single, continuous program leading to both a baccalaureate and master's degree. The admissions requirements for the University Scholars program and the curricular requirements are outlined in the *Special Academic Programs* section of this Bulletin.

Academic Minors

Many departments have designed academic minors for the convenience of undergraduate students. A minor is a structured group of courses that leads to considerable knowledge and understanding of a subject, although with less depth than a major. Some employers consider minors desirable, and the corresponding major requirements at the University may stipulate a minor. Some students choose to complement their major program with a minor in a related field or even in an entirely different field of interest. The minors that are available are described with the departmental listings and major programs in this Bulletin. Students interested in pursuing an academic minor should contact their college dean's office and the department responsible for the minor program for guidance and advising.



UNIVERSITY STUDIES

A university education truly worth the name must do more than prepare students for a job or a career. It must broaden their understanding of the world, of themselves, of their role in society, and of the ideals and aspirations which have motivated human thought and action throughout the ages. It must help individuals use their acquired knowledge to grow in maturity as they take responsibility for their lives by establishing their own individual goals and developing the habit of life-long learning.

Because the University of Kentucky takes all of these responsibilities seriously and because it sees the value of a liberal education for all citizens of the Commonwealth, it has recently revised the core of academic requirements which will become part of every undergraduate's program. The requirements are called University Studies, and they involve instruction in mathematics and foreign language as well as written and oral communication. University Studies also provides exposure to the major areas of human inquiry, an introduction to cross-disciplinary education, and experience with non-Western ways of thinking.

The University views these requirements as a major contribution to the students' preparation both for a career and for a rich and fulfilling personal life. Indeed, it sees liberal arts education and professional training not as opposites but as mutually supportive dimensions of learning. The broad goals of University Studies make for mature, open flexible individuals who can adapt to changing situations, learn new skills, and meet unforeseen challenges in their careers. At the same time, University Studies will help students to develop their own sense of values, to pursue their own goals, and to contribute to the political, moral, social, and cultural enrichment of society.

The University Studies program is required of all freshmen and is a valuable option for other undergraduates at the University. Within each of the five areas of study a wide variety of offerings may be taken to fulfill the requirements. Students are encouraged to work closely with their advisers in selecting courses which are appropriate for their own needs and aspirations.

Note: A course taken to satisfy a requirement in one area of University Studies cannot be used to satisfy a requirement in another except that a) a single calculus course will satisfy the mathematics component in both I-A and II-A; and b) courses approved as Clustered Courses may be used to satisfy both the Cross-Disciplinary and designated Disciplinary requirements.

I. BASIC SKILLS

A. Mathematics—A score of 25 on the mathematics section of the American College Test **or** bypass examination **or** MA 109, College Algebra, **or** any calculus course.

B. Foreign Language—Two years of a foreign language in secondary school as indicated on transcripts **or** any of the following sequences.

CLA 101/102 Elementary Latin
CLA 151/152 Elementary Greek
FR 101/102 Elementary French
GER 101/102 Basic German
GER 141/142 Swedish I and II
RAE 101/102 Elementary Russian
RAE 130/131 Elementary Hebrew
RAE 140/141 Elementary Modern Standard Arabic
SPI 101/102 Elementary Spanish I and II
SPI 141/142 Elementary Spanish I and II
SPI 191/192 Elementary Italian
A&S 103/104 Basic Instruction in Less Commonly Taught Languages I and II

II. INFERENCE AND COMMUNICATIVE SKILLS

Students must satisfy the mathematics requirement in *Basic Skills* before enrolling in STA 200. The Oral Communication requirement may be fulfilled with one of the courses listed, a bypass examination, or an alternate course in the student's major department.

A. Inference—1) Any calculus course **or** 2) STA 200, Statistics: A Force in Human Judgment, **plus** one of the following: PHI 120, Introductory Logic, or PHI 320, Symbolic Logic I.

B. University Writing Requirement—ENG 101/102 Writing I and II.
Students with a score of 25 or above on the English component of the ACT who pass a proficiency examination may satisfy this requirement by passing ENG 105, Writing: An Accelerated Course. Students in the Honors program should refer to *Humanities, Option B* for alternatives for fulfilling the University Writing requirement.

C. Oral Communication Requirement—One of the following courses.

COM 181 Basic Public Speaking
COM 252 Introduction to Interpersonal Communication
COM 280 Small Group Discussion
COM 287 Persuasive Speaking
TA 225 Vocal Production for the Stage I

Students should check with their advisers before enrolling in any of these offerings. Some departments and programs provide an alternate means of satisfying this requirement.

III. DISCIPLINARY REQUIREMENTS

This portion of University Studies includes natural sciences, social sciences, and humanities. Students may combine the six-hour Disciplinary requirement and the six-hour Cross-Disciplinary requirement.

A. Natural Sciences—one of the following sequences.

Biology

1. BIO 104 Animal Biology
   ENT/BIO 300 General Entomology
2. BIO 150 Principles of Biology I
   BIO 152 Principles of Biology II
3. BIO 104 Animal Biology
   BIO 106 Principles of Plant Biology
4. BIO 103 Basic Ideas of Biology
   plus **one** of the following:
   BIO 104 Animal Biology
   BIO 106 Principles of Plant Biology
   BIO 114 Major Discoveries in Biology
   BIO 204 The Genetic Perspective

Chemistry

1. CHE 101 Chemistry: A Cultural Approach I
   CHE 103 Chemistry: A Cultural Approach II
2. CHE 105 General College Chemistry I
   CHE 107 General College Chemistry II
   CHE 115 General Chemistry Laboratory

Geology

1. GLY 101 Physical Geology
   GLY 111 Laboratory for Physical Geology
   GLY 102 Historical Geology
   GLY 112 Laboratory for Historical Geology

Physics

1. AST 191 The Solar System
   AST 192 Galactic and Extra-Galactic Astronomy
2. PHY 151 Introduction to Physics
   PHY 152 Introduction to Physics
3. PHY 201 General Elementary Physics
   PHY 203 General Elementary Physics
4. PHY 211 General Elementary Physics
   PHY 213 General Elementary Physics
5. PHY 231 General University Physics
   PHY 232 General University Physics

The physics sequences 201/203 and 211/213 are the same, except that the 201/203 sequence has no laboratory.

B. Social Sciences—Two courses in separate disciplines from the following courses. Note that Gen 101 is in the Economics category and GEN 102 and WS 200 are in the Sociology category.

Anthropology
ANT 121 Introduction to Cultural Anthropology
ANT 241 Origins of Old World Civilization
ANT 242 Origins of New World Civilization
ANT 251 Culture and the Individual

Communication
COM 101 Introduction to Communications

Economics
ECO 101 Contemporary Economic Issues
ECO 201 Principles of Economics I
GEN 101 The Economics of Food and Agriculture

Family Studies
FAM 252 The Individual, Marriage and Family

Geography
GEO 152 Regional Geography of the World
GEO 222 World Urbanization
GEO 252 Human Use of the Earth

Psychology
PSY 100 Introduction to Psychology

Political Science
PS 101 American Government
PS 235 World Politics
PS 271 Introduction to Political Behavior

Sociology
SOC 101 Introductory Sociology
SOC 151 Social Interaction
SOC 152 Modern Social Problems
SOC 220 The Community
SOC 235 Inequality in Society
SOC 260 Population, Resources and Change
GEN 102 The Dynamics of Rural Social Life
WS 200 Introduction to Women's Studies in the Social Sciences

C. Humanities—Any one of the following sequences.

Option 1—From the Greeks to the present:

Art

1. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art

History

1. HIS 104 A History of Europe Through the Mid-Seventeenth Century
   HIS 105 A History of Europe From the Mid-Seventeenth Century to the Present
2. HIS 106 Western Culture: Science and Technology I
   HIS 107 Western Culture: Science and Technology II

Literature

1. CLA 261 Literary Masterpieces of Greece and Rome
   plus **one** of the following:
   FR 261 Masterpieces of French Literature in Translation
   GER 261 Masterpieces of German Literature in Translation
   RAE 261 Survey of Russian Literature (in English)
   SPI 261 Masterpieces of Hispanic Literature in Translation
   SPI 263 Masterpieces of Italian Literature in Translation
2. ENG 261 Survey of Western Literature from the Greeks Through the Renaissance
   ENG 262 Survey of Western Literature from 1660 to the Present

Music

1. MUS 201 Music in Western Culture to 1700
   MUS 202 Music in Western Culture, 1700 - Present

Philosophy

1. PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages
   PHI 270 History of Philosophy II: From the Renaissance to the Present Era

Theatre

1. TA 380 History of Theatre I
   TA 381 History of Theatre II

Option 2—Two courses in a single discipline:

Art

1. A-H 313 The Art of Rome
   plus **one** of the following:
   A-H 312 The Art of Classical Greece
   A-H 320 Early Medieval Art
   A-H 322 Byzantine Art and Civilization
   A-H 330 Italian Renaissance Art
2. A-H 321 Romanesque and Gothic Art
   plus **one** of the following:
   A-H 330 Italian Renaissance Art
   A-H 331 Northern European Renaissance Art
3. A-H 340 Nineteenth Century Art
   plus **one** of the following:
   A-H 332 Baroque and Rococo Art
   A-H 341 Twentieth Century Art
   A-H 342 American Art
4. Any **two** of the following:
   A-H 320 Early Medieval Art
   A-H 321 Romanesque and Gothic Art
   A-H 322 Byzantine Art and Civilization
5. Any **two** of the following:
   A-H 330 Italian Renaissance Art
   A-H 331 Northern European Renaissance Art
   A-H 332 Baroque and Rococo Art

English

1. ENG 221 Survey of English Literature I
   ENG 222 Survey of English Literature II
2. ENG 251 Survey of American Literature I
   ENG 252 Survey of American Literature II
3. ENG 270 The Old Testament as Literature
   ENG 271 The New Testament as Literature

History

1. HIS 108 History of the United States Through 1865
   HIS 109 History of the United States Since 1865
2. HIS 202 History of the British People to the Restoration
   HIS 203 History of the British People Since the Restoration
3. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   HIS 230 The Hellenistic World and Rome to the Death of Constantine
4. HIS 270 Early Middle Ages
   HIS 271 Later Middle Ages
5. HIS 285 History of Russia to 1825
   HIS 286 History of Russia Since 1825

Honors

Honors students with a score of 25 or better on the English component of the ACT may satisfy both the University Writing requirement and the Humanities requirement by passing three colloquia. Those with less than 25 on the English component of ACT may satisfy both requirements by passing four colloquia.

1. HON 101 Freshman Colloquium
   HON 102 Freshman Colloquium
   HON 201 Sophomore Colloquium
   HON 202 Sophomore Colloquium

Music

1. MUS 100 Introduction to Music
   MUS 220 Symphonic Music



IV. CROSS-DISCIPLINARY REQUIREMENT

A. Clustered Courses—Students may find it very desirable to satisfy **both** the six-hour Disciplinary requirement and the six-hour Cross-Disciplinary requirement by taking two designated **sequences**. This cluster arrangement is a simple combination of existing courses which are available every year in multiple sections. In each case the instructors will have worked together to establish connections between the disciplines. Students choosing this option will develop a more coherent understanding of an area of study than would otherwise be the case. Current acceptable clusters are listed below.

1. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   HIS 230 The Hellenistic World and Rome to the Death of Constantine
   CLA 210 The Art of Greece and Rome
   CLA 261 Literary Masterpieces of Greece and Rome
2. HIS 270 Early Middle Ages
   HIS 271 Later Middle Ages
   A-H 320 Early Medieval Art
   A-H 321 Romanesque and Gothic Art
3. BIO 150 Principles of Biology I
   BIO 152 Principles of Biology II
   CHE 105 General College Chemistry I
   CHE 107 General College Chemistry II
   CHE 115 General Chemistry Laboratory

B. Paired Courses—Students opting to fulfill the Cross-Disciplinary component separately may select any of the following pairs of courses.

1. A-H 105 Ancient Through Medieval Art
   TA 380 History of Theatre I
2. A-H 106 Renaissance Through Modern Art
   HED 142 History and Theory of Design II
3. A-H 106 Renaissance Through Modern Art (section 001)
   TA 381 History of Theatre II
4. A-H 322 Byzantine Art and Civilization
   HIS 546 The Byzantine Empire
5. AEC 309 International Agriculture, World Food Needs, and U.S. Trade in Agricultural Products
   PHI 333 Agricultural Ethics
6. ART 100 Introduction to Art
   TA 101 Introduction to Theatre: Principles and Practice
7. CLA 210 The Art of Greece and Rome
   plus **one** of the following:
   HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   HIS 230 The Hellenistic World and Rome to the Death of Constantine
8. CLA 261 Literary Masterpieces of Greece and Rome
   plus **one** of the following:
   HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
   HIS 230 The Hellenistic World and Rome to the Death of Constantine
9. COM 325 Business and Industrial Communication
   SOC 342 Organizations in Society
10. FAM 253 Human Sexuality: Development, Behavior and Attitudes
    ANT 355 Human Sexuality in Cross Cultural Perspective
11. GEN 101 The Economics of Food and Agriculture
    GEN 102 The Dynamics of Rural Social Life
12. GEN 104 Plants and Man—A World View
    BIO 106 Principles of Plant Biology
13. Any **two** of the following:
    GEO 332 Geography of Southeast Asia
    ANT 428G Contemporary Cultures and Societies in Southeast Asia
    PS 421G Government and Politics of Southeast Asia
14. GEO 210 Pollution, Hazards and Environmental Management
    plus **one** of the following:
    FOR 100 Introduction to Forestry
    CE 250 Technology and the Environment
15. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
    PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages
16. HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great
    CLA 426G Classical Drama: Tragedy and Comedy in Greece and Rome
17. HIS 247 History of Islam and Middle East Peoples, 500-1250 A.D.
    RAE 328 Islamic Civilization: The Rise of Islam to 1798
18. HIS 248 History of Islam and Middle East Peoples, 1250 to the Present
    RAE 330 The Arab Awakening
19. HIS 270 Early Middle Ages
    A-H 320 Early Medieval Art
20. HIS 271 Later Middle Ages
    A-H 321 Romanesque and Gothic Art
21. HIS 316 Junior Seminar: Historical Method and Literature
    PHI 570 Philosophy of History
22. MUS 301 Appalachian Music
    ENG 478G Appalachian Folklore
23. NFS 101 Food and Nutrition for Man
    ANT 235 Food and Culture
24. PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages
    CLA 426G Classical Drama: Tragedy and Comedy in Greece and Rome
25. PHI 305 Health Care Ethics
    HIS 584 The Rise of Scientific Medicine in the United States
26. PHI 330 Professional Ethics
    plus **one** of the following:
    SW 222 Development of Social Welfare
    SW 322 The Social Work Profession and Social Welfare
27. PHI 357 Philosophical Foundations of Law
    plus **one** of the following:
    JOU 531 Law of the Press
    HIS 572 American Legal History
    HIS 573 American Constitutional History
    PS 463G The American Judicial Process
    PS 461G Civil Liberties
28. PHI 562 Philosophical Problems in the Social and Behavioral Sciences
    plus **one** of the following:
    SOC 452G Contemporary Social Theory
    ANT 510 History of Anthropological Theory
29. PS 461G Civil Liberties
    HIS 573 American Constitutional History
30. PS 463G The American Judicial Process
    HIS 572 American Legal History

31. PS 553 Urban Government and Politics
HIS 581 U.S. Urban History Since 1865

32. PSY 301 Introduction to Humanistic Psychology
PHI 350 Death, Dying, and the Quality of Life

33. RAE 380 Survey of 19th Century Russian Literature (in English)
HIS 537 Intellectual and Cultural History of Russia from 1800 to Present

34. RAE 390 Modern Russian Literature (in English)
HIS 535 Russia in the Twentieth Century II

35. WS 200 Introduction to Women's Studies in the Social Sciences
WS 201 Introduction to Women's Studies in the Arts and Humanities

36. SOC 436 Deviant Behavior
NUR/AHE 440 Women and Mental Health

37. HIS 519 The Era of the Renaissance
plus **one** of the following:
A-H 330 Italian Renaissance Art
A-H 331 Northern European Renaissance Art

38. BIO 152 Principles of Biology II
PHI 361 Biology and Society

39. Any **two** of the following:
ENG 375 The Woman Writer
SOC 335 Women and Men in Society
ANT 401 Sex Roles in Cross-Cultural Perspective

The following Cross-Disciplinary pairs have been approved for specific community colleges. Such approval does **not** mean that comparable pairings have been endorsed for the main campus or for other community colleges.

Jefferson Community College

1. HIS 105 A History of Europe From the Mid-Seventeenth Century to the Present
ENG 161 Introduction to Literature
2. HIS 202 History of the British People to the Restoration
ENG 221 Survey of English Literature I
3. HIS 203 History of the British People Since the Restoration
ENG 222 Survey of English Literature II

Maysville Community College

1. GEN 104 Plants and Man: A World View
BIO 106 Principles of Plant Biology

Somerset Community College

1. HIS 105 A History of Europe from the Mid-Seventeenth Century to the Present
ENG 262 Survey of Western Literature from 1660 to the Present

V. CROSS-CULTURAL REQUIREMENT

Any one of the following courses.

A-H 310 Art and Archaeology of Egypt and Western Asia
ANT 160 Tribal Peoples in the Modern World
ANT 161 The World of Peasants
ANT 312 Comparative Civilizations
ANT 320 Andean Civilization
ANT 321 North American Indians
ANT 322 Aztec and Maya Civilization
ANT 323 Peoples of the Pacific Islands
ANT 325 Peoples of Inner Asia
ANT 326 Peoples of East Asia
ANT 327 Civilization and Culture of India
ANT 338 Peoples of the Near East
ANT 420G Contemporary Latin American Cultures
ANT 428G Contemporary Cultures and Societies in Southeast Asia
ANT 431G Cultures and Societies of Sub-Saharan Africa
ANT 470G Regional American Ethnography
FAM 258 Child Development and Family Life in Japan and China
GEN 301 An Introduction to Chinese Culture Through Agriculture
GEO 160 Lands and Peoples of the Non-Western World
GEO 324 Geography of Central and South America
GEO 328 Geography of the Middle East and North Africa
GEO 330 Geography of South Asia
GEO 332 Geography of Southeast Asia
GEO 333 Geography of East Asia
GEO 336 Geography of Sub-Saharan Africa
HIS 247 History of Islam and Middle East Peoples, 500-1250 A.D.
HIS 248 History of Islam and Middle East Peoples, 1250 to the Present
HIS 254 History of Sub-Saharan Africa
HIS 295 East Asia to 1800
HIS 296 East Asia Since 1800
HIS 536 Intellectual and Cultural History of Russia to 1800
HIS 548 History of the Middle East: 1916-1952
HIS 549 History of the Middle East: 1952 to Present
HIS 585 Spain and Portugal in America
HIS 586 Modern Mexico
HIS 587 Modern Venezuela, Colombia, and Latin Caribbean
HIS 590 Japanese History to 1800
HIS 591 Japanese History Since 1800
HIS 593 East Asian History Since World War II
PS 417G Survey of Sub-Saharan Politics
PS 420G Governments and Politics of South Asia
RAE 280 Soviet Culture and Its Origins
RS/ANT 130 Introduction to Comparative Religion
SPI 115 Culture of Mexico for Non-Spanish Speakers
SPI 215 Culture of Mexico
SPI 314 Civilization of Spanish America
SPI 438G Literature of Social Protest in Spanish America
SW 320 Global Poverty: Responses Across Cultures

Students Included in the New University Studies Program

First-time freshmen entering in the 1988 Fall Semester are included under the new University Studies program.

Students who have earned credit in the UK system prior to the 1988 Fall Semester may follow the old General Studies requirements or the new University Studies requirements. However, if a student interrupts work at the University for more than two semesters, the dean of the college in which the student is enrolled shall determine whether the old General Studies requirements or the new University Studies requirements shall be followed.

Transfer students who were enrolled in a college or university **prior** to the 1988 Fall Semester and who continuously earned credit up to the time of enrollment at the University of Kentucky may follow the old General Studies requirements or the new University Studies program.



CURRICULA AND DEGREE REQUIREMENTS

AGRICULTURE

C. Oran Little, Ph.D., is Dean of the College of Agriculture; John N. Walker, Ph.D., is Associate Dean, College of Agriculture; John C. Robertson, Ph.D., is Associate Dean for Instruction; D. Milton Shuffett, Ph.D., is Associate Dean for Research; Shirley H. Phillips is Associate Dean for Cooperative Extension.

The research, teaching, extension, and regulatory functions of the College of Agriculture are combined into a coordinated, mutually supporting program of undergraduate and graduate education. Teaching in this college is so related to the other functions that the student has a unique opportunity to broaden his or her background in the areas of research and application of scientific findings in laboratories, greenhouses, field plots and feed lots.

Admission

All students planning to study any phase of agriculture, including forestry, landscape architecture and pre-veterinary medicine, are admitted directly into the College of Agriculture. Application for admission is made through the Undergraduate Admissions Office.

Undergraduate Programs in Agriculture

The College of Agriculture grants the following degrees: the Bachelor of Science in Agriculture, the Bachelor of Science in Food Science, the Bachelor of Science in Forestry, and the Bachelor of Science in Landscape Architecture.

Students pursuing the Bachelor of Science in Agriculture may select from these majors: agricultural economics, agricultural education, agronomy, animal sciences, entomology, horticulture, production agriculture, and individualized programs. In addition, a pre-veterinary medicine curriculum is available.

Also available to students are minors in agriculture, agricultural economics, agronomy, animal sciences, food science, pest management, and rural sociology.

Students in agricultural engineering are enrolled in the College of Engineering.

Undeclared Majors

Students who are interested in agricultural study but uncertain about a major should work closely with advisers in the College of Agriculture. With careful course selection, students can work toward fulfilling general requirements while exploring the various areas of study in agriculture.

Scholarships and Financial Aid

The College of Agriculture offers scholarships and awards to students on the basis of academic accomplishment, financial need, and involvement in extracurricular activities. Many of the departments in the college employ students in laboratories, greenhouses, barns, and field work in connection with the research program in agriculture. Information about scholarships, awards, and work opportunities is available in the Office of the Associate Dean for Instruction.

Graduate Work

The College of Agriculture offers both the Master of Science and the Master of Science in Agriculture degrees in all college departments.

Doctor of Philosophy degrees are offered in the following areas: agricultural economics, agricultural engineering, animal sciences, crop science, entomology, plant pathology, plant physiology, sociology, soil science, and veterinary science. For more information, students should see The Graduate School Bulletin.

REQUIREMENTS FOR THE B.S. DEGREE IN AGRICULTURE

Graduation Requirements

To earn a Bachelor of Science in Agriculture, the student must have 128 credit hours with at least a 2.0 grade-point standing. A minimum of 48 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree.

All students pursuing the Bachelor of Science in Agriculture must complete the following requirements:

1. University Studies
2. College requirements
   Communications (9-12 hours)
   University Writing requirement and one course in speech and one course in business or technical writing
   Computer Science (3 hours)
   CS 101 or equivalent
   College General Studies (12 hours)
   Four courses from GEN 101, 102, 103, 104, 105, 106, 107
3. Agriculture Major (minimum of 24 hours)
4. Specialty support courses outside major department (minimum of 21 hours)
5. Electives and/or Preprofessional requirements (10-40 hours)

Information on each major program (preprofessional, major, and specialty support course requirements) follows. Students may obtain additional information on programs and recommended plans of study from the Associate Dean for Instruction.

Agricultural Economics

The study of agricultural economics involves the application of economic theory to the following problem areas: (1) the production, marketing and distribution of food and agricultural products and the marketing of farm supplies and services necessary for agricultural production; (2) natural resource use and environmental quality; and (3) rural economic development. The instructional program provides the theoretical base necessary for analyzing economic problems within these areas.

Degree Requirements

Students must complete University Studies and College requirements. Some changes in this program are anticipated, due to the implementation of the University Studies program.

Preprofessional Requirements **Hours**

ECO 201/202 Principles of Economics I and II.....6

plus one of the following options:
MA 113 Calculus I **or**.....4
MA 123/162 Elementary Calculus and Its Applications and
Finite Mathematics and Its Applications.....6

Major Requirements

Students select one of the following program options:

Option One: Agribusiness Management

Major **Hours**

Required.....9
AEC 301 Principles of Agricultural Marketing.....3
AEC 322 Agribusiness Management.....3

plus one of the following:
AEC 302 Farm Management Decision Making.....3
AEC 303 Economics of Agricultural Production.....3
AEC 441G Agricultural Financial Management.....3
AEC 445G Introduction to Resource and Environmental Economics.....3
Agricultural Economics Electives.....15
(selected with adviser's approval)

Specialty Support **Hours**

Required.....12
CS 101 Introduction to Computing I.....3
ACC 201/202 Principles of Accounting.....6

plus one of the following:
STA 291 Statistical Method.....3
STA 370 Introduction to Statistics.....4

Suggested Specialty Support Electives.....9
ACC 408G Cost Accounting.....3
AGR 366 Fundamentals of Soil Science.....3
AGR 386 Principles of Field Crop Production.....3
ASC 382 Principles of Livestock Nutrition.....3
MKT 300 Marketing Management.....3
MKT 310 Behavioral Systems in Marketing.....3
FIN 300 Corporation Finance.....3
MGT 301 Business Management.....3
MGT 320 Survey of Personnel and Industrial Relations.....3
MGT 341 Business Law I.....3
DIS 320 Management Information Systems.....3
MGT 410 Analysis of Organizational Behavior.....3
ECO 391 Economic and Business Statistics.....3
ECO 485G Monetary Economics.....3
ECO 487G Intermediate Macroeconomic Theory....3
ECO 488G Intermediate Microeconomic Theory.....3
PS 240 Ideology, Political Change, and Contemporary Industrial Society.....3
PS 280 Issues in Public Policy.....3

Option Two: Agricultural Finance and Credit Management

Major **Hours**

Required.....16
AEC 301 Principles of Agricultural Marketing.....3
AEC 302 Farm Management Decision Making.....3
AEC 303 Economics of Agricultural Production.....3
AEC 322 Agribusiness Management.....3
AEC 341 Agricultural Credit Institutions.....1
AEC 441G Agricultural Financial Management.....3
Agricultural Economics Electives.....8
(selected with adviser's approval)

Specialty Support **Hours**

Required.....12
CS 101 Introduction to Computing I.....3
ACC 201/202 Principles of Accounting.....6

plus one of the following:
STA 291 Statistical Method.....3
STA 370 Introduction to Statistics.....4

Suggested Specialty Support Electives.....9
ACC 408G Cost Accounting.....3
MGT 301 Business Management.....3
MGT 320 Survey of Personnel and Industrial Relations.....3
MGT 341 Business Law I.....3
DIS 320 Management Information Systems.....3
MGT 410 Analysis of Organizational Behavior.....3
FIN 300 Corporation Finance.....3
FIN 445 Capital Investment and Financing Decisions.....3
ECO 391 Economic and Business Statistics.....3
ECO 463G Analysis of Business Conditions.....3
ECO 485G Monetary Economics.....3
ECO 487G Intermediate Macroeconomic Theory....3
ECO 488G Intermediate Microeconomic Theory.....3
PS 240 Ideology, Political Change, and Contemporary Industrial Society.....3
PS 280 Issues in Public Policy.....3

Option Three: Farm Management

Major **Hours**

Required.....12
AEC 301 Principles of Agricultural Marketing.....3
AEC 302 Farm Management Decision Making.....3
AEC 303 Economics of Agricultural Production.....3
AEC 408 Farm Accounting and Business Analysis.....3
Agricultural Economics Electives.....12
(selected with adviser's approval)

Specialty Support **Hours**

Required.....9
CS 101 Introduction to Computing I.....3
STA 291 Statistical Method.....3
ACC 201 Principles of Accounting.....3

Suggested Specialty Support Electives.....12
AEN 430 Farm Water Management.....3
AGR 366 Fundamentals of Soil Science.....3
AGR 386 Principles of Field Crop Production.....3
ASC 382 Principles of Livestock Nutrition.....3
ASC 406G Beef Cattle Science.....3
ASC 408G Swine Science.....3
ECO 487G Intermediate Macroeconomic Theory....3
ECO 488G Intermediate Microeconomic Theory.....3
HOR 100 Introductory Horticulture.....1
HOR 203 Home Horticulture.....3
MGT 341 Business Law I.....3
VS 351 Principles of Animal Hygiene and Disease Control.....3

Option Four: Natural Resource and Environmental Economics

Major **Hours**

Required.....9
AEC 301 Principles of Agricultural Marketing.....3
AEC 303 Economics of Agricultural Production.....3
AEC 445G Introduction to Resource and Environmental Economics.....3
Agricultural Economics Electives.....15
(selected with adviser's approval)

Specialty Support **Hours**

Required.....9
CS 101 Introduction to Computing I.....3
ECO 488G Intermediate Microeconomic Theory.....3

plus one of the following:
STA 291 Statistical Method.....3
STA 370 Introduction to Statistics.....4

Specialty Support Electives.....12
Courses to be selected with approval of adviser. Depending on the educational and career objectives of the student, these courses may be selected from a wide variety of courses in the physical, biological, social, economic, and managerial sciences.

Option Five: Rural Economic Development

Major **Hours**

Required.....9
AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products..3
AEC 303 Economics of Agricultural Production.....3
Agricultural Economics Electives.....15
(selected with adviser's approval)

Specialty Support **Hours**

Required.....12
CS 101 Introduction to Computing I.....3
ECO 487G Intermediate Macroeconomic Theory....3
ECO 488G Intermediate Microeconomic Theory.....3

plus one of the following:
STA 291 Statistical Method.....3
STA 370 Introduction to Statistics.....4

Specialty support elective courses are suggested from the following areas: business, economics, sociology, anthropology, statistics, political science, mathematics, and philosophy.

Free Electives

Electives should be selected to complete the required 128 credit hours for graduation.

Agricultural Education

The program in Agricultural Education is the joint concern of the Department of Vocational Education in the College of Education and the Department of Agricultural Education in the College of Agriculture. Agricultural Education prepares teachers for agribusiness and production agriculture education. In addition, specialties may also be completed in agricultural mechanics, agricultural products, agricultural resources, forestry, and ornamental and production horticulture. Professional education courses, methods of teaching, and supervised student teaching in vocational agriculture at the high school level are included in this training.

Degree Requirements

Students in agricultural education may qualify to teach agriculture by completing the program listed below. Every student must be admitted to the Teacher Education Program before taking the professional education block. Students should apply for admission during the junior year or as soon thereafter as possible. For more information, students should see their advisers or refer to the *College of Education* section of this Bulletin.

The 50 hours of technical agriculture are required for teacher certification and must

include six hours in each of the following areas: animal science, plant science, soils, agricultural engineering, and agricultural economics (including farm management). Students must have three hours of literature, health, EDP 203, and complete the agricultural education block (professional courses and student teaching). Students in other agriculture programs may also qualify to teach, provided they meet the above requirements.

All students who wish to receive a Provisional Teaching Certificate in Kentucky must meet the state-defined scores on the National Teacher Examination and successfully complete a one-year paid teaching internship. Students wishing to earn certification in other states are responsible for obtaining requirements and applications for those states as certification requirements vary among states. Detailed information on the examination and internship may be obtained from the adviser.

Each student is required to complete University Studies requirements, as well as the College requirements listed previously. Each student also completes the following:

Preprofessional Requirements	Hours
BIO 104 Animal Biology **and**	3
BIO 106 Principles of Plant Biology (or equivalent)	3

Major Requirements (24 hours)	Hours
Soils courses	6
Plant science courses	6
Animal science courses	6
Agricultural engineering courses	6

Specialty Support (21 hours)	Hours
Health (BIO 110 or equivalent)	3
AEC 302 Farm Management Decision Making	3
Agricultural economics course	3
EDV 210 Introduction to Vocational Education	3
Agricultural electives	9

Professional Component	Hours
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EDV 370 Student Teaching in Vocational Agriculture*	9
EDV 580 Materials and Methods for Teaching Vocational Agriculture*	3
EDV 583 Experience Programs in Vocational Agriculture*	3

*These courses are taken concurrently during the second semester of the senior year.

A minimum of 150 clock hours of planned and approved clinical and field experiences (of which at least one-half must be field experiences) must be completed by all students prior to student teaching.

Unspecified Electives

Sufficient unspecified electives (usually seven hours) must be taken to complete graduation requirements.

Note: Requirements for graduation and teacher certification are subject to frequent changes. Students are well advised to request more complete program guidelines from: Teacher Education and Certification, 166 Taylor Education Building, or from their advisers.

Agricultural Engineering

The Agricultural Engineering curriculum, administered jointly by the College of Agriculture and the College of Engineering, provides engineering knowledge for the agricultural industry and closely related industries, such as the farm machinery industry.

The degree requirements and curriculum are listed in the *College of Engineering* section of this Bulletin.

Agronomy

Agronomy is the development and use of plant science and soil science for the production of crops for food, fiber, forages, feed and oil; the production of tobacco; and the management of turfgrass for recreational areas and home sites. Agronomy also involves determining and interpreting soil properties as they relate to both agricultural and nonagricultural uses of soils. The Agronomy curriculum is broadly based in the physical and biological sciences with specialization in crop science and soil science. It permits students to develop a program of study to match their educational interests and goals.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed previously, each student completes the following:

Premajor Requirements	Hours
BIO 106 Principles of Plant Biology	3
BIO 107 Plant Biology Laboratory	1
BIO 108 Principles of Microbiology	3
CHE 105/107 General College Chemistry I and II **and**	6
CHE 115 General Chemistry Laboratory	3
MA 123 Elementary Calculus and Its Applications **and**	3
MA 132 Calculus for the Life Sciences **or**	3
MA 113/114 Calculus I and II **or**	8
MA 109 College Algebra **and**	3
MA 123 Elementary Calculus and Its Applications	3

Major Requirements (27 hours)	Hours
AGR 360 Genetics	4
AGR 366 Fundamentals of Soil Science	3
AGR 367 Laboratory in Soil Science	2
AGR 386 Principles of Field Crop Production	3
AGR 470G Fertilizers and Soil Fertility	3

The remaining courses are to be selected from other AGR courses on the basis of the student's academic objectives, and are subject to the approval of the adviser.

Specialty Support (24 hours)

The specialty support requirements include BIO 109, Introductory Microbiology Laboratory, CHE 236, Organic Chemistry, and other courses outside the Department of Agronomy. Specialty support courses may be taken in other areas of agriculture to provide a broader background in agricultural sciences; in biology, chemistry, geology, physics, and mathematics to strengthen preparation in the sciences; or in business and economics for students interested in the application of agronomy to business and industry. Courses are selected with approval of the adviser.

Electives

Electives should be selected in consultation with the adviser and in view of other course work to complete the required total of 128 credit hours for graduation.



Animal Sciences

The Animal Sciences curriculum emphasizes application of science to production of livestock and poultry. Students may focus their studies on animal production or dairy production.

Graduates of this program may work directly with animals in breeding, feeding, marketing, or other areas, or find employment in agribusiness, government, or education.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed previously, each student completes the following:

Preprofessional Requirements	Hours
Mathematics	
MA 113 Calculus I **or**	4
MA 109 College Algebra **and**	3
MA 123 Elementary Calculus and Its Applications	3
Chemistry	
CHE 105/107 General College Chemistry I and II	6
CHE 115 General Chemistry Laboratory	3
Biology	
BIO 104 Animal Biology	3
BIO 106 Principles of Plant Biology	3
BIO 108 Principles of Microbiology	3
plus one laboratory:	
BIO 105 Animal Biology Laboratory	1
BIO 107 Plant Biology Laboratory	1
BIO 109 Introductory Microbiology Laboratory	2
or	
BIO 150/152 Principles of Biology I and II	6
BIO 151/153 Principles of Biology Laboratory I and II	4

Major Requirements

A minimum of 24 hours of departmental courses is required for either option. Required courses in the two areas are as follows:

Animal Production	Hours
ASC 300 Live Animal and Carcass Evaluation **or**	3
ASC 321 Dairy Cattle Evaluation	2
ASC 304 Meats and Meat Processing **or**	4
ASC/FSC 306 Selection, Evaluation and Use of Animal Food Products	4
ASC 362 Animal Breeding	3
ASC 364 Reproductive Physiology of Farm Animals	3
ASC 378 Animal Nutrition	3
ASC 380 Feeds and Feeding	3
ASC/FSC 470 Seminar in Animal Science/Food Science	1

Dairy Production	Hours
ASC 362 Animal Breeding	3
ASC 364 Reproductive Physiology of Farm Animals	3
ASC 378 Animal Nutrition	3
ASC 380 Feeds and Feeding	3
ASC/FSC 470 Seminar in Animal Science/Food Science	1
ASC 420G Dairy Cattle Science	3
ASC 564 Milk Secretion	3

Specialty Support

A minimum of 21 hours is required. Requirements are the same for students in animal or dairy production.

Required:	
ASC 360 Genetics	4
CHE 230 Organic Chemistry **or**	3
CHE 236 Organic Chemistry	4
Selected from following with adviser's approval:	
BCH 401G Fundamentals of Biochemistry	3
CHE 226 Analytical Chemistry	3-5
CHE 232 Organic Chemistry	3
CHE 231/233 Organic Chemistry Laboratory	3-4
CHE 550/552 Physiological Chemistry	8
PHY 211/213 General Elementary Physics	10
Statistics (STA 370 or STA 291 or STA 292, 293, 294)	3-4
BIO 340 Comparative Anatomy	5

Courses at the 200 level or above from the following departments:
Agricultural Economics, Agricultural Engineering, Agronomy, Entomology, Veterinary Science.

Electives

Students complete six hours of free electives.

Entomology

Entomology is the science which deals with the biology, ecology, distribution, physiology, economic importance, and management of insects and their relatives. Entomologists are concerned with the role of insects in nature and their impact on crops, livestock, and human health.

Entomology graduates are among the most employable in the agricultural and biological sciences. Recent graduates have found rewarding careers in agricultural, urban, or industrial pest management, in research in private industry or universities, and in state and federal agencies.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed previously, each student completes the following:

Preprofessional Requirements	Hours
Mathematics	
MA 113 Calculus I **or**	4
MA 109 College Algebra **and**	3
MA 123 Elementary Calculus and Its Applications **or**	3
MA 123 Elementary Calculus and Its Applications **and**	3
MA 162 Finite Mathematics and Its Applications **or**	3
MA 131 Mathematics for the Life Sciences **and**	3
MA 132 Calculus for the Life Sciences	3
Biology	
BIO 104/105 Animal Biology and Laboratory **and**	4
BIO 106/107 Principles of Plant Biology and Laboratory **or**	4
BIO 150/152 Principles of Biology I and II **and**	6
BIO 151/153 Principles of Biology Laboratory I and II	4
Chemistry	
CHE 105/107 General College Chemistry I and II	6
CHE 115 General Chemistry Laboratory	3

Major Requirements (24 hours)	Hours
Required:	
ENT 300 General Entomology	3
ENT 562 External Morphology of Insects	4
ENT 564 Insect Taxonomy	4
Select remaining credits from:	
ENT 310 Insect Pests of Field Crops	3
ENT 320 Horticultural Entomology	3
ENT 340 Livestock Entomology	2
ENT 395 Independent Work	2-3
ENT 402 Forest Entomology	3
ENT 530 Integrated Pest Management	3
ENT 561 Medical Entomology	4
ENT 563 Parasitology	4
BIO 570 Invertebrate Zoology	4

Specialty Support (21 hours)

Courses may be selected with the adviser's consent from various departments within the College of Agriculture and from other related areas such as biology, chemistry, and statistics. Each student's curriculum is tailored to his or her interests and career goals.

Electives

Elective courses should be selected with the adviser's approval to satisfy the minimum requirement of 128 hours for graduation.

Horticulture

Horticultural science is the study of the production, distribution, and utilization of fruits, vegetables, woody plants, flowers, and foliage plants. Careers in modern horticulture and its related activities are diverse and challenging. The undergraduate curriculum provides the student with knowledge of basic technical, scientific, and business principles, as well as the communication, leadership, and interpersonal skills needed to function effectively in a professional horticulture position.

The program is divided into three options: science, business, and education. Within each option students may choose to concentrate in one of the following areas: nursery management, floriculture, vegetable crops, pomology, flower shop management, extension, or education.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed previously, each student completes the following requirements.

Preprofessional Requirements	Hours
Option I: Science	
BIO 106 Principles of Plant Biology	3
BIO 107 Plant Biology Laboratory	1
CHE 105/107 General College Chemistry I and II	6
HOR 100 Introductory Horticulture	1
CHE 236 Organic Chemistry	4
MA 113 Calculus I **or**	4
MA 131/132 Mathematics and Calculus for the Life Sciences	6
Option II: Business	
BIO 106 Principles of Plant Biology	3
BIO 107 Plant Biology Laboratory	1
CHE 105/107 General College Chemistry I and II	6
HOR 100 Introductory Horticulture	1
ECO 201 Principles of Economics I	3
MA 123/162 Elementary Calculus and Its Applications and Finite Mathematics and Its Applications	6
Option III: Education	
BIO 106 Principles of Plant Biology	3
BIO 107 Plant Biology Laboratory	1
CHE 105/107 General College Chemistry I and II	6
HOR 100 Introductory Horticulture	1

ECO 201 Principles of Economics I.....3
MA 123/162 Elementary Calculus and Its Applications and Finite Mathematics and Its Applications.....6
BIO 110 Introduction to Human Biology and Health **or** Physical Education course.....3
English (an English literature course).....3

Major Requirements

HOR 350 Plant Propagation.....3
plus four of the following six courses:
HOR 327 Woody Plants I.....3
HOR 330 Annual and Perennial Flowers.....3
HOR 335 Greenhouse Management.....3
HOR 402 Pomology: Decidious Fruits I.....4
HOR 510 Vegetable Crop Production.....3
HOR 515 Turf Management.....3
Additional required courses in horticulture will depend on the option chosen by the student.

Specialty Support

Option I: Science
AGR 366 Fundamentals of Soil Science.....3
PPA 400G Principles of Plant Pathology.....3
AGR 470G Fertilizers and Soil Fertility.....3
AGR 404 Weed Science **or**.....3
ENT 530 Integrated Pest Management.....3
BCH 401G Fundamentals of Biochemistry.....3
PHY 201 **or** PHY 211 General Elementary Physics.....4-5
BIO 315 Introduction to Cell Biology **or**.....3
STA 291 Statistical Method.....3

Option II: Business
AGR 366 Fundamentals of Soil Science.....3
PPA 400G Principles of Plant Pathology.....3
AGR 470G Fertilizers and Soil Fertility.....3
AGR 404 Weed Science **or**.....3
ENT 530 Integrated Pest Management.....3
ACC 201 Principles of Accounting.....3
plus six hours from:
AEC 301 Principles of Agricultural Marketing.....3
AEC 302 Farm Management Decision Making.....3
AEC 303 Economics of Agricultural Production.....3

Option III: Education
AGR 366 Fundamentals of Soil Science.....3
PPA 400G Principles of Plant Pathology.....3
AGR 470G Fertilizers and Soil Fertility.....3
AGR 404 Weed Science **or**.....3
ENT 530 Integrated Pest Management.....3
Additional course work is required for teacher certification. Students should work closely with advisers in selecting courses.

Internship (0-6 hours)

The student will work 10 weeks full-time or 400 hours part-time in a horticulture-related enterprise. The experience preferably should be obtained between the junior and senior years.

Restricted Electives (21 hours)

To be chosen with the approval of the adviser.

Free Electives (6 hours)

Production Agriculture

The Production Agriculture program provides broad, basic education in agriculture. The major course work is concentrated in agricultural economics, agronomy, and animal sciences, with specialty support courses from agricultural engineering, entomology, biology, plant pathology, sociology, and veterinary science.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed previously, each student completes the following:

Preprofessional Requirements	**Hours**
BIO 104 Animal Biology **and**	3
BIO 106 Principles of Plant Biology **or** equivalent	3
BIO 108 Principles of Microbiology*	3
CHE 105/107 General College Chemistry I and II **and**	6
CHE 115 General Chemistry Laboratory	3
ECO 201 Principles of Economics I	3
MA 109 College Algebra **and**	3
MA 123 Elementary Calculus and Its Applications **or** higher level sequence	3
AGR/ASC 360 Genetics	4

*May also be used to satisfy part of the specialty support requirements.

Major Requirements

The student must take a minimum of 12 hours in each of three departments—Agricultural Economics, Agronomy, and Animal Sciences. Some course choices are available. Students should consult with advisers on course selection.

Specialty Support

The student must complete six hours in both agricultural engineering and entomology and nine hours from biology, horticulture, plant pathology, sociology, or veterinary science, in addition to BIO 108 (premajor requirement).

Electives

Electives should be selected in consultation with the adviser and in view of other course work to complete the required total of 128 credit hours for graduation.

Individualized Programs

Individualized program opportunities have been developed to assist students with academic goals that cross several disciplines. A Committee for Individualized Programs in Agriculture has the responsibility of reviewing the proposed program of each student following this plan. The committee is authorized to approve or reject each proposal on the basis of a set of criteria developed for individualized programs.

The procedure for entering an individualized program is as follows:

1. Each student must apply to the Associate Dean for Instruction. The student will receive an explanation of the program and its objectives, and the possible risks involved, including prospective employment and acceptance for advanced graduate degree work.

2. Students who continue their interest in the individualized program develop, with the assistance of an adviser, the plan which they propose to follow.

3. This plan must be submitted to the College Committee for Individualized Programs for consideration and possible approval. (The basis for approval will be information from the Counseling and Testing Center, interviews with the student and the soundness of the program for the student's stated academic goals.)

4. Approval of the student's program by the Committee and Associate Dean will admit the student to the individual program option.

REQUIREMENTS FOR THE B.S. DEGREE IN FOOD SCIENCE

Food science deals with production, processing, packaging, distribution, preparation, and utilization of food. The program is administered by the Department of Animal Sciences and offers training in the basic sciences and in the fundamentals of food chemistry, food microbiology, food processing, food engineering, and statistics.

A Food Science curriculum is also available in the College of Home Economics.

Career Opportunities

The outlook for employment of properly trained graduates is very bright. Most food-related industries (including meat, dairy, poultry, fats and oils, vegetable and fruit processing, food packaging and food additives) and other companies that service the food industries need individuals trained in food science. There is an increasing demand for graduates by various federal, state and municipal regulatory agencies. Opportunities exist in teaching, extension, and research for students interested in additional study.

Graduation Requirements

To earn the Bachelor of Science in Food Science, the student must have 128 credit hours with at least a 2.0 grade-point standing. A minimum of 48 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the degree. In addition to University Studies requirements, students must complete College and preprofessional requirements, along with a specified core of major and specialty support courses.

College Requirements	**Hours**
General Agriculture	
Select four courses from the following:	
GEN 101 The Economics of Food and Agriculture	3
GEN 102 The Dynamics of Rural Social Life	3
GEN 103 Agriculture Pest and Disease Management	3
GEN 104 Plants and Man—A World View	3
GEN 105 Engineering Applications in Agriculture	3
GEN 106 Agricultural Animal Science	3
GEN 107 Food in a Changing World	3

Communications
COM 181 Basic Public Speaking.....3
ENG 203 Business Writing.....3
Computer Science
CS 101 Introduction to Computing I.....3

Preprofessional Requirements

Mathematics
MA 109 College Algebra **and**
MA 123 Elementary Calculus and Its Applications **or**.....6
MA 113 Calculus I.....4
Chemistry
CHE 105/107 General College Chemistry I and II...6
CHE 115 General Chemistry Laboratory.....3
Biology
Choose **one** of the following sequences:
A. BIO 104 Animal Biology.....3
BIO 106 Principles of Plant Biology.....3
BIO 108 Principles of Microbiology.....3
Plus one laboratory (BIO 105, 107, or 109).....1-2
B. BIO 150/152 Principles of Biology I and II.....6
BIO 151/153 Principles of Biology Laboratory I and II.....4

Major Requirements **Hours**
ASC 304 Meats and Meats Processing **or**.....4
ASC/FSC 306 Selection, Evaluation and Use of Animal Food Products.....4
FSC 335 Chemical Analysis of Food.....4
ASC 378 Animal Nutrition.....3
ASC/FSC 470 Seminar in Animal Science/ Food Science.....1
FSC 530 Food Microbiology.....5
FSC 534 Food Chemistry.....4
FSC 536 Food Processing.....4
FSC 538 Food Fermentation and Thermal Processing.....4

Specialty Support **Hours**
Required courses:
AEC 301 Principles of Agricultural Marketing.....3
CHE 230/232 Organic Chemistry.....6
STA 291 Statistical Method **or**.....3
STA 370 Introduction to Statistics.....4
PHY 201 General Elementary Physics.....4
AEN 340 Principles of Food Engineering.....4
NFS 311 Nutritional Biochemistry **or**.....3
BCH 401G Fundamentals of Biochemistry.....3
Select from the following with adviser's approval:
AEC 311 Livestock and Meat Marketing.....1
CHE 226 Analytical Chemistry.....3
CHE 231/233 Organic Chemistry Laboratory.....4
CHE 550/552 Physiological Chemistry.....8
NFS 546 Institution Organization and Management.....3
PHY 203 General Elementary Physics.....4

Electives

Elective courses should be selected to satisfy minimum requirements for graduation from the College of Agriculture.

REQUIREMENTS FOR THE B.S. DEGREE IN FORESTRY

The four-year program, leading to the Bachelor of Science in Forestry, educates the student in the areas of managerial, biological, and processing principles related to the growth and utilization of renewable natural resources.

Foresters are specialists in the scientific management of trees for the continued production of wood, watershed protection, wildlife management, and recreation. Graduates are employed as professional foresters in private forest industries and public natural resources agencies.

The Forestry program at the University of Kentucky is accredited by the Society of American Foresters.

Graduation Requirements

To earn a Bachelor of Science in Forestry, the student must complete a total of 140 credit hours to include University Studies requirements, preprofessional and professional requirements, one forestry option (additional professional requirements and specialty support), and directed and free electives.

Preprofessional Requirements **Hours**
MA 123 Elementary Calculus and Its Applications..3
and
MA 132 Calculus for the Life Sciences.....3
or
MA 113 Calculus I.....4
CHE 105/107 General College Chemistry I and II...6
CHE 115 General Chemistry Laboratory.....3
BIO 104 Animal Biology.....3
BIO 106 Principles of Plant Biology.....3
BIO 107 Plant Biology Laboratory.....1
PHY 201 General Elementary Physics.....4
PHY 203 General Elementary Physics.....4
ECO 202 Principles of Economics II.....3
AGR 366 Fundamentals of Soil Science.....3
AEN 103 Basic Principles of Surveying.....2
STA 370 Introduction to Statistics.....4
COM 181 Basic Public Speaking.....3
CS 101 Introduction to Computing I.....3

Professional Requirements **Hours**
FOR 100 Introduction to Forestry.....2
FOR 219 Silvics and Tree Identification.....3
FOR 300 Forest Measurements.....4
FOR 340 Forest Ecology.....3
FOR 350 Silviculture.....4
FOR 400 Wood Identification and Properties.....3
FOR 402 Forest Entomology.....3
FOR 410 Forest Pathology.....3
Summer Camp
FOR 375 Taxonomy of Forest Vegetation.....1
FOR 376 Silvicultural Practices.....1
FOR 377 Forest Surveying.....1
FOR 378 Forest Mensuration.....1
FOR 379 Harvest and Utilization of Wood.....2

Forestry Options

Option 1—Forest Management

Professional courses in the areas of natural resources management, timber harvesting, and wood products are required. Additional specialty support courses are taken in economics and soils.

Option 2—Forest Biology

Professional courses in the areas of plant or animal biology and resource management are required. Additional specialty support courses are taken in organic chemistry, genetics, and soils.

Option 3—Forest Products Science

Professional courses in the areas of properties and utilization of wood, processing methods, and management are required. Additional specialty support courses are taken in organic chemistry and economics.

Electives

Students complete certain directed electives (depending upon the forestry option selected) and free electives to fulfill graduation requirements. Elective courses are selected with the adviser's approval.

REQUIREMENTS FOR THE B.S. DEGREE IN LANDSCAPE ARCHITECTURE

The profession of landscape architecture has grown out of the tradition of the great garden designers of Italy, France, England, and China to encompass the art and science of design, planning, and management of the land. The *science* of landscape architecture is concerned with the conservation and management of natural resources. The *art* of landscape architecture is concerned with the creation of more enjoyable, comfortable, and safe outdoor areas where human use requires adaptation of the natural environment.

This five-year professional program is fully accredited by the American Society of Landscape Architects and meets all the requirements for licensing of landscape architects in Kentucky and other states. Landscape architecture employment opportunities may be found in the designing of urban communities, plazas, university campuses, institutional grounds, parks and recreational areas, commercial and industrial sites, and residential communities, as well as in the areas of historic preservation, regional planning, and mine reclamation.

Admission Requirements

Admission to the University of Kentucky and to the College of Agriculture does not guarantee admission to the Landscape Architecture program. All applicants must be reviewed by the Landscape Architecture Program Chairperson. The number of applicants ultimately admitted is determined by the resources available to provide high quality instruction. Applicants will be reviewed on a comparative basis. Determination of acceptability into the program is based on the following.

Entering freshmen and transfer students from degree programs other than Landscape Architecture must:

1. submit a formal application to the Undergraduate Admissions Office by February 1 for admission to the Landscape Architecture program in the following fall semester;

2. meet the minimum criteria for admission or readmission to the University as specified in this Bulletin (The Landscape Architecture program requires a minimum of a 2.0 grade-point average on a 4.0 scale for eligibility to transfer into the program.);

3. successfully complete the aptitude testing designated by the Landscape Archi-

tecture program; and

4. submit statements as to their understanding of the profession of landscape architecture and reasons for pursuing this career. In some cases a personal interview may be required.

If a student transferring from another degree program has a background in related design fields, he or she may submit available work, such as a portfolio or other work examples, as an indication of potential success.

Transfer students from degree programs in Landscape Architecture at other accredited institutions must:

1. make formal application to the University no later than April 15 for admission in the following fall semester and no later than September 15 for admission in the following spring semester;

2. be eligible for admission to the University according to the standards specified in this Bulletin (The Landscape Architecture program requires a minimum of a 2.0 grade-point average on a 4.0 scale for eligibility to transfer into the program.); and

3. submit a portfolio for review which, combined with an evaluation of courses completed, will determine acceptance into the program as well as the level to which the student will be accepted.

Graduation Requirements

To earn a Bachelor of Science degree in Landscape Architecture, the student must have 145 credit hours with at least a 2.0 grade-point standing. Remedial courses may **not** be counted toward the total hours required for the B.S. in Landscape Architecture. The five-year program consists of two preprofessional years (freshman and sophomore) followed by three years of professional training. The program is fully accredited by the Board of Landscape Architectural Accreditation (American Society of Landscape Architects) and meets the registration requirements of the Kentucky State Board of Examiners and Registration of Landscape Architects.

In addition to satisfying University Studies requirements, each student must complete the following:

Preprofessional Requirements — **Hours**

ENG 203 Business Writing....3
GLY 101 Physical Geology....3
GLY 111 Laboratory for Physical Geology....1
GLY 242 Environmental Geology....3
ECO 201 Principles of Economics I....3
CE 110 Plane Surveying....3
BIO 106 Principles of Plant Biology....3
ARC 101/102 An Introduction to Architecture I and II....8

College Requirements

GEN 101 The Economics of Food and Agriculture....3
GEN 102 The Dynamics of Rural Social Life....3

Departmental Professional Requirements

LA 205 History of Landscape Architecture....3
LA 206 Contemporary Landscape Architecture....3
LA 801 Landscape Architecture Design Studio I—Design Communication....6
LA 802 Landscape Architecture Design Studio II...6
LA 831 Landscape Architecture Design Studio III..6
LA 832 Landscape Architecture Design Studio IV..6
LA 810 Landscape Construction I....4
LA 812 Landscape Construction II....3

The 850 series includes a variety of Landscape Architecture studies—students will be expected to complete **three** courses in the 850 series.

LA 850 Landscape Architecture Graphics....3
LA 851 Studies in Landscape Architecture: Planting Design....3
LA 852 Design Communications....3
LA 853 Topics in Urban Design....3
LA 901 Regional Land Use Planning and Development....6
LA 902 Advanced Landscape Architecture Studio I....6
LA 903 Advanced Landscape Architecture Studio II....6
LA 950 Professional Practice....3
LA 951 Senior Project....3

Note: Students may substitute three hours credit of LA 895 for one of the 850 series with the approval of the program chairperson.

Specialty Support Requirements

AEC 445G Introduction to Resource and Environmental Economics....3
AGR 366 Fundamentals of Soil Science....3
ARC 840 Theories of Urban Form....3
BIO 451G Introductory Ecology....4
HOR 327 Woody Plants I....3
HOR 329 Woody Plants II....4

Free Elective Requirements

A minimum of six hours is required.

MINORS IN AGRICULTURE

Minor in Agriculture

Students in this minor must complete 21 credit hours, selected from the following list. Courses must be selected from a minimum of three areas to assure diversity.

General Agriculture
(A maximum of two courses) — **Hours**

GEN 101 The Economics of Food and Agriculture....3
GEN 102 The Dynamics of Rural Social Life....3
GEN 103 Agriculture Pest and Disease Management....3
GEN 104 Plants and Man—A World View....3
GEN 105 Engineering Applications in Agriculture...3
GEN 106 Agricultural Animal Science....3
GEN 107 Food in a Changing World....3

Agricultural Economics

AEC 301 Principles of Agricultural Marketing....3
AEC 302 Farm Management Decision Making....3
AEC 303 Economics of Agricultural Production....3
AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products....3
AEC 321 Agricultural Futures Markets....3
AEC 322 Agribusiness Management....3

Agricultural Engineering

AEN 320 Agricultural Structures....3
AEN 340 Principles of Food Engineering....4
AEN 345 Crop Drying and Processing....3
AEN 430 Farm Water Management....3

Agronomy

AGR 360 Genetics....4
AGR 366 Fundamentals of Soil Science....3
AGR 367 Laboratory in Soil Science....2
AGR 386 Principles of Field Crop Production....3

Animal Sciences

ASC 300 Live Animal and Carcass Evaluation....3
ASC 360 Genetics....4
ASC 382 Principles of Livestock Nutrition....3
ASC/FSC 306 Selection, Evaluation and Use of Animal Food Products....4

Entomology

ENT 310 Insect Pests of Field Crops....3
ENT 320 Horticultural Entomology....3
ENT 340 Livestock Entomology....2
ENT 402 Forest Entomology*....3

Forestry

FOR 305 Harvesting Timber Crops....3
FOR 400 Wood Identification and Properties....3
FOR 402 Forest Entomology*....3
FOR 410 Forest Pathology*....3
FOR 420 Wood Products....3
FOR 430 Forest Wildlife and Range Management..3
FOR 440 Forest Resources for Recreation....3
FOR 460 Forest Watershed Management....3

Horticulture

HOR 335 Greenhouse Management....3
HOR 350 Plant Propagation....3
HOR 352 Nursery Production....3
HOR 402 Pomology: Deciduous Fruits I....4
HOR 510 Vegetable Crop Production....3

Plant Pathology

PPA 400G Principles of Plant Pathology....3
PPA 410 Forest Pathology*....3

*Cross-listed courses. May satisfy only one departmental requirement.

Minor in Agricultural Economics

Preprofessional Requirement — **Hours**

ECO 202 Principles of Economics II....3

Minor Requirements

Two courses selected from:
AEC 301 Principles of Agricultural Marketing....3
AEC 302 Farm Management Decision Making....3
AEC 303 Economics of Agricultural Production....3

In addition, students should select nine hours from other agricultural economics courses. A maximum of three credit hours from AEC 311, 312, 313, 314, 315, or 341 may be credited to the minor. AEC 399 may not be included.

Minor in Agronomy

Minor Requirements (24 hours) — **Hours**

CHE 105 General College Chemistry I **and**....3
BIO 106 Principles of Plant Biology....3
or equivalent
plus 18 hours to be selected from the following:

Two courses selected from:
AGR 360 Genetics....4
AGR 366 Fundamentals of Soil Science....3
AGR 386 Principles of Field Crop Production....3

At least four courses selected from:
AGR 360 Genetics*....4
AGR 366 Fundamentals of Soil Science*....3
AGR 367 Laboratory in Soil Science....2
AGR 386 Principles of Field Crop Production*....3
AGR 404 Weed Science....3
AGR 406 Plant Breeding....3
AGR 408 Tobacco....3
AGR 412 Grain Crops....3

AGR 468G Soil Use and Management.....3
AGR 470G Fertilizers and Soil Fertility.....3
AGR 502 Ecology of Economic Plants.....3
AGR 510 Ecology and Utilization of Grasslands.....4
AGR 515 Turf Management.....3
AGR 556 Seed Technology.....3
AGR 566 Soil Microbiology.....3
AGR 573 Soil Morphology and Classification.....3
AGR 575 Soil Physics.....2

*If not taken as one of the required courses.

Minor in Animal Sciences

Minor Requirements **Hours**

GEN 106 Agricultural Animal Science.....3
ASC 300 Live Animal and Carcass Evaluation **or**...3
ASC 304 Meats and Meats Processing **or**.....4
ASC/FSC 306 Selection, Evaluation and Use of Animal Food Products.....4
ASC/AGR 360 Genetics.....4
ASC 364 Reproductive Physiology of Farm Animals.....3
ASC 378 Animal Nutrition **or**.....3
ASC 382 Principles of Livestock Nutrition.....3
ASC Electives.....1-2

Minor in Food Science

Required Courses **Hours**

FSC 335 Chemical Analysis of Food **or**.....4
FSC 534 Food Chemistry.....4
FSC 530 Food Microbiology.....5
FSC 536 Food Processing **or**.....4
FSC 538 Food Fermentation and Thermal Processing.....4

Elective Courses

Two of the following:
FSC 306 Selection, Evaluation and Use of Animal Food Products.....4
AEN 340 Principles of Food Engineering.....4
FSC 335 Chemical Analysis of Food* **or**.....4
FSC 534 Food Chemistry*.....4
FSC 536 Food Processing* **or**.....4
FSC 538 Food Fermentation and Thermal Processing*.....4
FSC 532 Food Microbiology.....5

*If not taken as one of the required courses.

Minor in Pest Management

Prerequisite **Hours**

One course from the following:
AGR 386, 408, 412, 515, 556
ASC 404G, 406G, 408G, 412G, 420G, 442G
HOR 352, 402, 510, 515, 524.....3-4

Minor Requirements

ENT 300 General Entomology.....3
AGR 404 Weed Science.....3
PPA 400G Principles of Plant Pathology.....3
Select at least nine hours from the following:
ENT 310 Insect Pests of Field Crops.....3
ENT 320 Horticultural Entomology.....3
ENT 340 Livestock Entomology.....2
ENT 402 Forest Entomology.....3
ENT 530 Integrated Pest Management.....3
PPA 410 Forest Pathology.....3
PPA 595 Epidemiology and Control of Plant Diseases.....4
VS 351 Principles of Animal Hygiene and Disease Control.....3
AGR 470G Fertilizers and Soil Fertility.....3
ASC 378 Animal Nutrition.....3
AGR 406 Plant Breeding.....3

Minor in Rural Sociology

Prerequisites

Students must complete SOC 101 or GEN 102 **and** one other sociology course at the 100 or 200 level.

Any student wishing to minor in rural sociology should file an application with and be interviewed by the Director of Undergraduate Studies in sociology prior to entering the program.

Minor Requirements

Students must complete 15 hours in sociology, at least 12 of which must be at the 300 level or above, including one of the following six-hour blocks:
SOC 302 and SOC 303 **or**
SOC 451G and SOC 452G **or**
SOC 302 and SOC 451G

PRE-VETERINARY MEDICINE

Students interested in becoming veterinarians may enroll in the College of Agriculture at the University of Kentucky and complete their requirements for admission to veterinary school.

Although the state of Kentucky does not have a school of veterinary medicine, it is a participating member of the Southern Regional Education Board plan, under which legal Kentucky residents may attend the Auburn University School of Veterinary Medicine. Each year 34 students are chosen from Kentucky to enter the Auburn program.

There is also a plan whereby two legal Kentucky residents may be accepted by the Tuskegee Institute School of Veterinary Medicine each year.

Under both of the above programs the students selected are exempt from the out-of-state tuition that would normally apply to a Kentucky resident. Admission is on a competitive basis with the final selection being made by a committee composed of faculty members from each of the veterinary schools.

A large number of students entering the pre-veterinary program eventually choose to obtain an undergraduate degree. It is strongly recommended that all pre-veterinary students choose a degree goal early in their college career. Thus, if not accepted for admission to veterinary school, a student will still be able to obtain a degree in approximately four years.

A minimum of 74 semester hours with a grade-point average of 2.5 (on a 4.0 basis) is required prior to consideration for admission. Due to the high level of competition for admission, a student should maintain at least a 3.0 academic standing on all college work. The student must have completed all of the required courses or acceptable substitutes by June 15 of the year of application. Courses in certain advanced sciences must be taken within six years of entry. A grade of D in a required course will not be acceptable.

The application deadline each year is October 15.

The following curriculum is designed to meet the requirements for both Auburn and Tuskegee and may be completed in three years. Tuskegee requires each applicant to take the Veterinary Aptitude Test (VAT). *The student should work closely with his or her preveterinary adviser in making certain that all requirements are met for consideration for acceptance.* There are some specific alternatives to the following courses, depending on a student's background.

Hours

ENG 101 Writing I*.....3
ENG 102 Writing II*.....3
CHE 105 General College Chemistry I.....3
CHE 107 General College Chemistry II.....3
CHE 115 General Chemistry Laboratory.....3
Mathematics**.....3-7
GEN 106 Agricultural Animal Science.....3
PS 101 American Government.....3
HIS 104 A History of Europe to 1713 **or**.....3
HIS 106 History of Western Culture I.....3
HIS 105 A History of Europe, 1713 to the Present **or**.....3
HIS 107 History of Western Culture II.....3
CLA 131 Medical Terminology from Greek and Latin.....3
ASC 360 Genetics.....4
ASC 378 Animal Nutrition.....3
ASC 380 Feeds and Feeding.....3
PHY 211 General Elementary Physics.....5
PHY 213 General Elementary Physics.....5
CHE 230 Organic Chemistry.....3
CHE 231 Laboratory For Chemistry 230.....2
CHE 232 Organic Chemistry.....3
CHE 233 Organic Chemistry Laboratory.....2
BIO 103 Basic Ideas of Biology†.....3
BIO 104 Animal Biology†.....3
BIO 105 Animal Biology Laboratory†.....1
BIO 108 Principles of Microbiology.....3
BIO 109 Introductory Microbiology Laboratory.....2
Electives in Humanities, Fine Arts, and Social Sciences††.....9

*The Writing requirement for a degree from the University of Kentucky must be met. Consult adviser.

**Auburn does not specify a mathematics requirement. It is suggested the mathematics requirement for a B.S. degree from UK be met. A student then should have the necessary background for organic chemistry and physics. Consult adviser.

†BIO 103, 104 and 105 are the minimal animal biology courses required. BIO 103 may be satisfied by CLEP examination. An alternate course sequence of BIO 150, 151, 152 and 153 is recommended, but not mandatory. Additional courses in advanced biology are also recommended.

††Electives must be earned in humanities, fine arts, and social sciences. Examples of acceptable electives are: art, music, theatre, literature, languages, philosophy, religion, speech, economics, geography, sociology, psychology, and computer science.

Further inquiries may be directed to:

M. Ward Crowe, D.V.M.
Department of Veterinary Science
College of Agriculture
University of Kentucky
Lexington, KY 40546-0099
(606) 257-3858

ALLIED HEALTH PROFESSIONS

Thomas C. Robinson, Ph.D., is Dean of the College of Allied Health Professions. Janet I. Pisaneschi, Ph.D., is Assistant Dean. Peter Berres, M.A., is Director of Student Services.

The College of Allied Health Professions is one of the five health professions colleges which, with the University Hospital, constitute the health science campus of the University of Kentucky.

Today allied health professionals are assuming greatly expanded and increasingly complex duties and responsibilities as essential members of the health care team. They work in a variety of delivery settings and have key responsibilities for the care and health of patients, clients, and communities. The UK College of Allied Health Professions, established in 1966, was among the first colleges to offer programs for students interested in these rapidly developing health professions.

The College of Allied Health Professions strives continually to revise its offerings in keeping with society's evolving expectations and health care needs.

UNDERGRADUATE CURRICULA AND MAJORS

Six curricula are offered at the baccalaureate level, leading to the Bachelor of Health Sciences degree: allied health education, community health (health administration option), medical technology, physical therapy, physician assistant studies, and radiological health science.

ADMISSIONS PROCEDURES

Baccalaureate Programs

Most baccalaureate programs in the College of Allied Health Professions are divided into preprofessional and professional programs. A **preprofessional program** is composed of courses prerequisite to professional program content as well as University Studies requirements. Freshman and transfer students who have not completed prerequisites for entrance into a professional program initially complete only the first step of the application process—application to the University of Kentucky. Freshman applicants to the college will be admitted if they meet University entrance requirements, have an American College Test (ACT) composite score at or above the 50th percentile, and have a high school grade-point average of at least 2.0 on a 4.0 scale.

A **professional program** is composed of all courses and clinical experiences required for students who have applied for and have been accepted into professional programs. Consideration for admission to the college's professional programs requires completion of prerequisite course work and completion of the professional application procedure.

Therefore, the admissions procedure for all undergraduate programs within the College of Allied Health Professions is a **two-step process**. Applicants must **first** be accepted by the University of Kentucky and **second** must apply for admission to a professional program approximately two semesters prior to completing prerequisites.

This selection procedure is necessary because of the limited space in the professional years of the allied health professions programs.

Requirements for the first two years (preprofessional program) may be completed at the University of Kentucky, a UK community college, or another fully accredited college or university.

At the time of application to the professional program, the student should have completed the **prerequisites required for application** to the program he or she plans to enter, and have plans to complete **all requirements before actual enrollment** in the professional program.

It is essential that complete, accurate information be furnished on the application. Individuals seeking entry into the professional programs or those admitted to the programs through falsified or misleading information may be dropped from consideration or dismissed from the programs.

Persons not enrolled at the University of Kentucky must complete applications to both the University of Kentucky and the professional program. Application materials are available from:

Office of Student Services
College of Allied Health Professions
222 Medical Center Annex 2
University of Kentucky
Lexington, KY 40536-0080
(606) 233-6394

Deadlines and specific application instructions are listed for each program in the descriptions which follow.

Graduate Programs

Students who want to earn advanced degrees in allied health fields must be admitted to the University of Kentucky Graduate School. For complete information, students should refer to The Graduate School Bulletin or contact:

Graduate School Admissions
351 Patterson Office Tower
University of Kentucky
Lexington, KY 40506-0027
(606) 257-4613

PROBATION AND SUSPENSION

The probation and suspension rules for professional students in the College of Allied Health Professions appear under *Academic Requirements* in the front section of this Bulletin.

NOTICE TO ALL APPLICANTS

Some courses will require a period of training off campus in community facilities outside of Lexington.

Nonresidents of Kentucky should note that applicants to professional programs who are from other states and countries will be considered for admission by the College of Allied Health Professions providing that out-of-state enrollment does not prohibit opportunities for qualified Kentucky residents to benefit from the educational facilities provided. Because of the large number of qualified resident applicants to the **Physical Therapy program**, only a limited number of out-of-state residents will be accepted.

Preprofessional and professional program applicants should request a copy of the College of Allied Health Professions Bulletin from the Office of Student Services, College of Allied Health Professions. This publication provides students with important information about the college's programs, policies, and services.

BACCALAUREATE PROGRAMS

Graduation Requirements

To graduate with a Bachelor of Health Sciences degree from the College of Allied Health Professions, a student must (1) satisfy University Studies requirements, (2) complete a minimum of 120 semester hours, including required courses in both the preprofessional and professional programs, and (3) complete the following college courses: AHP 840 and 841.

ALLIED HEALTH EDUCATION

The Allied Health Education program focuses on educator preparation for allied

health professionals and is often referred to as the "2+2" program. This program is designed for persons with backgrounds in allied health and nursing disciplines who wish to become teachers in their specialties.

The program has been broadened and strengthened to accommodate allied health professionals who seek to apply educational knowledge and skills in a variety of health care settings. In addition to the traditional focus of faculty development, students may pursue a course of study that will enable them to contribute to the improvement of health and health care delivery through designing, developing, and implementing educational programs for communities and in-service audiences and to strengthen the patient education aspect of their clinical responsibilities.

Admission to the Professional Program

Admission procedures for the professional program in Allied Health Education vary somewhat from the procedures for other programs. The current requirements for acceptance into the Allied Health Education program include:

1. Completion of an accredited program in an allied health discipline and the preprofessional requirements.
2. An overall grade-point average of 2.5 on a 4.0 quality point scale in all course work attempted, as computed by the Undergraduate Admissions Office.
3. References from three health professionals.
4. Eligibility for professional practice as determined by the appropriate certifying, licensing, or registering body of that particular discipline.

Applicants who hold an associate degree and have completed an accredited allied health program may enter the professional program directly, provided all other admissions criteria have been met. Those without an associate degree must complete the preprofessional requirements prior to entry into the professional program.

Allied health specialty work from an accredited program, meeting standards specified by the University of Kentucky and the Allied Health Education program, can be transferred as credit toward graduation, according to guidelines approved for this program by the University Senate.

Professional Program Application Deadlines

Deadlines for UK and professional program applications and all supporting credentials are as follows:

Fall admission—**June 1**
Spring admission—**October 1**
Summer admission—**April 1**

Late applicants will be considered on an individual basis.

Preprofessional Requirements

A minimum of 60 hours of course work to include:
University Studies requirements
1 semester of mathematics beyond college algebra or 1 semester of introductory logic
2 semesters of biological science
1 semester of sociology
1 semester of psychology

It is suggested that the student include courses in anthropology, computer science, economics, and political science in elective course work.

Professional Program

	Hours
College Requirements	
AHP 840 Ethics in Health Practice	2
AHP 841 Allied Health Practicum: The Context of Health Care Practice	3
Allied Health Education Core (24-27 hours)	
EDP 548 Educational Psychology	3
ENG 203 Business Writing **or** ENG 204 Technical Writing	3
AHE 320 Professional Health Education Methodology **or**	3
EDC 500 Clinical and Laboratory Teaching	3
AHE 321 Seminar in Professional Health Education **and**	3
AHE 420 Current Issues in Professional Health Education **or**	3
AHE 502 Performance Evaluation in the Clinic and Laboratory **and**	3
EDP 522 Educational Tests and Measurements	3
AHE 481 Professional Health Education Practice **or**	4
EDC 501 Teaching Internship	3
EDC 544 Utilization of Educational Media **or**	3
EDC 545 Preparation of Instructional Materials	3
EDP 557 Educational Statistics **or**	3
STA 291 Statistical Method **or**	3
STA 370 Introduction to Statistics	4

Support Area (15 hours)

The Support Area is planned in consideration of the student's career goals and to complement and expand the requirements of the professional program. With the approval of the adviser, courses may be selected from, but are not limited to, such areas as the health sciences, communications, education, computer science, and the basic behavioral and social sciences.

Free Electives

Free electives are to be chosen by the student from any area of the University.

For further information, students should contact:

Allied Health Education
College of Allied Health Professions
University of Kentucky
Lexington, KY 40536-0218
(606) 233-5616

COMMUNITY HEALTH (Health Administration Option)

The College of Allied Health Professions offers the Bachelor of Health Sciences degree with a major in community health (health administration option). Well prepared leaders who contribute to the planning, financing, directing, coordinating, managing and evaluation of health services are needed throughout the health field. Graduates of this program find employment in entry and middle management positions in organizations such as hospitals, nursing homes, primary care centers, medical group practices, insurance corporations, public health agencies, mental health agencies, health maintenance organizations, and health planning agencies.

Admission to the Professional Program

Admission to the professional program is competitive and requires completion of all prerequisite course work and submission of all application materials. An overall grade-point average of 2.0 on a 4.0 scale is required.

Selection of students for admission to the professional program is on a competitive basis. The Review Committee considers overall grade-point average, performance in selected courses, evidence of academic improvement, American College Test (ACT) scores, personal interviews, and evidence of motivation for a career in the field.

Professional Program Application Deadlines

Deadlines for UK and professional program applications and all supporting credentials are as follows:

Fall admission—**June 1**
Spring admission—**October 1**

Late applicants will be considered on an individual basis.

Preprofessional Requirements

Students must complete a minimum of 30 hours to include:

One semester of human biology
Two semesters of social and behavioral sciences
One semester of finite mathematics, elementary calculus or calculus
CH 241 Health and Medical Care Delivery Systems

Professional Requirements (39 hours)

	Hours
CH 242 Administrative Perspectives of Medical Services	2
CH 250 Introductory Epidemiology	3
CH 260 Introduction to Health Administration	1
CH 351 Health Services Administration	3
CH 352 Community and Institutional Planning for Health Services Delivery	3
CH 353 Ethics in Health Care Organizations	2
CH 354 Health Law	2

CH 355 Financial Management of Health Care Institutions....3
CH 450 Hospital and Health Services: Interorganizational Relationships....3
CH 453 Health Administration, Planning and Management Techniques....3
CH 842 Seminar in Health Administration: Pre-Practicum....1
CH 843 Health Administration Practicum....12
CH 844 Seminar in Health Administration: Post-Practicum....1

College Requirements

AHP 840 Ethics in Health Practice....2
AHP 841 Allied Health Practicum: The Context of Health Care Practice....3

Other Requirements

English (writing courses)....6
MA 123 and MA 162 **or** MA 113....4-6
BIO 110 or its equivalent....3
PSY 100 or SOC 101....3-4
PS 101 or PS 271....3
ECO 201 and ECO 202....6
STA 291 or STA 370....3-4
ACC 201 and ACC 202....6
PSY 502 or SOC 542....3
Other University Studies courses as needed

For more information, students should contact:

Community Health
103 Medical Center Annex 2
University of Kentucky
Lexington, KY 40536-0080
(606) 233-6361

MEDICAL TECHNOLOGY

The Medical Technology program is a four-year and four-month curriculum accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and the Committee on Allied Health Education and Accreditation (CAHEA). Graduates of this Bachelor of Health Science program are qualified to take national certification examinations and licensure examinations for laboratorians in those states that so require (except California).

The curriculum provides breadth in general education, a strong foundation in the basic sciences, and in-depth instruction necessary to become a professional clinical laboratory scientist. Clinical experience is given in approved clinical laboratories, such as the University of Kentucky and the Veterans Administration Medical Centers. Other experiences, such as those in veterinary clinics, physicians' offices, and research laboratories, are provided on an optional basis, according to students' preferences.

The diversity of courses in the curriculum allows graduates to seek careers in microbiology, clinical chemistry, blood banking, or hematology laboratories; pursue advanced degrees in those fields; combine careers (such as sales and research); or change careers. Because of their adaptability, graduates are sought for positions in human and animal health care facilities, research, education, administration, industry, the missionary field, and the military.

Admission to the Professional Program

Applicants must have a **complete file** before being considered for the professional program. The file consists of the professional application, official copies of **all** college transcripts, American College Test (ACT) scores, and three letters of recommendation. After the file is complete, interviews will be conducted by program faculty to determine evidence of motivation for a career in laboratory science. At the time of application, applicants must have completed at least **45 semester** hours, including English (3-6 hours); general chemistry with laboratory (8-9 hours); microbiology with laboratory (5 hours); and, mathematics (required sequence, 4-6 hours). A minimum of **60 semester hours**, including all preprofessional and area requirements, must be completed prior to matriculation into the professional program.

Applicants who have MLT degrees or degrees from foreign schools and applicants who have been out of school for more than seven years should contact the program director.

The Admissions Committee gives careful consideration to all applicants. Among those qualities considered are overall grade-point average (GPA), science/mathematics GPA, evidence of academic improvement, ACT scores, recommendations, personal interviews, evidence of capability to function as a professional medical technologist, and evidence of motivation for a career in the field of laboratory science. Motivation is demonstrated by knowledge of the various levels of personnel in laboratory science, functions of medical technologists, and/or by volunteer or work experience in clinical laboratory facilities.

Professional Program Application Deadlines

Deadlines for UK and professional program applications and all supporting credentials are as follows:

Fall admission—**February 15**
Spring admission—**September 15**

Late applicants will be considered on a space-available basis.

Preprofessional Requirements (60 semester hours)

One to two semesters of mathematics
Two semesters of general chemistry with laboratory
One semester of elementary bacteriology (microbiology) with laboratory
One semester of human physiology (or a combined course in anatomy and physiology)
Two semesters of organic chemistry (or a one semester comprehensive course, if not part of a sequence)
One semester of analytical chemistry and one semester of statistical methods

Freshmen and sophomores are encouraged to take these recommended courses: MT 120, MT 130, and CS 101.

Professional Requirements

JUNIOR YEAR

First Semester	**Hours**
BCH 401G Fundamentals of Biochemistry	3
BIO 494G Immunobiology	3
BIO 595 Immunobiology Laboratory (optional)	2
MT 801 Introduction to Laboratory Methodology*	1
MT 832 Introduction to Clinical Chemistry and Instrumentation	4
MT 854 Medical Parasitology	3
MT 860 Blood Collection	1

Second Semester	
BIO 585 Pathogenic Microbiology	3
MT 801 Introduction to Laboratory Methodology*	1
MT 833 Introduction to Clinical Hematology	4
MT 860 Blood Collection	1
MT 846 Body Fluid Analysis	3
AHP 840 Ethics in Health Practice	2

*Taken by first-semester juniors only.

Intersession	
AHP 841 Allied Health Practicum: The Context of Health Care Practice	3

SENIOR YEAR

First Semester	**Hours**
MT 836 Laboratory Organization and Management	1
MT 858 Immunohematology and Blood Banking	4
MT 843 Clinical Hematology Lectures	2
MT 863 Clinical Hematology Laboratory	3
MT 857 Medical Mycology	2
MT 870 Medical Technology Seminar	1

Second Semester	
MT 844 Clinical Chemistry Lectures	3
MT 864 Clinical Chemistry Laboratory	3
MT 856 Clinical Bacteriology Lectures	3
MT 866 Clinical Bacteriology Laboratory	3
MT 855 Clinical Serology	2
MT 870 Medical Technology Seminar	1

Intersession and Summer Session	
MT 880 Clinical Practicum in Medical Technology	12

For more information, students should contact:

Medical Technology
Medical Center Annex 2, Room 122
University of Kentucky
Lexington, KY 40536-0080
(606) 233-5452

PHYSICAL THERAPY

The Physical Therapy program leads to the Bachelor of Health Sciences degree. Students receive educational preparation enabling them to meet the challenges of an ever changing health care delivery system.

Physical therapists participate in the evaluation of the capabilities and disabilities of patients. They administer treatments to alleviate pain, correct or minimize deformity and improve the general health status of the individual.

Successful completion of the program permits graduates to sit for licensure examinations in all 50 states and in all foreign countries holding membership in the World Confederation of Physical Therapy.

Admission to the Professional Program

A minimum of 60 semester hours of course work, including University Studies requirements and the preprofessional requirements, must be completed prior to enrollment in the professional program.

At the time of application, applicants to the program must have completed four of the six prerequisite courses noted (*) in the preprofessional requirements. Students admitted to the professional program are selected on a competitive basis. Due to the large number of applicants, only a limited number will be invited to the campus for interviews prior to the final selection. **The program may accept a few students who are not residents of Kentucky (for fee assessment purposes) at the time of application.** The Admissions Committee will consider such factors as overall grade-point average, performance in selected courses, American College Test (ACT) scores, recommendations and personal interviews and critical thinking analysis test scores. The personal interviews include the following areas: 1) experience and knowledge of the profession; 2) initiative; 3) motivation and perseverance; 4) leadership and responsibility; 5) problem-solving examination; 6) communication and skills; 7) service orientation; 8) judgment. It is strongly recommended that an applicant obtain a minimum of 25 hours experience as an aide or a volunteer in physical therapy departments.

Professional Program Application Deadlines

(Fall admissions only)

January 1—Deadline for UK and professional program applications and recommendations

February 15—Deadline for transcript(s) and ACT scores

Preprofessional Requirements

Two semesters of psychology
Two semesters of general chemistry, with laboratory
Two semesters of general physics, with laboratory
Two semesters of general zoology or biology, with laboratory—botany is not acceptable. (1 semester of comparative anatomy is recommended)

It is strongly recommended that the student include a course in medical terminology, as well as courses in statistics, mathematics, and typing, in elective course work.

Professional Requirements

JUNIOR YEAR

Fall Semester	Hours
ANA 801 Histology for P.T. Students	1
ANA 811 Gross Anatomy for P.T. Students	5
ANA 813 Developmental Anatomy for P.T. Students	1
PT 834 Introduction to Physical Therapy	2
PGY 412G Principles of Human Physiology Lectures	4
AHE 831 Effects of Disease and Injury on the Patient and Family	2
Spring Semester	
ANA 802 Neuroanatomy for P.T. Students	2
AHE 854 Biology of Disease	3
AHP 840 Ethics in Health Practice	2
PT 805 Normal Functional Anatomy	3
PT 815 Basic Clinic Skills	4
PT 835 Clinical Clerkship I	1
PT 856 Therapeutic Exercise I	1
PT 866 Electromodalities	1
Summer (4-week)	
PT 816 Summer Clerkship (Optional)	2
AHP 841 Allied Health Practicum: The Context of Health Care Practice	3
Summer (8-week)	
PT 807 Clinical Functional Anatomy	2
PT 826 Prosthetics	2
PT 846 Medical and Physical Therapy Management of Orthopedic Problems	2

SENIOR YEAR

Fall Semester	Hours
PT 827 Orthotics and Spinal Cord Rehabilitation Techniques	3
PT 837 Clinical Clerkship II	3
PT 847 Medical and Physical Therapy Management of Neurological Problems	3
PT 857 Therapeutic Exercise II	4
PT 864 Research Methodology	2
PT 887 Introduction to P.T. Management	1
Spring Semester	
PT 838 Clinical Clerkship IV	2
PT 858 Therapeutic Exercise III	4
PT 868 Research Problems **and/or**	2
PT 898 Independent Study	2-4
PT 876 Electrophysiological Testing	2
PT 877 Cardio-Respiratory Therapy and Therapeutics	2
PT 828 Introduction to Gerontology for Health Science Students (optional)	1
PT 888 Advanced P.T. Management	3
Summer	
PT 839 Clinical Internship in P.T.	9

For further information, students should contact:

Physical Therapy
HP 500 Medical Center
University of Kentucky
Lexington, KY 40536-0084
(606) 233-5830

PHYSICIAN ASSISTANT STUDIES

The Physician Assistant program leads to the Bachelor of Health Sciences degree. Graduates of the program are eligible to take the National Certifying Examination for Physician Assistants. The program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation.

The physician assistant functions under the supervision and responsibility of a physician and has the knowledge and competencies to 1) elicit a comprehensive health history; 2) perform a comprehensive physical examination; 3) perform simple diagnostic laboratory determinations and understand and use their values; 4) perform basic treatment procedures; and 5) make an appropriate clinical response to commonly encountered emergency care situations.

Admission to the Professional Program

A minimum of 60 semester hours of course work including the preprofessional courses must be completed prior to enrollment in the professional program. Students admitted to the professional program are selected on a competitive basis. New students are admitted only for the fall semester of the junior year. Admission is based on a cumulative grade-point average, personal interview scores, and recommendations. Interviews focus on identifying the applicant's strengths, commitment to and knowledge of the profession, and prior health care experience.

Professional Program Application Deadlines

January 1—Deadline for UK and professional program applications

February 15—Deadline for submission of transcript(s) and references

Late applications will be considered on a space-available basis.

Preprofessional Requirements

2 semesters of English (writing courses)
2 semesters of general chemistry (one course with laboratory)
2 semesters of humanities courses
1 semester of general psychology
1 semester of developmental psychology
1 semester of biology or zoology with laboratory (not botany)
1 semester of microbiology
1 semester of sociology or anthropology
1 semester of anatomy*
1 semester of physiology*

*Two separate courses in anatomy and physiology are preferred, but a combined course will be considered.

In addition to the lower division course work requirements, students must complete University Studies requirements **prior** to enrollment.

Applicants who have received less than a "C" grade in any of the required courses are discouraged from applying until those grades have been improved.

Applicants are encouraged to include a course in medical terminology, as well as courses in mathematics, ethics, biochemistry, epidemiology, computer science, logic, physics, statistics, and genetics in elective course work.

It is recommended that applicants have clinical experience prior to making application. Individuals who have been employed or volunteered in providing patient care services are encouraged to apply.

Professional Requirements

SAMPLE CURRICULUM

JUNIOR YEAR

Fall Semester	**Hours**
PAS 850 Clinical Methods	3
PAS 851 Introduction to the Profession	1
PAS 853 Introduction to Health and Disease	3
PAS 855 Psychosocial Factors in Primary Health Care	3
PAS 872 Practical Therapeutics	3
PGY 412G Principles of Human Physiology Lectures	4
Spring Semester	
AHP 840 Ethics in Health Practice	2
PAS 854 Clinical Lecture Series	5
PAS 856 Patient Evaluation and Management	3
PAS 857 Clinical Laboratory Procedures	2
PAS 880 Seminar in Physican Assistant Studies	2
AHE 842 Clinical Practicum in Allied Health	3
ANA 532 Systemic Gross Anatomy	2
CNU 800 Applied Nutrition for the Health Professions: Fundamentals of Nutrition Science in Normal Life Cycles	1

SENIOR YEAR

Clerkships	
AHP 841 Allied Health Practicum: The Context of Health Care Practice	3
PAS 860 Family Medicine Clerkship	5
PAS 861 Pediatric Clerkship	5
PAS 862 Obstetrics and Gynecology Clerkship	5
PAS 863 Surgery Clerkship	5
PAS 869 Internal Medicine Clerkship	5
PAS 870 Emergency Medicine Clerkship	5
PAS 871 Psychiatric Clerkship	5
PAS 842 Clinical Practicum in Physican Assistant Studies	4
PAS 867 Preceptorship I	4
PAS 868 Preceptorship II	4
PAS 880 Seminar in Physician Assistant Studies	2

For further information, students should contact:

Physician Assistant Studies
113 Medical Center Annex 2
University of Kentucky
Lexington, KY 40536-0080
(606) 257-5397

RADIOLOGICAL HEALTH SCIENCE

The Radiological Health Science program produces graduates who can function as exemplary mid-level professionals in radiological health (health physics). With judicious choice of electives, graduates will possess the breadth and depth of background and skills to qualify them for graduate study in applied fields should they so desire. The undergraduate curriculum provides breadth in general studies, a strong foundation in the physical and mathematical sciences, and specialized instruction at the upper division level in radiation safety, radiochemistry, medical physics, and radiation biology.

This program does not produce medical X-ray technologists.

Admissions Criteria

All candidates for admission to the program must undergo an interview with a faculty member. The purpose of the interview is to advise prospective students of the nature of the program and the career options available. Applicants to the Radiological Health Science program who are from other states and countries will be considered for admission providing that out-of-state enrollment does not inhibit the opportunities of Kentucky residents to benefit from the educational facilities provided.

Lower Division Admission

For **entering freshmen**, the entrance requirements of the college are applied: an ACT composite score at or above the 50th percentile, and a minimum high school grade-point average of 2.0 on a 4.0 scale.

Transfer applicants with at least 30 semester credit hours, including at least 12 semester hours of physics, chemistry, mathematics, and engineering applicable to the program, must meet the following minimum admissions criteria:

1. Students from UK community colleges and other UK programs must have a cumulative grade-point average of 2.0 or greater and a 2.0 average in the group of courses comprising the physics, chemistry, mathematics, and biology applicable to the degree program.

2. Transfer applicants from other institutions will be evaluated for admission individually, based upon cumulative grade-point average on all college work attempted and upon individual grades in the physics, chemistry, mathematics, and biology courses which the applicant may have completed.

Upper Division Admission

Applicants from other UK programs and UK community colleges will be considered for admission upon meeting the criteria listed below:

1. Completion of a minimum of 60 semester hours acceptable toward the degree program, with a minimum cumulative grade-point average of 2.0.

2. Completion of the following program requirements with a minimum grade-point average of 2.0: CHE 105, 107; PHY 231, 232, 241, 242 or equivalent; MA 113, 114; BIO 103, 110 or equivalent.

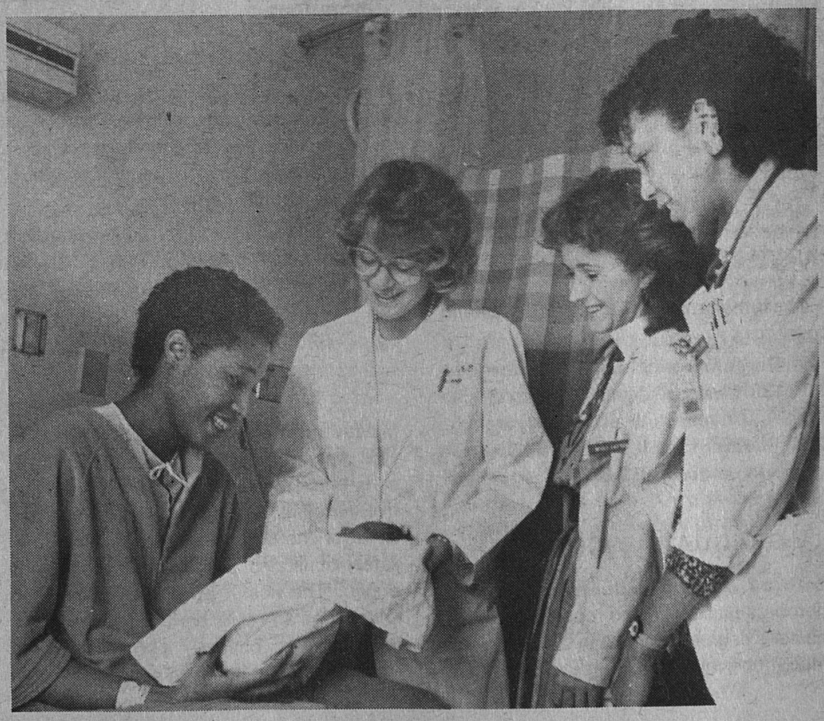
Transfer applicants from other institutions will be considered for admission on the basis of qualifications and available space in the program.

Minimum Requirements for Graduation

To be awarded the Bachelor of Health Sciences degree in Radiological Health Science, a student must:

1. Complete University Studies requirements;

2. Complete the interdisciplinary courses required of all undergraduate students (AHP 840, 841);



3. Complete a minimum of 123 hours, with a cumulative standing of not less than 2.0 on a 4.0 scale (grade-point average computed excluding freshman algebra and trigonometry and physical education);

4. Complete all required courses and a minimum of 15 hours of area electives in the Radiological Health Science program;

5. Complete a minimum of 30 hours after being admitted to the program.

Premajor Requirements

	Hours
PHY 231/232 General University Physics*	8
PHY 241/242 General University Physics Laboratory*	2
MA 113/114 Calculus I and II*	8
CHE 105/107 General College Chemistry I and II*	6
BIO 103 Basic Ideas of Biology*	3
BIO 110 Introduction to Human Biology and Health*	3

*or equivalent

Major Requirements

	Hours
CHE 115 General Chemistry Laboratory	3
HRS 545 Radiation Hazards and Protection	3
HRS 575 Applied Health Physics Laboratory	2
RM 472G Interaction of Radiation with Matter	3
RM 540 General Radiation Biology	4
RM 546 General Medical Radiological Physics	3
PHY 361 Principles of Modern Physics	3
PHY 535 Experimental Physics: Atomic and Nuclear	2
CHE 520 Radiochemistry	3
CHE 521 Radiochemistry Laboratory	2
STA 370 Introduction to Statistics (or equivalent)	4
CS 221 First Course in Computer Science for Engineers	2
ENG 204 Technical Writing	3
AHP 840 Ethics in Health Practice	2
AHP 841 Allied Health Practicum: The Context of Health Care Practice	3

Area Electives (15 hours required)

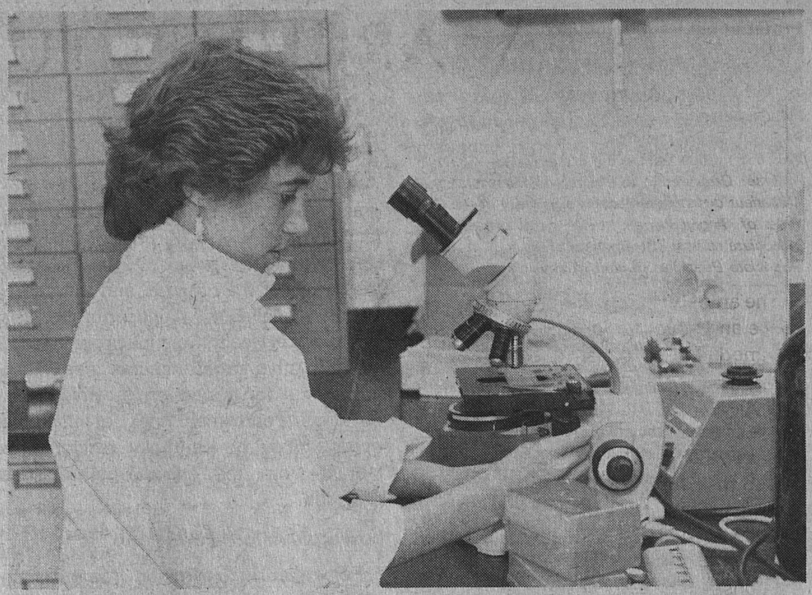
Examples of appropriate area electives include:	
BIO 502 Principles of Physiology Lecture	5
HRS 395 Independent Work in Medical Physics and Radiological Health	1-3
MA 213/214 Calculus III and Calculus IV	7
MA 432G Methods of Applied Mathematics I	3
ME 475G Introduction to Nuclear Engineering	3
PHY 402G Electronic Instrumentation and Measurements	3
PHY 416G/417G Electricity and Magnetism	6
PHY 520 Introduction to Quantum Mechanics	3

For futher information, students should contact:

Radiological Health Science
130 Medical Center Annex 2
University of Kentucky
Lexington, KY 40536-0080
(606) 233-6350

GRADUATE PROGRAMS

Allied Health Education faculty members assist in the coordination of master's degree programs in the College of Education which are designed to prepare



allied health educators. The programs consist of course work in education (major area) and in advanced clinical skill development (support area). These programs culminate in the awarding of the Master of Science in Education.

Further information and application forms may be obtained from:

Allied Health Education
Medical Center Annex 3
University of Kentucky
Lexington, KY 40536-0218
(606) 233-5616

Graduate Degrees in Allied Health Professions

Master of Science in Clinical Nutrition. The program is designed for those who intend to pursue careers in clinical nutrition, including clinical service, research or teaching. For further information, students should contact:

Clinical Nutrition
231 Medical Center Annex 2
University of Kentucky
Lexington, KY 40536-0080
(606) 233-6103

Master of Science in Health Physics. This program option trains specialists in the safe, efficient use of radiation and radioactive materials. Such specialists are responsible for the protection of the health and safety of users of radiation and the general public. The health physicist draws upon knowledge and skills derived from physics, mathematics, biology, medicine, chemistry, and management. A shortage of such specialists has developed as use of radiation has become more frequent and highly regulated.

Master of Science in Radiological Medical Physics. This program option trains professionals involved with the application of ionizing and nonionizing radiation to the diagnosis and treatment of disease. Such individuals plan radiation treatments for cancer patients, measure output from radiation sources, calibrate and evaluate instrumentation, design radiation facilities, and control medical radiation hazards. For further information, contact:

Health Radiation Sciences
130 Medical Center Annex 2
University of Kentucky
Lexington, KY 40536-0080
(606) 233-6350

Post-Baccalaureate Study

Clinical Pastoral Counseling faculty members coordinate learning experiences with the programs of patient care in the University Hospital to educate health and religious personnel in their developing interrelationships. Accredited clinical pastoral education, leading to eligibility for certification, is offered at basic, advanced and supervisory levels. Graduate studies in the College of Education are coordinated through the Department of Allied Health Education and Research. For further information, students should contact:

Clinical Pastoral Counseling
H120 Medical Center
University of Kentucky
Lexington, KY 40536-0084
(606) 233-5301

ARCHITECTURE

José Oubrerie, Architecte, Conseil National Superieur des Architectes, Paris, is Dean of the College of Architecture; Paul Pinney, M.S.Arch., Associate Dean; Clyde R. Carpenter, M.Arch., Associate Dean for Student Affairs.

The art of building is the art of providing space and structure for the organized accommodation of human activity. The art of architecture is the art of evoking poetic response to the built domain. Architecture is one of the most durable symbols that remains as a testament to the lives of a people, to their spirit and their aspirations, to their degree of civilization.

The traditional professional duties of the architect are to plan, design and supervise the construction of buildings. The recently discovered concern for the recovery of a more orderly and humane environment has broadened a hitherto somewhat narrow view of the architect's role to include a professional responsibility in the development of regional and community plans designed to achieve a balance of economic growth and human viability.

The objective of the College of Architecture and its curriculum is to promote the development of those qualities of professional skill, competence and social awareness which the architect must command if architecture is to enhance contemporary life and remain as an enduring and valid expression of our society.

ADMISSION

Applicants to the University of Kentucky who may be interested in architecture are encouraged to visit the campus and to discover more about the program by appointment with the associate dean of the college or the college adviser.

Since 1975, enrollment in the College of Architecture has been regulated by means of a selective admissions procedure. All applicants to the college will be examined on a comparative and competitive basis.

Freshman applicants should be aware that acceptance into the freshman class in architecture does not guarantee that the student will be able to continue into the Upper Division program.

Transfer applicants should be aware that the College of Architecture Admissions Committee reserves the right to place an accepted student in the component or components of the college curriculum which it deems most appropriate to the student's background and previous development.

Admissions Procedures

Freshman candidates are required to file an application with the Undergraduate Admissions Office by February 1, 1989, for 1989 Fall Semester admission. Please note that this deadline is earlier than those for general admission to the University. Candidates will be admitted in order of priority on the basis of the following criteria:

1. A potential for general academic achievement as indicated by the high school grade-point average and freshman entrance examination scores.

As a rule, nonresident freshmen must meet the minimum academic standards required for all nonresident freshmen applicants for admission to the University. In the event, however, that the committee finds clear indications of probable success in the college from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon recommendation of the College of Architecture Admissions Committee and with the approval of the Director of Admissions.

For fall admission, applicants must register for and take the American College Test (ACT) on or before the December 1988 test date.

2. The probability of success in a professional program in architecture as predicted by:

a. "The Architectural School Aptitude Test,"

b. Comparative measures of aptitude and motivation derived by the Admissions Committee from supplementary tests and,

c. In cases of uncertainty and circumstances permitting, personal interview.

These tests will be administered by the College of Architecture Admissions Committee in the College of Architecture, Pence Hall, on March 4, 1989, for 1989 Fall Semester applicants.

Arrangements can be made for those candidates who are unable to attend the examination on campus, for test administration under proper controls prior to March 4, 1989, at their local educational facility. Requests stating the need for a local examination and the name and address of the individual who would administer the controlled test should be made in writing to the College of Architecture Admissions Committee, 117 Pence Hall, in sufficient time to allow the necessary arrangements to be made, and to ensure that the results of the examination are received by the committee by March 4, 1989, for 1989 Fall Semester applicants.

Transfer candidates from educational programs other than those in architecture or environmental design will be required to observe the same application deadlines and testing procedures (when applicable) as those set out above for freshmen.

Candidates will be considered in order of priority on the basis of the following criteria:

1. The indication of general academic performance as reflected by the cumulative collegiate grade-point average, and the indications of specific interests and aptitudes as reflected by grades in certain critical disciplines (i.e., art history, biology, foreign languages, freehand drawing, history of ideas, mathematics, philosophy, physics, social history, etc.)

As a rule, the minimum academic standard acceptable to the Admissions Committee will be a cumulative grade-point average of 2.0 on a 4.0 scale, or an average of C in all previous college work. In the event, however, that the committee finds clear indications of probable success in the college from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon recommendation of the College of Architecture Admissions Committee and with the approval of the Director of Admissions.

2. The probability of success in a professional program in architecture as predicted by:

a. "The Architectural School Aptitude Test,"

b. Comparative measures of aptitude and motivation derived by the Admissions Committee from supplementary tests,

c. In cases of uncertainty, and circumstances permitting, personal interview.

Transfer candidates from N.A.A.B. accredited programs in architecture or environmental design are required to file application with the Undergraduate Admissions Office by February 1, 1989, for 1989 Fall Semester admission. Please note that this deadline is earlier than those for application to the University in general.

Candidates will be considered in order of priority on the basis of the following criteria:

1. The indication of general academic success and success in a professional pro-

gram in architecture as reflected by the cumulative collegiate grade-point average, and indications of specific aptitude and skill development as reflected by grades in architecture or environmental design courses.

As a rule, the minimum academic standard acceptable to the Admissions Committee will be a cumulative grade-point average of 2.0 on a 4.0 scale, or a C average in all previous college work. In the event, however, that the committee finds clear indications of probable success in the college from its review of the further evidence pertaining to a candidate who does not meet these minimum criteria, an exception may be made to this rule, upon the recommendation of the College of Architecture Admissions Committee and with the approval of the Director of Admissions.

2. The probability of success in a professional program in architecture as predicted by:

a. A review of the candidate's portfolio work in architecture or the environmental design disciplines.

The portfolio should be brought or mailed, *together with return postage and mailing labels* directly to:

College of Architecture
Admissions Committee
117 Pence Hall
University of Kentucky
Lexington, KY 40506-0041

b. A review of at least three letters of reference addressed to the Admissions Committee from referees such as previous instructors in architecture or environmental design, other teachers, architectural practitioners or related professionals for whom the candidate may have worked.

The candidate's portfolio and letters of reference should be received by the committee by March 4, 1989, for 1989 Fall Semester admission.

c. In cases of uncertainty, and circumstances permitting, personal interview.

THE DEGREE OF BACHELOR OF ARCHITECTURE

A five-year program in architecture at the University of Kentucky was established in September 1960 to meet the increasing need for professionally trained persons in the architectural profession and building industry in Kentucky and the nation. The college is fully accredited by the National Architectural Accreditation Board.

The College of Architecture enriches its undergraduate program with the addition of a European workshop as an important option, offering many of the courses in the curriculum at a resident center in Europe.



No student enrolled in the College of Architecture as a regular student will be admitted as a candidate for the professional degree of Bachelor of Architecture (B.Arch.) until he or she has successfully completed the requirements of the first four years of the five-year curriculum.

To be eligible for the professional degree of Bachelor of Architecture a student must meet the following requirements:

1. Completion of University Studies requirements.
2. Completion of a minimum of 176 semester hours, exclusive of those earned in physical education and reserve officer training programs, with a cumulative standing of not less than 2.0.

THE PROGRAM

	Hours
YEAR ONE	
ARC 101/102 An Introduction to Architecture I and II	8
ARC 120/121 History and Theory of Architecture I and II	4
ENG 101/102 Writing I and II	6
MA 123/162 Elementary Calculus and Its Applications and Finite Mathematics and Its Applications	6
Elective or University Studies Component	6
YEAR TWO	
ARC 201/202 Basic Architectural Studies I and II	12
ARC 220/221 History and Theory of Architecture III and IV	6
ARC 230/231 Materials and Methods of Construction I and II	4
PHY 201/203 General Elementary Physics	8
Elective or University Studies Component	6
YEAR THREE	
ARC 810/811 Architectural Studio I and II	12
ARC 820 Studies in History and Theory of Architecture and Urban Form I	3
ARC 830/831 Structural Design and Analysis I and II	6
ARC 834/835 Environmental Controls I and II	6
ARC 840 Theories of Urban Form	3
Elective or University Studies Component	6
YEAR FOUR	
ARC 812/813 Architectural Studio III and IV	12
ARC 821/822 Studies in History and Theory of Architecture and Urban Form II and III	6
ARC 832/833 Structural Design and Analysis III and IV	6
Elective or University Studies Component	12
YEAR FIVE	
ARC 910/911 Advanced Architectural Problems I and II	14
ARC 850 Professional Practice	3
Elective or Professional Elective Component	21

Summer Session

With the exception of the European workshop, summer courses in professional studies are not generally offered. However, each student is strongly urged to spend at least one summer on a construction job site, and to spend at least one summer in the employ of a registered architect prior to graduation. This experience will be especially beneficial during the academic training of the student.

ARTS AND SCIENCES

Michael Baer, Ph.D., is Dean of the College of Arts and Sciences; John E. Christopher, Ph.D., Associate Dean for Advanced Studies; Richard B. Greissman, M.A., Director of Student Records and Registration; Mary Sue Hoskins, M.A., Director of Advising; Cliff Swauger, M.S., Director of Fiscal Affairs and Operations.

THE COLLEGE'S MISSION

The College of Arts and Sciences offers both Bachelor of Arts and Bachelor of Science degree programs. Most departments offer programs leading to the Master's or Ph.D. degree as well.

The college also fulfills a University-wide mission by providing most of the courses which constitute the common core of the University's undergraduate studies—the general education experience. In addition, some students enroll in the college's basic studies in preparation for seeking admission to programs of limited enrollment in other colleges.

Guiding Philosophy

In discharging its responsibilities, the College of Arts and Sciences is guided by the tradition of the liberal arts; that is, knowledge is sought, developed, shared, and cherished with concern for its ultimate value as well as for its immediate use. Especially among its undergraduates, the college is intent upon promoting the type of education rightly called "liberal." "A man is free, or he enjoys liberty," said Ralph Barton Perry, "in proportion to which his life is governed by his own choice . . . . Choice is narrowed by ignorance, habit, or obsession; it is broadened by knowledge, spontaneity, and reflection . . . . Education is liberal in so far as it invites and qualifies men to choose deeply and fundamentally . . . to choose from many rather than from few possibilities." It is for this reason, then, among others, that numerous studies in the arts and sciences have traditionally been labeled "the liberal arts"; they stimulate the imagination, create perspective and breadth of view, and nurture the faculty of intelligent choice.

ADMISSION

Requirements for admission to the College of Arts and Sciences are the same as those outlined for the University. Admission to the upper division of the Computer Science program is selective.

PROGRAMS AND SERVICES

Lower Division Students

At the Summer Advising Conference students are assisted in planning their first schedule of studies by the professional advisers of the college's centralized Academic Advising Service. Upon returning to the campus in the fall, students have two options for continuing advisement. Students who are reasonably certain about life/career/study goals may promptly declare a major and identify with a faculty adviser in the major department. Students who are undecided about life/career/study goals or who need assistance in testing or confirming a tentative decision previously made may find a distinctive advantage in being an "undeclared major." Students can continue, under the guidance of a professional adviser of the Academic Advising Service, to investigate their interests.

The Office of Student Records and Registration serves all students in the college. Routine questions concerning credits earned, grade-point average, changing majors, or transferring from one college to another should be addressed to the records staff in 257 Patterson Office Tower, (606) 257-8712. Problems arising from these issues are the responsibility of the Director of Student Records and Registration.

Academic Advising

Normally, academic advising is provided for students by selected faculty in the department of their major. Consequently, upon declaring a major, the student should promptly contact the department and request assignment to an adviser. After assignment, students should at the earliest opportunity become personally acquainted with their advisers and begin long-range planning. It is imperative that each student file a Plan Sheet—Field of Concentration with the Office of Student Records and Registration, 257 Patterson Office Tower, by no later than the end of the junior year. For advanced students who need authoritative information about College or University requirements or who withdraw from the first choice of a major to seek a new direction, the assistance of the Academic Advising Service remains available.

Student Advisory Council

The Arts and Sciences Student Advisory Council assures students in the college a voice in the development of educational policy. The council, usually consisting of nine members representing various academic areas of the college, is elected each spring by the undergraduate students enrolled in the college. A member of the Student Council is appointed to membership on the Faculty Council of the college.

ACADEMIC SUSPENSION AND REINSTATEMENT

The College of Arts and Sciences follows the general University rules for academic suspension and reinstatement which are outlined in the *Academic Requirements* section of this Bulletin. It is strongly suggested that a student on academic suspension apply for reinstatement no later than the last day of the semester prior to readmission.

THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

Requirements for a Bachelor of Arts Degree

To receive the Bachelor of Arts degree, students must:

1. Complete the University Studies program.[1]

2. Complete the following extensions to the University Studies program:

a. In addition to the Basic Skills Foreign Language requirement, students must 1) satisfy the four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence; **or** 2) pass the third semester course in one language and the second semester course in a second language, or demonstrate equivalent competency.

b. In addition to completing the Natural Sciences disciplinary requirement, students must take six additional hours in disciplines in the natural sciences.

c. In addition to completing the Social Sciences disciplinary requirement, students must take six additional hours in disciplines in the social sciences.

d. In addition to completing the Humanities disciplinary requirement, students must take six additional hours in disciplines in the humanities. When appropriate, courses used to satisfy **b** through **d** above also can be used to satisfy Cross-

Disciplinary and Cross-Cultural requirements.

3. Complete at least 120 credit hours in courses acceptable to the College of Arts and Sciences.[2]

4. Complete at least 90 credit hours in Arts and Sciences courses.[3]

5. Complete at least 39 credit hours in courses numbered at or above the 300 level.

6. Complete at least six credit hours of prerequisite courses in the departmental major.

7. Complete at least 42 credit hours as listed on the Field of Concentration Plan Sheet.[4]

8. Complete at least one course in disciplines from the natural sciences or social sciences that includes some laboratory or field experience. (A list of such courses is available in 257 Patterson Office Tower.)

9. Attain an overall grade-point average of at least 2.0.

10. Attain a grade-point average of at least 2.0 in all prerequisite and Field of Concentration Plan Sheet.

11. Complete a minimum of six credit hours of free electives.

NOTES

1. See the *University Studies* section of this Bulletin for a detailed explanation of the requirements.

2. To be awarded a baccalaureate degree from the College of Arts and Sciences, each student must complete 120 semester hours in courses acceptable to this college. Physical education one-hour service courses are not acceptable. A maximum of 16 semester credit hours earned in military science and aerospace studies courses and 12 credit hours in experiential education and internship courses (EXP 396, departmental 399 courses) will be accepted for graduation. Courses acceptable are:

a. All courses offered by the College of Arts and Sciences.

b. Courses transferred from other institutions, judged by the dean to be equivalent or comparable to Arts and Sciences courses.

c. Courses offered by other colleges within the University of Kentucky system, or their equivalent from other institutions, which in the judgment of the dean are not primarily technical courses.

3. Courses classified as Arts and Sciences courses for purposes of the 90-hour requirement include all courses offered by the College of Arts and Sciences; all art history courses; all courses in music appreciation and the history of music; TA 101, TA 381; ARC 820, ARC 822, ARC 823; HPR 290; all economics courses except ECO 391; all undergraduate communications (COM) courses except COM 181; JOU 535 and JOU 537.

4. Faculty advisers assist students in completing the Field of Concentration Plan Sheet, which should be submitted no later than the second semester of the junior year. Copies of the form and instructions for its completion may be obtained in 257 Patterson Office Tower.

Requirements for a Bachelor of Science Degree

To receive the Bachelor of Science degree, students must:

1. Complete the University Studies program.[1]

2. Complete the following extensions to the University Studies program:

a. In addition to the Basic Skills Foreign Language requirement, students must 1) satisfy the four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence; **or** 2) pass the third semester course in one language and the second semester course in a second language, or demonstrate equivalent competency.

b. In addition to completing the Natural Sciences disciplinary requirement, students must take three additional hours in disciplines in the natural sciences.

c. In addition to completing the Social Sciences disciplinary requirement, students must take three additional hours in disciplines in the social sciences.

d. In addition to completing the Humanities disciplinary requirement, students must take three additional hours in disciplines in the humanities. When appropriate, courses used to satisfy **b** through **d** above also can be used to satisfy Cross-Disciplinary and Cross-Cultural requirements.

3. Complete at least 120 credit hours in courses acceptable to the College of Arts and Sciences.[2]

4. Complete at least 90 credit hours in Arts and Sciences courses.[3]

5. Complete at least 60 credit hours in the physical, biological or mathematical sciences.

6. Complete at least six credit hours of prerequisite courses in the departmental major.

7. Complete at least 42 credit hours as listed on the Field of Concentration Plan Sheet.[4] At least 24 of these hours should be at or above the 300 level.

8. Complete at least one course in disciplines from the natural sciences or social sciences that includes some laboratory or field experience. (A list of such courses is available in 257 Patterson Office Tower.)

9. Attain an overall grade-point average of at least 2.0.

10. Attain a grade-point average of at least 2.0 in all prerequisite and Field of Concentration Plan Sheet courses.

11. Complete a minimum of six credit hours of free electives.

NOTES

1. See the *University Studies* section of this Bulletin for a detailed explanation of the requirements.

2. To be awarded a baccalaureate degree from the College of Arts and Sciences, each student must complete 120 semester hours in courses acceptable to this college. Physical education one-hour service courses are not acceptable. A maximum of 16 semester credit hours earned in military science and aerospace studies courses and 12 credit hours in experiential education and internship courses (EXP 396, departmental 399 courses) will be accepted for graduation. Courses acceptable are:

a. All courses offered by the College of Arts and Sciences.

b. Courses transferred from other institutions, judged by the dean to be equivalent or comparable to Arts and Sciences courses.

c. Courses offered by other colleges within the University of Kentucky system, or their equivalent from other institutions, which in the judgment of the dean are not primarily technical courses.

3. Courses classified as Arts and Sciences courses for purposes of the 90-hour requirement include all courses offered by the College of Arts and Sciences; all art history courses; all courses in music appreciation and the history of music; TA 101, TA 381; ARC 820, ARC 822, ARC 823; HPR 290; all economics courses except ECO 391; all undergraduate communications (COM) courses except COM 181; JOU 535 and JOU 537.

4. Faculty advisers assist students in completing the Field of Concentration Plan Sheet, which should be submitted no later than the second semester of the junior year. Copies of the form and instructions for its completion may be obtained in 257 Patterson Office Tower.

MAJORS

A major in the College of Arts and Sciences is composed of prerequisite courses and a 42-hour program referred to as the "field of concentration." Specific requirements for each departmental major are listed in this Bulletin under each department.

In outline, general requirements are as follows:

1. No course open to freshmen may be counted in the field of concentration.

2. Courses taken pass-fail may not be listed.

3. A prerequisite of at least 6 credits in the department is required.

4. A total of 42 credits is required in the field of concentration, including credits in the major.

5. At least 24 credits must be in courses at the 300 level or above.

6. In addition to the prerequisite, a minimum of 18 credits is required for a major in a department.

7. At least 14 credits in the field must be **outside** the major department.

8. An overall grade-point average of at least 2.0 in prerequisite and field of concentration courses.

The student is required to gain at least 42 hours in a field of concentration. Most of these courses must be taken during the junior and senior years. These 42 hours are subject to the approval of the student's adviser and the dean of the college.

In order to avoid working a hardship upon students who wish to secure teaching certificates, it is provided that, if necessary, six hours in education may be included in the 42 hours of the field of concentration.

Each department must specify the requirements for a major, which shall include a minimum of 18 hours of nonfreshman courses in that department, with the provision that this minimum may be set at 15 hours by a department with approval of the Arts and Sciences Faculty Council and Undergraduate Council if there are special reasons for a lower minimum. A minimum of six hours is required as a prerequisite for a major in a department.

Faculty advisers assist students in completing the Field of Concentration Plan Sheet, which should be submitted no later than the second semester of the junior year. Copies of the form and instructions for its completion may be obtained in 257 Patterson Office Tower.

Topical Majors

Students who have multiple interests or interests which do not fall into departmental areas may select a topic for concentration instead of a departmental major. Topical majors offer academic flexibility and allow students to cut across departmental and college lines in constructing meaningful and imaginative programs. Courses in several departments might be selected to pursue special interests—historical preservation, for instance. Other examples might be black studies, urban problems, women's studies, and behavioral sciences.

Each program is reviewed by faculty in the general area of study, and must finally have approval of the topical major adviser.

The specific requirements of the topical major are that the student must have a grade-point standing of 2.5, meet University and College requirements, and complete the 42-hour field of concentration requirement (see preceding section). Except for electives, all of the student's work must be generically related to the topic. In addition, the student must complete in the senior year a comprehensive paper or project that serves to integrate in some fashion his or her topical field. Frequently, it is advantageous to write this paper in the context of an independent work course or a seminar, with the instructor's approval. The paper or project must be presented to the topical major adviser and have the approval of the faculty adviser.

Double Majors

A student may obtain a double major by meeting all requirements in two departments. Major work in one department can, if there is a generic relationship, serve as the outside field in the second major, and vice versa. The student must indicate his or her double major to the Office of Student Records and Registration. He or she must have an adviser in both departments and must turn in two field of concentration plan sheets. The student who completes requirements for a double major will receive only one degree, but his or her transcript will indicate the two majors.

For information on double majors involving two colleges, consult the *Academic Requirements* section of this Bulletin.

Minors

The College of Arts and Sciences does not require minors. However, students can earn a minor in the following disciplines: anthropology, astronomy, biological sciences, chemistry, classical civilization, comparative literature, computer science, economics, English, French, geography, geology, German, Greek, history, Italian, Latin, linguistics, mathematics, microbiology, philosophy, physics, political science, psychology, Russian, sociology, and Spanish. Interdisciplinary minors are also available in Appalachian studies, black studies, religious studies, and women's studies. For more information about choosing or declaring a minor, students should contact the Office of Student Records and Registration, 257 Patterson Office Tower.

Changing Majors

A student changing majors must consult the Office of Student Records and Registration, Room 257 Patterson Office Tower, as to the proper procedure. If the change is drastic, or delayed until well into the student's career, the student must accept the probability that the new major may require additional time in residence.

The Preparation of Teachers

Students in the College of Arts and Sciences may, by completing certain courses in the College of Education, qualify for secondary teaching certificates. For specific information, students should consult the College of Education, 166 Taylor Education Building.

Any Arts and Sciences student intending to seek teaching certification should so indicate to his or her faculty adviser. Most departments assign such students to a special adviser. The student should also contact the Associate Dean of the College of Education. As soon as the student has determined to seek certification he or she is assigned an adviser both in the College of Education and in the major department in the College of Arts and Sciences.

Students seeking certification should be sure to familiarize themselves with the requirements of both colleges. The sooner and the more thoroughly this is done, the greater the advantage to the student.

INFORMATION ON COURSES

Transfer of UK Community College Courses

The College of Arts and Sciences applies to baccalaureate degree requirements all UK community college courses with the same prefix and number designation as courses taught at the University. Usually the college will apply up to six hours of technical course work taken at a community college. Beyond these six credit hours, each course will be evaluated on an individual basis as it applies to the student's baccalaureate degree program.

Independent Work Courses

A junior or senior may, with the approval of his or her adviser, the instructor who would direct the work, and the dean, register for an independent work course in his or her major department. Normally, a standing of 3.0 in the major is required. In exceptional circumstances a nonmajor or topical major may be permitted to enroll in a departmental independent work course. Such a course is characterized by special assignments for study, regular conferences, reports, and usually involves preparation of a paper. The instructor in each case must file with the department evidence of the nature of the work achieved. Credit for such courses may be granted to undergraduates to an amount of not more than 12 hours.

Experiential Education and Internship Courses

Experiential education courses provide the opportunity for students to earn academic credit by engaging in intellectual processes in relation to out-of-classroom experiences. The philosophy behind this is that certain experiences may enable students to gain insight into principles and concepts relevant to individual disciplines. Academic credit is earned by demonstrating that an understanding of those principles and concepts has been achieved; accordingly, the academic credit for such courses is not to be primarily determined by the actual task or work performed. No direct relationship necessarily inheres between the number of hours a task requires and the number of credits gained.

To register for an experiential education course, students must find a faculty member in that academic area who is willing to supervise their studies in the course; the student and the supervising faculty member must prepare a learning contract which describes as clearly as possible the nature of the anticipated experience, the intellectual objectives, and methods and criteria that are to be used to evaluate the understanding gained by the student at the end of the experience. This contract must also contain the number of credit hours and a justification for that number in terms of the academic objectives of the experience. In addition, the contract must specify the ways the faculty member expects to exercise regular supervision and guidance during the time of the experience. This learning contract must then be submitted to the chairperson of the student's major department for approval. If such approval is obtained, the contract is then filed in the departmental office, in the Dean's Office, and in the Office for Experiential Education. All of this must be accomplished prior to the student's registration in the course. No credit will be given for previous work experience.

The College of Arts and Sciences accepts experiential education and internship courses (EXP 396, departmental 399 courses, etc.) on a pass-fall basis only, regardless of which college is offering the courses. A total of 12 credit hours in these courses may be counted toward the 120 credit hours required for graduation. College of Arts and Sciences majors may earn a maximum of six credit hours of experiential education credit in a semester.

ROTC Program

A maximum of 16 semester credit hours earned in Military Science and Aerospace Studies courses will be accepted for graduation with a baccalaureate degree in the College of Arts and Sciences.

Courses in Other Colleges

The student is permitted to elect and count toward graduation courses in the other colleges of the University, not to exceed 30 hours. Hours in the other colleges gained during the junior and senior years may, if not open to freshmen, be counted as major and field requirements.

Combined Courses of Study (Law, Medicine or Dentistry)

A student may combine courses in arts and sciences and law,* medicine, and dentistry to gain the B.A. or B.S. degree after three years in this college and one or more years in the professional school.

1. The student must gain at least 94 hours exclusive of physical education in arts and sciences subjects, with a standing of 2.0 or more, before transferring to the professional school. For arts-law he or she should have a standing of 2.75 on all work attempted, before transferring to a law school.
2. The student must have met the specified requirements of the College of Arts and Sciences and have gained at least 20 hours in the field of concentration before transferring to the professional school.
3. The student must spend at least one year in a law school approved by the Association of American Law Schools, or in an accredited medical school, or an accredited dental school.
4. The student must, in professional courses, secure sufficient hours to bring his or her total in the arts and professional work up to 120 hours exclusive of physical education, and must secure a standing of at least 2.0, or its equivalent, in the professional work. Professional courses duplicating arts and sciences courses, or duplicate courses elected in other colleges of the University by the student while registered in the College of Arts and Sciences, will not be counted in the total.

*The University of Kentucky does not offer an Arts-Law combined program for admission to the College of Law.

PRELAW STUDY

There is no specified program required for entry into law school. Students are advised to obtain the bulletins of law schools in which they are interested and to familiarize themselves with the admission standards. In general, the prelaw student should develop rigorous study habits, skill in clear and logical communication, and breadth of general education. Almost all law schools require that students take the Law School Admission Test. Students should contact the Dean's Office of the College of Law for information concerning the test. Students considering the study of law should contact the Preprofessional Study Office in the College of Arts and Sciences, 231 Patterson Office Tower.

It is highly recommended that students complete the bachelor's degree before entering law school. Most law schools require a degree prior to admission.

PREMEDICAL STUDY

The College of Arts and Sciences offers work preparatory to the study of medicine in compliance with the minimum entrance requirements of the American Medical Association and the Association of American Medical Colleges. The minimum requirements for entrance to medical schools and in preparation for taking the Medical College Admissions Test (MCAT) include: one year of English composition; one year of biology with laboratory; one year of physics with laboratory; two years of chemistry, including general chemistry, qualitative analysis, quantitative analysis, and organic chemistry; and electives sufficient for junior classification. Students should be aware that most medical schools do require considerably more than these minimum requirements.

The student may pursue a combination arts-medicine curriculum, spending three years at the University before transferring to medical school. The student may obtain the B.A. or B.S. degree after the first year's work in medical school, provided that admission to medical school is achieved with the undergraduate work presented.

Students who complete a four-year course of study and thereby obtain a degree will have time to meet the requirements for entrance to all medical schools. Opportunity is thus afforded for a broader background in the natural sciences, social studies, and humanities, which will be of advantage both in medical school and in later life. Students may choose any major the University offers, provided the minimum requirements listed above are met.

The number of students applying annually for admission to medical colleges exceeds the number which can be admitted. Boards of admission consequently fill their quotas from those who are best prepared, as indicated by grade-point averages, MCAT scores, and other criteria.

There is no premedical major as such at UK. All students interested in premedical study should register their names with the Preprofessional Study Office, at the time of application.

PREDENTAL STUDY

In 1970 the American Dental Association abolished its traditional prerequisites for admission to dental school and left it to each school to establish for itself those prerequisites which it deems necessary. The University of Kentucky College of Dentistry does not, at this time, require applicants to have taken specific prerequisite courses. Also, a specific number of undergraduate credits is no longer a requirement for admission to the college. However, applicants to the college should understand that gaining admission is a competitive process.

Both potential applicants and their advisers are cautioned that the information given here applies only to the College of Dentistry of the University of Kentucky. Specific information should be requested from each dental school in which the student has an interest.

It is recommended that prospective dental students contact the admissions office of the College of Dentistry for guidance at an early stage in the undergraduate career. The admissions personnel at the College of Dentistry will work with students and their advisers to afford each student the best possible chance for gaining admission.

A combination arts-dental curriculum which is similar to that of arts-medicine may be followed. All predental students should register their names with the Preprofessional Study Office, 231 Patterson Office Tower, at the time of application.

PREMINISTERIAL, PRETHEOLOGICAL, AND PRERELIGIOUS EDUCATION

Students planning to enter the ministry or the field of religious education should contact the Preprofessional Study Office, where help is available to plan schedules for the first year and assist with major selection.

All accredited theological seminaries require a degree for entrance. The American Association of Theological Schools recommends that a student's college work include: English language and literature, history, including non-Western cultures as

well as European and American; philosophy, particularly its history and its methods; natural sciences, both the physical and the life sciences; social sciences—psychology, sociology, and anthropology are particularly appropriate; the fine arts and music, especially for their creative and their symbolic value; biblical and modern languages; religion, both in the Judeo-Christian and in the Near and Far Eastern traditions.

PRE-OPTOMETRY STUDY

By means of contract through the Southern Regional Education Board, the Commonwealth of Kentucky will pay to the University of Houston, the University of Alabama, or Southern College of Optometry the nonresidential differential for each academic year for those students who qualify under this program and demonstrate approved progress in the four-year curriculum which leads to the Doctor of Optometry degree. To be eligible for financial assistance, a student must be a legal resident of the Commonwealth of Kentucky as defined by the Council on Higher Education and must be admitted to one of the above-mentioned colleges of optometry.

Pre-optometry requirements include:

2 semesters of general chemistry (with laboratory)
2 semesters of English
1 or 2 semesters of mathematics
1 or 2 semesters of general biology or zoology (with laboratory)
2 semesters of general physics (with laboratory)

Science courses taken should be those designed for preprofessional students. Brief summary courses in the sciences will not prepare students for optometry school.

Additional course requirements vary among schools. All students interested in optometry should obtain college catalogs from the institutions they are considering. Additional information may be obtained from the Preprofessional Study Office, 231 Patterson Office Tower.

PREPHARMACY STUDY

The equivalent of two years of liberal arts and basic sciences is required for admission to the professional program. This preprofessional training is offered in the College of Arts and Sciences.

The minimum requirements for admission to UK's College of Pharmacy are:

1 year of English (writing)
1 year of biology (with laboratory)
1 semester of microbiology (with laboratory)
1 semester of mathematics (Calculus I)
1 semester of principles of economics
1 year of physics (with laboratory)
1 year of general chemistry (with laboratory) including qualitative analysis
1 year of organic chemistry (with laboratory)

Students may obtain prepharmacy advising in 226 Pharmacy Building.

AEROSPACE STUDIES (Air Force ROTC)

The Department of Aerospace Studies provides a campus education program through which qualified students can simultaneously earn an Air Force commission and a college degree. Faculty members are experienced, active duty Air Force officers with advanced degrees.

Admission to the Program

Freshmen and sophomores may register for Aerospace Studies courses without incurring a military commitment.

Sophomores and other students with four semesters of school remaining in a graduate or undergraduate status may qualify for entry into the two-year program which places them directly into the Professional Officer Course (POC). To do this, the applicant must complete the Air Force Officer Qualifying Test (AFOQT), a medical evaluation, an interview with a board of Air Force officers, and be selected by AFROTC Headquarters.

All applicants for the POC attend a four- or six-week field training session during the summer usually preceding the semester that they will enter the POC. Cadets who have completed the first two years of AFROTC attend a four-week camp, while those who have not attend for six weeks.

Cadets receive travel pay to and from field training and are paid for the time spent there.

Requirements

An academic major in aerospace studies is not offered. However, by successfully completing either the two-year or the four-year Air Force ROTC program, qualified men and women may concurrently earn a commission as an Air Force Second Lieutenant while completing the requirements for a degree in their chosen field or discipline. A student may enroll in any Air Force ROTC course at the same time that registration for other undergraduate courses is completed.

AFROTC Curriculum

The AFROTC curriculum consists of both academic classes and leadership laboratory or seminar classes. The General Military Course (GMC) is a two-year course normally taken during the freshman and sophomore years. The Professional Officer Course (POC) is a two-year course normally taken during the junior and senior years. Along with academic classes each semester in both the GMC and the POC, there are also leadership laboratory or seminar classes.

In the GMC, there are four academic classes (AS 111, AS 112, AS 211, and AS 212). The classes cover two main themes—the development of air power and the contemporary Air Force in the context of the U.S. military organization. The GMC academic classes are open to any student.

In the POC, there are four academic classes (AS 331, AS 332, AS 341, and AS 342). The classes cover Air Force management and leadership and American defense policy. Entry into the POC is competitive, and is based on Air Force Officer Qualifying Test scores, SAT or equivalent standard test scores, grade-point averages, and evaluation by the Professor of Aerospace Studies. Only physically qualified students in good academic standing may compete for entry into the POC.

Students enrolled as cadets in the two-year or four-year program are involved once a week for an hour in a cadet corps training program designed to simulate a typical Air Force organization and its associated functions. During the GMC the courses are called leadership seminars, and include AS 113, AS 114, AS 213, and AS 214. The POC leadership laboratory classes are AS 333 and AS 343. The leadership laboratories are largely cadet-planned and conducted under the concept that they provide leadership training experiences which will improve the cadet's abilities to perform as Air Force officers.

Field Training

Field training is offered at Air Force bases across the country. The student receives junior officer training and leadership development with other students and the Air Force has an opportunity to evaluate each student as a potential member of its officer corps. Field training courses include cadet orientation, survival training, junior officer training, aircraft and aircrew orientation, physical training, organizational and functional aspects of an Air Force base, career orientation, small arms familiarization, first aid, and other supplemental training. Students are paid for the time spent in field training.

Scholarships

Students interested in AFROTC scholarships should refer to the *Student Financial Aid, Awards, and Benefits* section of this Bulletin.

ANTHROPOLOGY

The Department of Anthropology offers opportunities to learn about the diverse people of today's world as well as how these people came to be. This area of study deals with ecology, society, biology, culture, and language, among other aspects of human life. In addition, anthropologists study history and evolution in both a cultural and biological framework.

The department is especially well-equipped to prepare students in the areas of applied anthropology and archaeology. In applied anthropology, students can focus on medical anthropology and agricultural development. In archaeology, students can pursue interests in cultural resource management, the ancient civilizations of Latin America and the Middle East and their antecedents, and the peoples of prehistoric Eastern North America. Students in all components of the program are often involved in field work activities.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed earlier, each student completes the following:

Premajor Requirements

Students must take both of the following courses: ANT 120 and ANT 121.

Major Requirements

Students must take a minimum of 24 hours at the 200 level or above. These 24 hours should be chosen to produce a coherent program and must include the following:

Anthropological Theory (6 hours)
1. One of the following: ANT 430G, 450G, 526, 527, 529, 533, 538.
2. ANT 510 (to be taken in the senior year)

Research Methodology (3 hours)
ANT 541 **or** ANT 560 (to be taken in the senior year)

Regional Focus

Students must take two courses according to one of the following options:

Option 1—Regional Specialization

This option requires two courses focusing on the same culture area. This may be fulfilled with two anthropology courses—one ethnology course and one culture history course—from the same area. Ethnology courses are ANT 321, 322, 323, 338, 420G, 428G, 431G, 470G, 534. Culture history courses include ANT 241, 242, 542, 555.

Alternatively, this requirement may be fulfilled by pairing an ethnology course with a course from another department which focuses on the same area. A regional course from another department will count toward the 14 credits of allied course work, rather than toward the 24 total anthropology credits.

Option 2—Cross-Cultural Comparison

This option requires two ethnology courses, each representing a contrasting area. Ethnology courses are ANT 321, 322, 323, 338, 420G, 428G, 431G, 470G, 534.

Subdisciplinary Breadth (9-12 hours)

Students achieve disciplinary breadth by completing a minimum of one course from each of the following categories:
Culture history—ANT 241, 312, 541
Linguistics—ANT 215, 515, 516, 518, 519
Physical anthropology—232, 332

Senior Tutorial Seminar (3 hours)

ANT 582 is a capstone seminar on contemporary issues in anthropology and is to be taken in the senior year.

Allied Course Work

Students must take a minimum of 14 credits at the 200 level and above in courses meaningfully related to their specific interests in anthropology.

Minor in Anthropology

Minor Prerequisites	Hours
ANT 120 Introduction to Physical Anthropology	3
ANT 121 Introduction to Cultural Anthropology	3

Additional Courses

Students must complete 12 additional hours of anthropology at the 200 level or above. These must include courses from at least two of the five fields of anthropology (archaeology, ethnology, linguistics, physical anthropology and social anthropology). A minimum of six hours must be in courses at the 300 level or above, exclusive of independent study courses. Specific courses to be taken are negotiated with the Director of Undergraduate Studies upon declaring the minor.

THOMAS HUNT MORGAN SCHOOL OF BIOLOGICAL SCIENCES

The School of Biological Sciences is named in honor of Thomas Hunt Morgan, native of Lexington, graduate of the University, and Nobel Laureate for his work in genetics. The School is located in the T. H. Morgan Biological Sciences Building.

The School of Biological Sciences has programs for majors in biology, botany, microbiology, and zoology.

The faculty of the School of Biological Sciences represents a wide range of interests including cell biology, developmental biology, ecology, evolution, genetics, microbiology, molecular biology, physiology, and systematics.

Biology

The major in biology is structured to provide the student with basic competency in the broad range of biological sciences as well as to permit academic specialization in one or more of the specific disciplines of modern biology. The major is designed to prepare the student for a post-baccalaureate profession in biology or for graduate study in basic and applied areas of the biological sciences.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed earlier, each student completes the following:

Premajor Requirements

Biology:	Hours
BIO 150 Principles of Biology I	3
BIO 151 Principles of Biology Laboratory I	2
BIO 152 Principles of Biology II	3
BIO 153 Principles of Biology Laboratory II	2
or	
BIO 104 Animal Biology	3
BIO 105 Animal Biology Laboratory	1
BIO 106 Principles of Plant Biology	3
BIO 107 Plant Biology Laboratory	1
BIO 108 Principles of Microbiology	3
BIO 109 Introductory Microbiology Laboratory	2
Chemistry:	
CHE 105/107 General College Chemistry I and II **and**	6
CHE 115 General Chemistry Laboratory	3
Mathematics:	
MA 113 Calculus I **and**	4
MA 114 Calculus II	4
or	
MA 123 Elementary Calculus and Its Applications **and**	3
MA 132 Calculus for the Life Sciences,	3
or	
MA 113 Calculus I **and**	4
MA 132 Calculus for the Life Sciences	3
Physics:	
PHY 211/213 General Elementary Physics	10

Field of Concentration

The degree program in biology requires a minimum of 42 semester credit hours in courses not open to freshmen. A minimum of 28 credit hours must be completed in an area related to the major area. The requirements described below must be satisfied.

Major Area

1. One course selected from each of the following areas (Note: six hours must be 300-level or above, exclusive of independent study courses)
   a. Genetics
   b. Molecular and Cellular Biology
   c. Anatomy and Physiology
   d. Ecology, Evolution and Systematics
2. One credit hour in undergraduate seminar.
3. At least 16 credit hours in upper division biology courses, of which at least two courses must include a laboratory in addition to those laboratories which may have been used to satisfy requirements 1. and 2. above. No more than 9 of these 16 hours may be taken in independent work.

Related Areas

Students must complete at least 14 credit hours in nonfreshman courses outside the major area, including one of the following options:

1. CHE 230/231 Organic Chemistry and Laboratory	4-5
CHE 232/233 Organic Chemistry and Laboratory	5
2. CHE 236 Organic Chemistry	4
BCH 401G Fundamentals of Biochemistry	3
3. CHE 230/231 Organic Chemistry and Laboratory	4-5
BCH 401G Fundamentals of Biochemistry	3

Minor in Biological Sciences

A minimum of 21 semester credit hours is required for the minor in biological sciences, to be distributed as follows:

Minor Prerequisite: Students must complete Option 1 or 2.

Option 1

BIO 104 Animal Biology.....3
BIO 106 Principles of Plant Biology.....3
BIO 108 Principles of Microbiology.....3
plus two of the following laboratory courses:
BIO 105 Animal Biology Laboratory.....1
BIO 107 Plant Biology Laboratory.....1
BIO 109 Introductory Microbiology Laboratory.....2

Option 2

BIO 150 Principles of Biology I.....3
BIO 151 Principles of Biology Laboratory I.....2
BIO 152 Principles of Biology II.....3
BIO 153 Principles of Biology Laboratory II.....2

Additional Courses: Students must complete an additional 9 to 11 semester credit hours in biology courses numbered 200 or higher (not to exceed three credit hours in independent study courses). A minimum of six hours must be in courses at the 300 level or above, exclusive of independent study courses. Course work in genetics is strongly recommended. Specific courses are to be selected by the student in consultation with an adviser from the School of Biological Sciences.

Botany

The faculty in botany offers education and training for students interested in careers in the botanical sciences, preprofessional study, or preparation for study in graduate school fields. Because of its extensive training and experience in a broad range of disciplines, the faculty is able to provide education in such specialized areas as taxonomy, physiology, ecology, and cell biology.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

Biology:

BIO 150/152 Principles of Biology I and II **and**.....6
BIO 151/153 Principles of Biology Laboratory I and II.....4

Chemistry:

CHE 105/107 General College Chemistry I and II...6
CHE 115 General Chemistry Laboratory.....3

Mathematics:

MA 113 Calculus I **or**.....4
MA 131 Mathematics for the Life Sciences.....3
MA 132 Calculus for the Life Sciences.....3

Major Requirements **Hours**

BIO 351 Plant Kingdom.....3
BIO 530 Plant Physiology.....3
BIO 574 Anatomy of Vascular Plants.....4
BIO 404G Principles of Genetics.....3
BIO 524 Botany Seminar.....1
BIO 552 Taxonomy of Vascular Plants **or**.....4
BIO 261 Field Botany **or**.....3
CHE 230/232 Organic Chemistry.....6
CHE 231/233 Organic Chemistry Laboratory.....3-4
Recommended for all botany majors:
BIO 571 Algology.....4
BIO 451G Introductory Ecology.....4
BIO 573 Mycology.....4

To complete the Field of Concentration: At least 14 credit hours of nonfreshman, related courses outside the area should be selected in consultation with the student's adviser. Courses should be chosen from zoology, microbiology, geology, chemistry, biochemistry, agronomy, horticulture and plant pathology.

Microbiology

The T. H. Morgan School of Biological Sciences faculty offers education and training for students interested in careers in microbiology, preprofessional study, or preparation for study in graduate school fields. Because of its extensive training and experience in a broad range of disciplines, the faculty is able to provide education in such specialized areas as bacteriology, virology, parisitology, and cell biology.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

Biology:

BIO 104 Animal Biology.....3
BIO 105 Animal Biology Laboratory.....1
BIO 106 Principles of Plant Biology.....3
BIO 107 Plant Biology Laboratory.....1
or
BIO 150/152 Principles of Biology I and II **and**.....6
BIO 151/153 Principles of Biology Laboratory I and II.....4
and
BIO 177 Orientation in Microbiology.....1
BIO 178 Orientation in Microbiology.....1
BIO 276 Principles of Microbiology*.....4

*With faculty approval, a student transferring into this program may substitute a comparable introductory microbiology course or BIO 108, Principles of Microbiology, and BIO 109, Introductory Microbiology Laboratory, for BIO 276.

Chemistry:

CHE 105 General College Chemistry I.....3
CHE 107 General College Chemistry II.....3
CHE 115 General Chemistry Laboratory.....3

Physics:

PHY 211/213 General Elementary Physics.....10

Mathematics:

MA 113 Calculus I.....4
or
MA 123 Elementary Calculus and Its Applications..3
MA 162 Finite Mathematics and Its Applications...3
or
MA 131 Mathematics for the Life Sciences.....3
MA 132 Calculus for the Life Sciences.....3

Required Core Courses:

BIO 310 Environmental Microbiology.....3
BIO 325 Microbiology Seminar*.....2
BIO 580 Metabolism of Microorganisms.....4
BIO 582 Virology.....3
BIO 585 Pathogenic Microbiology.....3
BIO 494G Immunobiology.....3
BIO 595 Immunobiology Laboratory.....2

*Seminar must be taken once during the junior year and once during the senior year.

Elective Professional Courses: Each student must complete at least three elective microbiology courses selected from among those listed below (or others in consultation with the adviser); the elective courses must be selected from at least two of the three groups of courses.

Group I

BIO 571 Algology.....4
BIO 573 Mycology.....4
BIO 563 Parasitology.....4
BIO 476G General Microbial Physiology.....4

Group II

BIO 576 Industrial Microbiology.....4
BIO 590 Gnotobiotic Methodology.....2

Group III

BIO 395 Independent Work in Microbiology**.....3 or 6
BIO 420 Biological Macromolecules and Life Processes.....3
BIO 515 General Cell Biology.....3
BIO 540 General Radiation Biology.....4

**Prerequisites for BIO 395 are: senior classification; GPA of 3.0 in all science and mathematics courses. May be repeated only once with maximum credit of six hours.

Required Courses in Related Areas

BCH 401G Fundamentals of Biochemistry.....3
CHE 230 Organic Chemistry.....3
CHE 231 Organic Chemistry Laboratory.....2
BIO 315 Introduction to Cell Biology.....3
BIO 404G Principles of Genetics.....3

Elective Courses in Related Areas (As necessary for the student's professional program.)

CHE 226 Analytical Chemistry*.....3-5
CHE 232 Organic Chemistry**.....3
CHE 233 Organic Chemistry Laboratory.....2
CHE 444G Physical Chemistry.....4

*Required for certification.
**Recommended for students who plan to apply for medical school admission.

Minor in Microbiology

A minimum of 25 semester credit hours is required for the minor in microbiology, as described below. The course work must include one year of general biology and sufficient additional courses to satisfy the minimum requirements of the program in microbiology.

Preminor Requirements

BIO 104 Animal Biology.....3
BIO 106 Principles of Plant Biology.....3
or
BIO 150 Principles of Biology I.....3
BIO 152 Principles of Biology II.....3
and
BIO 177 Orientation in Microbiology.....1
BIO 178 Orientation in Microbiology.....1
BIO 276 Principles of Microbiology*.....4

***Note:** With faculty approval, a student transferring into this program may substitute an equivalent introductory course.

Minor Requirements

These requirements may be satisfied by an additional 13-16 semester credit hours in an area of concentration in microbiology. The three areas of concentration are: 1)general microbiology, 2)industrial microbiology, and 3)medical microbiology.

General Microbiology

BIO 404G Principles of Genetics.....3
BIO 325 Microbiology Seminar.....1
and
one course from each of the following groups:
a. BIO 580, BIO 476G, BIO 420
b. BIO 571, BIO 573, BIO 563, BIO 582
c. BIO 585, BIO 310, BIO 576

Industrial Microbiology
BIO 404G Principles of Genetics.....3
BIO 576 Industrial Microbiology.....4
BIO 310 Environmental Microbiology.....3
FSC 530 Food Microbiology.....5
BIO 325 Microbiology Seminar.....1

Medical Microbiology
BIO 404G Principles of Genetics.....3
BIO 585 Pathogenic Microbiology.....3
BIO 494G Immunobiology.....3
BIO 582 Virology.....3
BIO 325 Microbiology Seminar.....1

Zoology

The faculty in zoology offers education and training for students interested in careers in the animal sciences, preprofessional study, or preparation for study in graduate school fields. Because of its extensive training and experience in a broad range of disciplines, the faculty is able to provide education in such specialized areas as embryology, genetics, physiology, natural history, and the environmental sciences.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

Biology:
BIO 150/152 Principles of Biology I and II **and**.....6
BIO 151/153 Principles of Biology Laboratory I and II.....4
or
BIO 104/105 Animal Biology and Laboratory **and**.....4
BIO 106/107 Principles of Plant Biology and Laboratory **and**.....4
BIO 108/109 Principles of Microbiology and Laboratory.....5

Chemistry:
CHE 105/107 General College Chemistry I and II **and**.....6
CHE 115 General Chemistry Laboratory.....3
CHE 230/232 Organic Chemistry **and**.....6
CHE 231/233 Organic Chemistry Laboratory.....3-4

Mathematics:
MA 113 Calculus I **or**.....4
MA 131 Mathematics for the Life Sciences **and**....3
MA 132 Calculus for the Life Sciences.....3

Physics:
PHY 211/213 General Elementary Physics.....10

Major Requirements

Requirement One
At least three courses chosen from:
BIO 404G Principles of Genetics.....3
BIO 451G Introductory Ecology.....4
BIO 508 Evolution.....3
BIO 555 Vertebrate Zoology.....4
BIO 340 Comparative Anatomy.....5
BIO 570 Invertebrate Zoology.....4

Requirement Two
At least one hour in BIO 523, Zoology Seminar.

Requirement Three
Fifteen additional upper division (junior and senior level) credit hours earned from the biological sciences or related areas.

The college requirement of at least 14 credit hours in related areas is satisfied within the premajor and major requirements of the zoology area.

CHEMISTRY

The Department of Chemistry offers a program leading to the Bachelor of Science degree for students who intend to become professional chemists or who intend to do graduate work in chemistry. A Bachelor of Arts degree program is available for students who want greater flexibility in the selection of courses in other fields of science in addition to basic training in chemistry. The B.A. program is designed particularly for students planning to enter the professional health fields, to teach in secondary schools or to work in such varied areas as technical service, patent law or ecology. The department also offers a Master of Science and the Ph.D.

Bachelor of Arts in Chemistry

Students must fulfill University Studies and College requirements as they complete the following program:

Premajor Requirements

Chemistry: CHE 105, 107, and 115
Mathematics: MA 113 or MA 132; and MA 114

Major Requirements

Chemistry: CHE 226, 230, 231, 232, 233, 395 (six credits)*, 441G, 444G, and 572. The 10 hours associated with CHE 230, 231, 232, and 233 may be applied toward the College requirement of 39 hours at or above the 300 level.
Physics: PHY 211/213
Major Field Options: 15 credit hours to be chosen from courses at or above the 300 level in physical sciences, biological sciences, engineering, mathematics, statistics and computer science. The major field options also may include a maximum of six credits in education courses at or above the 300 level. (If CHE 550 or 552 is counted for credit, BCH 401G, 501 or 502 cannot be counted; if BCH 401G, 501 or 502 is counted for credit, CHE 550 or 552 cannot be counted. Also, either CHE 410G or 510 may be counted, but not both.)

*A total of six hours of CHE 395 is strongly recommended for students having a minimum 3.0 grade-point average in chemistry courses. Students electing CHE 395 will be required to present both written and oral reports on their work during their final semester of registration in CHE 395. Students not electing CHE 395 must substitute six hours in 400 or higher level courses in fields related to their professional goals as approved by their advisers.

To Complete the Field of Concentration: Students must complete at least 14 hours in work related to chemistry but outside the Department of Chemistry.

Certification Requirements

B.A. majors wishing to meet the requirements for American Chemical Society certification must substitute CHE 440G **and** CHE 442G for CHE 444G. These students also must include MA 213, MA 214, CHE 410G, and CHE 522 in their programs. They are strongly urged to substitute PHY 231/232 **and** PHY 241/242 for PHY 211/213. Such students also must take at least three hours of laboratory-based CHE 395 or any one of the following courses: CHE 512, 521, 533, 550, or 552.



Curriculum for B.A. in Chemistry

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	3
ENG 101 Writing I	3
MA 113 Calculus I **or**	4
MA 132 Calculus for the Life Sciences	3
University Studies/College Requirements	3
Second Semester	
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Writing II	3
MA 114 Calculus II	4
University Studies/College Requirements	3

Sophomore Year

First Semester	Hours
CHE 230 Organic Chemistry	3
CHE 231 Laboratory for CHE 230	2
PHY 211 General Elementary Physics	5
Free Elective	3
University Studies/College Requirements	3
Second Semester	
CHE 232 Organic Chemistry	3
CHE 233 Organic Chemistry Laboratory	2
PHY 213 General Elementary Physics	5
Free Elective	3
University Studies/College Requirements	3

Junior Year

First Semester	Hours
CHE 226 Analytical Chemistry	3
CHE 444G Physical Chemistry**	4
Foreign Language	3
University Studies/College Requirements	6
Second Semester	
CHE 441G Physical Chemistry Laboratory	2
Foreign Language	3
University Studies/College Requirements	3
Major Field Options*	6

Senior Year

First Semester	Hours
CHE 395 Independent Work in Chemistry	3
Electives*	4
Foreign Language	3
Major Field Options*	5
Second Semester	
CHE 395 Independent Work in Chemistry	3
CHE 572 Seminar	1
Major Field Options*	4
Foreign Language	3
University Studies/College Requirements	3

*Among the electives and major field options, at least four hours in the Field of Concentration must be taken in courses other than chemistry.

**Students desiring to take CHE 440G and CHE 442G rather than CHE 444G must take MA 213 and MA 214 (MA 214 may be taken concurrently with CHE 440G).

Bachelor of Science in Chemistry

Students must fulfill University Studies and College requirements as they complete the following program:

Premajor Requirements

Chemistry: CHE 105, 107, and 115
Mathematics: MA 113 and 114

Major Requirements

Chemistry: CHE 226, 230, 231, 232, 395*, 410G (or 510), 440G, 442G, 443G, 522, 532, 533, 572
Mathematics: MA 213, 214
Physics: PHY 231/232 and 241/242

Major Field Options: Students must complete at least six hours in courses chosen from the following: up to three additional credits in CHE 395; any CHE 500-level course **other than** CHE 510 (if substituted for CHE 410G), CHE 522, CHE 532, CHE 533, and CHE 572; BCH 401G or BCH 501 and 502. (If CHE 550 or 552 is counted for credit, BCH 401G, 501 or 502 cannot be counted; if BCH 401G, 501 or 502 is counted for credit, CHE 550 or 552 cannot be counted.)

*A total of six hours of CHE 395 is strongly recommended for students having a minimum 3.0 grade-point average in chemistry courses. Students electing CHE 395 will be required to present both a written and an oral report on their work during their final semester of registration in CHE 395. Students not electing CHE 395 must substitute six hours in 300 or higher level courses in fields related to their professional goals, as approved by their advisers.

Curriculum for B.S. in Chemistry

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	3
ENG 101 Writing I	3
MA 113 Calculus I	4
University Studies/College Requirements	3
Second Semester	
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Writing II	3
MA 114 Calculus II	4
University Studies/College Requirements	3

Sophomore Year

First Semester	Hours
CHE 226 Analytical Chemistry	3
CHE 230 Organic Chemistry	3
MA 213 Calculus III	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
Second Semester	
CHE 232 Organic Chemistry	3
CHE 231 Laboratory for CHE 230	2
MA 214 Calculus IV	3
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
University Studies/College Requirements	3

Junior Year

First Semester	Hours
CHE 532 Spectrometric Identification of Organic Compounds	2
CHE 440G Physical Chemistry	3
GER 101 Basic German*	4
University Studies/College Requirements	3
Major Field Option	3
Second Semester	
CHE 442G Physical Chemistry	3
CHE 443G Physical Chemistry Laboratory	3
CHE 572 Seminar	1
GER 102 Basic German*	4
CHE 533 Qualitative Organic Analysis Laboratory	2
Major Field Option **or** CHE 410G Principles of Inorganic Chemistry**	3

Senior Year

First Semester	Hours
CHE 395 Independent Work in Chemistry	3
GER 201 Intermediate German **or** GER 203 Scientific German*	3
Major Field Option **or** CHE 510 Advanced Inorganic Chemistry**	3
CHE 522 Instrumental Analysis	4
University Studies/College Requirements	3
Second Semester	
CHE 395 Independent Work in Chemistry	3
CHE 572 Seminar	1
GER 202 Intermediate German **or** GER 204 Scientific German*	3
Free Electives	6
University Studies/College Requirements	3

*Although German is recommended, any language course sequence which satisfies Arts and Sciences requirements may be substituted.

**Either CHE 410G or CHE 510 is required.

Minor in Chemistry

	Hours
MA 113 Calculus I **or**	4
MA 132 Calculus for the Life Sciences	3
MA 114 Calculus II	4
PHY 211/213 General Elementary Physics **or**	10
PHY 231/241 General University Physics and Laboratory **and**	5
PHY 232/242 General University Physics and Laboratory	5
CHE 105/107 General College Chemistry I and II	6
CHE 115 General Chemistry Laboratory	3
CHE 226 Analytical Chemistry	3
CHE 230/231 Organic Chemistry and Laboratory	5
CHE 232/233 Organic Chemistry and Laboratory	5
CHE 444G Physical Chemistry	4

CLASSICAL LANGUAGES AND LITERATURES

The Department of Classical Languages and Literatures offers a Bachelor of Arts degree in classics. Students selecting this degree program have four optional tracks to choose from: Greek and Latin, Greek, Latin, or Classical Civilization. The Greek and Latin option provides students with superior competence in reading and interpreting both classical languages and is the appropriate track for those preparing for graduate study in classics. The Greek option prepares students for seminary and for further study in such areas as ancient history, biblical literature, classical archaeology, comparative literature, and philosophy. The Latin option is designed for those intending to teach Latin in the schools, but is also appropriate preparation for further study in such areas as ancient history, classical archaeology, comparative literature, law, and the Middle Ages. Classical Civilization is an interdisciplinary track designed to acquaint students with classical antiquity and, in general, the cultural foundations of the Western world, but without the intensive language study that the other three options entail; under this option, individual courses of study can be designed to help prepare students for careers in such diverse areas as archaeology, the armed forces, law, the ministry, museum curatorship, and travel guidance.

Greek and Latin

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements	Hours
CLA 151/152 Elementary Greek or the equivalent	6
CLA 201/202 Intermediate Latin or the equivalent	6

Major Requirements

1. A minimum of 24 hours appropriately divided between Latin and Greek language courses.
2. A minimum of 16 hours in courses above the 100 level, 14 of which must be in courses outside the department. These 16 hours must be in courses that appropriately combine with the Latin and Greek language courses to form the 40-hour Field of Concentration.

Greek

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements	Hours
CLA 151/152 Elementary Greek or the equivalent	6

Major Requirements

1. A minimum of 18 hours in Greek language courses.
2. A minimum of 22 hours in courses above the 100 level, 14 of which must be in courses outside the department. These 22 hours must be in courses that appropriately combine with the Greek language courses to form the 40-hour Field of Concentration.

Latin

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements	Hours
CLA 201/202 Intermediate Latin or the equivalent	6

Major Requirements

1. A minimum of 18 hours in Latin language courses.
2. A minimum of 22 hours in courses above the 100 level, 14 of which must be in courses outside the department. These 22 hours must be in courses that appropriately combine with the Latin language courses to form the 40-hour Field of Concentration.

Teacher Certification Requirements

Students who wish to teach Latin in secondary schools must also meet the certification requirements outlined in the *College of Education* section of this Bulletin.

Classical Civilization

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements	Hours
CLA 101/102 Elementary Latin **or** CLA 151/152 Elementary Greek or the equivalent	6-8

Major Requirements

1. A minimum of 18 hours within the department in courses above the 100 level. Six of these hours must be in language courses.
2. A minimum of 22 hours in courses above the 100 level, at least 14 of which must be in courses outside the department. These courses will frequently be in such areas as ancient or medieval history, anthropology, archaeology, ancient or medieval art, and ancient or medieval philosophy. However, other areas are acceptable as long as the 22 hours combine appropriately with the 18 hours mentioned above to form the 40-hour Field of Concentration.

Minor Requirements

Students who wish to earn a minor from the Department of Classical Languages and Literatures can choose from the following options:

Greek: CLA 151/152 (or the equivalent) plus 12 hours in Greek language and literature courses beyond the 100 level, excluding courses in English translation.

Latin: CLA 201/202 (or the equivalent) plus 12 hours in Latin language and literature courses beyond the 200 level, excluding courses in English translation.

Classical Civilization: CLA 102 or CLA 152 (or the equivalent) plus 15 hours in the department above the 100 level. For majors in Latin or Greek, the language component of the Classical Civilization minor may not be satisfied with the language of the major but must be met with the other language.

COMPARATIVE LITERATURE

The Comparative Literature program is designed to provide a challenge for students of literature. It operates in conjunction with the language departments and a major in a language and in literature can be combined with a major in comparative literature without additional course work. Studying literature from a comparative, international viewpoint is a worthwhile and stimulating undertaking and gives a new approach to the study of literature.

Students will plan their general programs in consultation with the chairperson, who will then assign them advisers in the particular departments. Participating in the Comparative Literature program are the departments of Classical Languages and Literatures, English, French Language and Literature, Germanic Languages and Literatures, Russian and Eastern Studies, and Spanish and Italian Languages and Literatures. The program is based on the existing literature courses in the various language departments and core courses in comparative literature.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, students complete the following:

Lower Division Requirements

The student in comparative literature must demonstrate proficiency in two foreign languages.

General Requirements (6 hours)

1. CLT 300 Seminar: Comparative Literature Methodology
2. Any one of the CLT survey courses: CLT/ENG 562, 563

First Literature (18 hours)

Six literature courses above 300 level (FR 304/305, Introduction to French Literature I and II, normally excluded.)

1. The 18-hour requirement for the First Literature meets the minimum number of required courses for a foreign language major.
2. The 24-hour requirement for an English major is met by adding the 18 hours of the First Literature to the six hours of General Requirements.

Second Literature (9 hours)

Three literature courses above 200 level

1. A minimum of three hours must be in courses above 300 level.
2. If a student elects to take more courses in the Second Literature and that literature is foreign, he or she may choose electives from those courses in that discipline offered in translation.

Third Literature (6 hours)

Two literature courses above 200 level

Electives

Electives are to be chosen in consultation with the student's adviser.

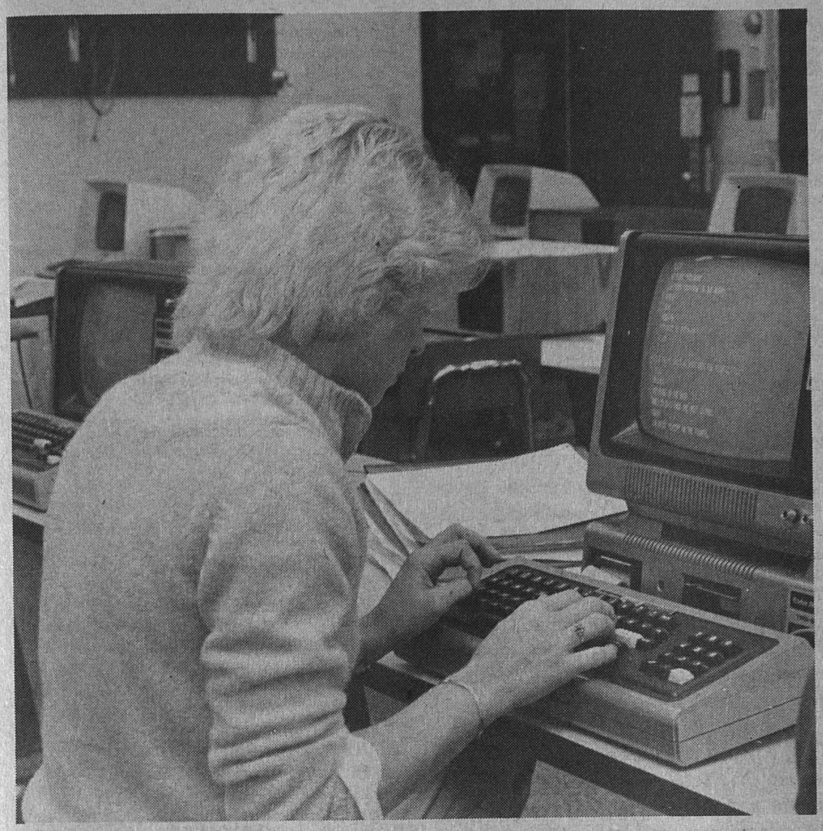
Note: All literature courses must be above the freshman level to fulfill the graduation requirements in Comparative Literature.

Courses in Comparative Literature and Literature in Translation

CLT 300 Seminar: Comparative Literature Methodology
CLT/ENG 562 Comparative Literature: 17th-19th Century
CLT/ENG 563 Comparative Literature: 20th Century
CLA 235, 261, 424G
ENG 261, 361, 363, 568, 569, 570
FR 261
GER 261
RAE 261, 380, 450G, 460G
SPI 261, 263

Minor in Comparative Literature

1. At least two literature courses in a language other than English.
2. CLT 300 Seminar: Comparative Literature Methodology
3. Two courses selected from the following: survey courses in Comparative Literature (CLT/ENG 562, 563) and other courses in literature in translation (exclusive of ENG 261, 262).
4. One additional course from the above or CLT 395 or one English literature course at the 300 level or above.



COMPUTER SCIENCE

Admissions Policy

The Computer Science program comprises a lower division component and an upper division component. Admission to the University of Kentucky and to the College of Arts and Sciences is sufficient for admission to the lower division component of the program. Five computer science courses are available to students in the lower division: CS 121, 122, 250, 270, and CS 245. Successful completion of lower division course work does **not** guarantee admission to the upper division of the Computer Science program.

Applicants seeking admission to the upper division will be judged on the criteria listed below. The number of students admitted each year depends upon the availability of resources—faculty, space, computing equipment—for the implementation of a high quality program.

Upper Division Admission

In order to be eligible for consideration for admission to the upper division, a student must fulfill the following requirements:

1. Enrollment in, or, in the case of transfer students, acceptance for admission to the University of Kentucky;

2. Completion of 60 semester hours including the University Writing requirement;

3. Completion of the required lower division courses CS 121, 122, 250, 270, CS 245, MA 113, 114, and 213, with a minimum grade-point average of 2.5;

4. Applicants from non-English speaking countries are required to take the Test of English as a Foreign Language (TOEFL) and must attain a minimum score of 550;

5. Submission of an application form, accompanied by a current official transcript and a course plan indicating that the course requirements set forth in 2. and 3. above will be satisfied prior to admission to the upper division.

Those applicants with a minimum grade-point average of 3.0 in the required lower division CS/MA courses will be admitted automatically. Applicants with a grade-point average of less than 2.5 in the lower division courses will be rejected for admission. Other applicants will be considered for admission as resources permit. A student who has been denied admission will have the right to appeal the decision to the department.

Applications must be received no later than **March 1** for admission for the fall semester and/or summer sessions. For spring semester admission, the application must be received by **October 1**.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Lower Division Requirements

Premajor Courses	**Hours**
CS 121 Computer Science I	4
CS 122 Computer Science II	4
MA 113 Calculus I	4
MA 114 Calculus II	4

Additional Lower Division Courses

MA 213 Calculus III	4
CS 245 Introduction to Logic and Discrete Computer Mathematics	3
CS 250 Computer Organization	3
CS 270 File Processing	3

Upper Division Requirements

Upon admission to the upper division, students must complete the following requirements:

Requirement One	**Hours**
STA 281 Probability and Statistics Using Interactive Computer Techniques*	3
CS 340 Discrete Structures in Computer Science	3
CS 370 Data Structures	3

*Option I students may substitute STA/MA 320 and STA 321.

Requirement Two

For Options I, II, and III	
PHY 231/232 General University Physics	8
PHY 241/242 General University Physics Laboratory	2
CS/MA 321 Introduction to Numerical Methods	3
CS 470G Systems Software	3
For Option IV	
ECO 201/202 Principles of Economics I and II	6
ACC 201/202 Principles of Accounting	6

Requirement Three

Students must complete one of the following options:

Option I: Scientific Applications Specialization	**Hours**
MA 322 Matrix Algebra and Its Applications	3
CS/MA 422 Numerical Solutions of Equations	3
Additional upper-division computer science courses	6
Additional upper-division MA or STA courses	6

(Students taking STA/MA 320 and STA 321 in place of STA 281 may include STA 321 in this requirement.)

Option II: Software Specialization	**Hours**
CS 420G Compilers for Algorithmic Languages	3
CS 440 Foundations of Computing	3
Additional upper-division CS courses including at least two of the following:	
EE 480G, CS 450G, 505, 580	12

Option III: Hardware Specialization	**Hours**
CS 420G Compilers for Algorithmic Languages	3
CS 440 Foundations of Computing	3
EE 480G Logical Design	3
EE 581 Advanced Logical Design	3
EE 583 Microprocessors	3
CS/EE 587 Microcomputer Systems Design	3

Option IV: Business Specialization	**Hours**
CS 505 Database Management Systems	3
CS 580 Algorithm Design	3
MA 416G Principles of Operations Research I	3

ACC 301 Intermediate Accounting I.....3
FIN 300 Corporation Finance.....3
MGT 301 Business Management.....3
MKT 300 Marketing Management.....3
Additional upper division CS course.....3

Cooperative Education

Qualified students who major in computer science may participate in the Mathematical Sciences Cooperative Education Program which provides the opportunity for alternate semesters of academic study and full-time employment in business or industry. Guidelines and application forms are available in the Mathematical Sciences Co-op Program Office, 901 Patterson Office Tower.

Minor in Computer Science

CS 121 Computer Science I.....4
CS 122 Computer Science II.....4
CS 245 Introduction to Logic and Discrete Computer Mathematics.....3
CS 250 Computer Organization.....3
CS 270 File Processing.....3
CS 370 Data Structures.....3
plus three additional hours in computer science.....3

ECONOMICS

The Department of Economics provides theoretical and applied courses in widely diverse areas including urban problems, labor, money and banking, international trade, comparative economic systems, and economic history. It offers the opportunity for the student to pursue a relatively applied area within the framework of a liberal arts education.

The department offers programs of study leading to different undergraduate degrees—a Bachelor of Arts or Bachelor of Science in the College of Arts and Sciences and a Bachelor of Science in Business and Economics in the College of Business and Economics. The main distinction lies in the required supporting courses in each college.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

ECO 201/202 Principles of Economics I and II.....6
STA 291 Statistical Method.....3

Major Requirements **Hours**

Students must complete a minimum of 18 credit hours of advanced work in economics, including:
ECO 391 Economic and Business Statistics.....3
ECO 487G Intermediate Macroeconomic Theory....3
ECO 488G Intermediate Microeconomic Theory.....3
One seminar course is recommended.

To complete the Field of Concentration: At least 14 hours of nonfreshman, related courses outside the department, including at least six credit hours in each of two other departments. Courses should be judged as having relevance to the total academic program developed by the student and the adviser. For example, certain courses from anthropology, behavioral sciences, computer science, history, mathematics, philosophy, political science, psychology, sociology and statistics may be appropriate.

Note: The adviser for this Arts and Sciences major is a member of the College of Business and Economics faculty.

Minor in Economics

Hours

ECO 201 Principles of Economics I.....3
ECO 202 Principles of Economics II.....3
ECO 487G Intermediate Macroeconomic Theory **or**.....3
ECO 488G Intermediate Microeconomic Theory.....3
Three additional economics courses at the 300-level or above.....9

ENGLISH

The Department of English offers a wide variety of courses in English and American literature as well as courses in comparative literature, linguistics, folklore, film, creative writing, and composition. Undergraduate majors may also choose a curriculum which leads to a teaching certificate.

Both majors and nonmajors will find many courses which offer opportunities to deepen their acquaintance with their own culture and its heritage, to enlarge their understanding of the human condition, and to develop their capacity to use and appreciate their own language.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

ENG 221 Survey of English Literature I.....3
and **two** of the following:
ENG 222 Survey of English Literature II.....3
ENG 251 Survey of American Literature I.....3
ENG 252 Survey of American Literature II.....3
(Exceptions are made only by the approval of the Director of Advising.)

Major Requirements

English Courses (24 hours):
1. **Core course:**
ENG 320 Introduction to Literary Study.....3
2. **One major author course:**
ENG 421G Chaucer.....3
ENG 425G Shakespeare Survey.....3
ENG 426G Shakespeare Studies.....3
ENG 428G Milton.....3
3. **One course in English Literature before 1800:**
ENG 422G English Renaissance: 1500-1600.....3
ENG 423G English Renaissance: 1600-1660.....3
ENG 430G The Restoration and Early 18th Century: 1660-1730.....3
ENG 431G The Later 18th Century: 1730-1780.....3
ENG 440G The 18th Century English Novel.....3
ENG 448G English Drama.....3
ENG 519 Introduction to Old English.....3
ENG 420G Studies in Medieval English Literature.....3
4. **Five courses (15 hours) as specified in one of the several departmental plans:**
English Literature
American Literature
Modern Literature
Film
Folklore
Writing
Imaginative Writing
English Education
Special Advisory (for areas of interest not covered by other plans; approval by Director of Advising is required)

Detailed descriptions of the various plans are available in the English Advising Office, 1227/1229, Patterson Office Tower. The student should consult with the English Advising Office in planning the Field of Concentration.

Note: With the approval of the Director of Advising, special topics or genre courses may satisfy specific requirements where content is appropriate.

To complete the Field of Concentration: Students must complete at least 15 hours in nonfreshman courses from related areas outside English, selected with the approval of their advisers.

Minor in English

The minor consists of a total of 18 hours, of which at least 12 hours must be at or above the 300 level. The hours are to be distributed as follows:
1. Two of the following courses (six hours):
ENG 221 Survey of English Literature I
ENG 222 Survey of English Literature II
ENG 251 Survey of American Literature I
ENG 252 Survey of American Literature II
ENG 320 Introduction to Literary Study
2. One course in Shakespeare (three hours)
3. Three more courses (nine hours) selected from the department's offerings (excluding all 100-level courses and ENG 203, 204, 205, 261, 262).

FRENCH LANGUAGE AND LITERATURE

As a branch of the liberal arts curriculum, the Department of French Language and Literature has as one of its fundamental aims to broaden and deepen the student's acquaintance with the French-speaking world through the medium of its language and literature.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

Requirement One
FR 203 Elementary French Conversation and Composition.....2
FR 304 Introduction to French Literature I.....3
FR 305 Introduction to French Literature II.....3
Requirement Two
A minimum of six credit hours in a second foreign language.
Requirement Three
A minimum of six credit hours in Western European history.
Requirement Four
A minimum of three credit hours in a second literature (if not English or American, either in the original foreign language or in translation).

Requirement Five

A minimum of three credit hours in the history of Western European art or music.

Major Requirements	Hours
Option I (Language Oriented)	
FR 306 Intermediate French Composition	3
FR 412 Advanced French Conversation	3
FR 406 Advanced French Grammar and Composition	3
FR 407 French Phonetics	3
One French literature course at the 400 or 500 level	3
One additional French course at the 300, 400, or 500 level (excluding FR 300, FR 553, and courses in translation)	3
Option II (Literature Oriented)	
FR 306 Intermediate French Composition	3
FR 412 Advanced French Conversation	3
Four French literature courses at the 400 or 500 level	12
Option III (Topical Major in French Studies)	
Individually constructed program for special needs or interests; contact Director of Undergraduate Study in French.	

To complete the Field of Concentration: Students must complete at least 14 credit hours of nonfreshman courses outside the department, selected with the help of the department academic adviser from courses clearly related to the major.

Teacher Certification Requirements

The requirements for teacher certification in secondary foreign languages are outlined in the *College of Education* section of this Bulletin.

Minor in French

The minor in French consists of a minimum of 18 hours in French language and literature courses beyond FR 202 and excluding FR 553 and literature courses in translation.

FR 203 Elementary French Conversation and Composition	2
FR 300 Oral Practice in French	1
FR 306 Intermediate French Composition	3
Four more courses at the 300, 400, or 500 level	12

GEOGRAPHY

Geography analyzes and explains the location of and interrelationships between human and physical features of the earth's surface and atmosphere. Geographers are also interested in how and why features and their locations change over time. Geography is, therefore, both a social and natural science and because its subject matter is people and their environments, it serves as a bridge between the physical and cultural worlds.

Geography is useful for those wishing to enter cartographic and technical positions, teaching, urban and regional planning, location analysis, marketing, trade and transportation analysis, economic and environmental development, private business, government administration, and international affairs.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student must complete the departmental requirements in geography. Students seeking a degree in geography can pursue any one of five program concentrations or "tracks" which best prepare them for individual career goals. The concentrations are: 1) geographic techniques, 2) human geography, 3) planning, 4) international area studies, and 5) general geography. The premajor requirements are the same for each concentration.

Premajor Requirements	Hours
GEO 130 Weather, Climate, and Water **or**	3
GEO 132 The Earth's Physical Landscapes	3
GEO 152 Regional Geography of the World	3
GEO 252 Human Use of the Earth	3

Major Requirements	
GEO 300 Geographic Research and Field Techniques	4
GEO 305 Elements of Cartography	3
GEO 310 Quantitative Techniques in Geography	3

Additionally, students must have 12 hours from anthropology, economics, political science, psychology, and sociology.

Concentrations

Geographic Techniques Concentration

Core courses (minimum of 12 hours)	
GEO 405G Cartographic Production and Design	3
GEO 415 Map Interpretation	3
GEO 505 Practicum in Cartography	3
GEO 506 Introduction to Computer Cartography	3
GEO 507 Remote Sensing in Geography	3
Additional courses (minimum of 6 hours)	
GEO 355 Economic Geography	3
GEO 360 Urban Geography	3
GEO 410G Planning Theory	3
GEO 430G Urban Land Use Planning	3
GEO 545 Transportation Geography	3
GEO 550 Geography of Energy and Natural Resources	3
GEO 560 Independent Work in Geography*	3
GEO 565 Topics in Geography*	3

Related Areas (14-21 hours): Must include one course in mathematics or computer science or statistics. STA 291 or STA 370 is highly recommended. Selected examples include the following: GLY 513, CE 215, CE 511, JOU 487, MA 322, and LIS 530.

Human Geography Concentration

Core courses (minimum of 12 hours)	
GEO 355 Economic Geography	3
GEO 360 Urban Geography	3
GEO 475G Health and Disease Patterns	3
GEO 485G Social Geography	3
GEO 490G American Landscapes	3
GEO 544 Population Geography	3
Additional courses (minimum of 6 hours)	
GEO 506 Introduction to Computer Cartography	3
GEO 542 Political Geography	3
GEO 545 Transportation Geography	3
GEO 546 Spatial Development and Policy	3
GEO 550 Geography of Energy and Natural Resources	3
GEO 560 Independent Work in Geography*	3
GEO 565 Topics in Geography*	3

Related Areas (14-21 hours): Courses in economics, philosophy, political science, sociology, statistics, and other areas with adviser's consent.

General Geography Concentration

A minimum of 18 hours of upper division courses in regional and topical geography. Courses to be selected with adviser's consent.

Related Areas (14-21 hours): Courses in anthropology, economics, English, geology, history, sociology, political science, and other areas with adviser's consent.

Planning Concentration

Core courses (minimum of 15 hours)	
GEO 285 Introduction to Planning	3
GEO 410G Planning Theory	3
GEO 420G Urban and Regional Planning	3
GEO 430G Urban Land Use Planning	3
GEO 450G Planning Research Methods and Writing	3
Additional courses (minimum of 6 hours)	
GEO 355 Economic Geography	3
GEO 475G Health and Disease Patterns	3
GEO 480 Planning Internship	3
GEO 485G Social Geography	3
GEO 506 Introduction to Computer Cartography	3
GEO 507 Remote Sensing in Geography	3
GEO 540 Urban Geography	3
GEO 544 Population Geography	3
GEO 550 Geography of Energy and Natural Resources	3
GEO 560 Independent Work in Geography*	3
GEO 565 Topics in Geography*	3

Related Areas (14-21 hours): Courses in anthropology, architecture, economics, political science, history, and other areas with adviser's consent.

International Area Studies Concentration

Core Courses (minimum of 12 hours)	
GEO 222 World Urbanization	3
GEO 260 Third World Development	3
GEO 355 Economic Geography	3
GEO 320 Geography of the United States and Canada	3
GEO 542 Political Geography	3
GEO 544 Population Geography	3
GEO 550 Geography of Energy and Natural Resources	3
Additional courses (minimum of 6 hours)	
GEO 324 Geography of Central and South America	3
GEO 326 Geography of Europe	3
GEO 336 Geography of Sub-Saharan Africa	3
GEO 529 Geography of East Europe, Soviet Union, and China	3
GEO 330 Geography of South Asia	3
GEO 332 Geography of Southeast Asia	3
GEO 560 Independent Work in Geography*	3
GEO 565 Topics in Geography*	3

Related Areas (14-21 hours): Courses in anthropology, economics, history, sociology, statistics, political science, and other areas with adviser's consent.

*Upon adviser's consent.

Minor in Geography

The minor in geography requires a minimum of 18 hours to be selected from the following:
Three hours from: GEO 210, 241, 251
Three hours from: GEO 252, 355
Six hours from: GEO 305, 310, 407, 506, 507
Six hours in any two regional and topical courses.

GEOLOGICAL SCIENCES

The geological sciences are concerned with the Earth, its composition, the processes which operate within it and upon its surface, and its history. Students undertake the study of geological sciences in the classroom, laboratory, and field.

Students in geological sciences must choose an emphasis—geology, geophysics, or environmental geoscience—within the major. Students earn the Bachelor of Science in this program.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Geological Sciences with Geology Emphasis

Premajor Requirements	Hours
GLY 101 Physical Geology	3
GLY 111 Laboratory for Physical Geology	1
GLY 102 Historical Geology	3
GLY 112 Laboratory for Historical Geology	1
CHE 105/107 General College Chemistry I and II	6
CHE 115 General Chemistry Laboratory	3
MA 113/114 Calculus I and II	8

Core Courses	Hours
GLY 225 Field Methods in Geology	3
GLY 243 Geological Map Interpretation	2
GLY 260 Mineralogy I	3
GLY 261 Mineralogy II	3
GLY 301 Introduction to Paleontology	3
GLY 365 Chemistry and Physics of the Earth	3
GLY 420G Structural Geology	3
GLY 423 Field Work in Regional Geology	6
GLY 450G Stratigraphy and Sedimentation	3
GLY 461 Igneous and Metamorphic Petrology	4
GLY 470 Senior Seminar (repeated once)	2
GLY 540 Advanced General Geology	3
One additional GLY course at or above the 200 level	3

Related Fields

STA 291 Statistical Method **or**	3
STA 370 Introduction to Statistics	4
CS 221 First Course in Computer Science for Engineers	2
A 200-level course sequence in physics	8-10
If necessary to meet the 14-hour requirement, one additional course, to be chosen with the consent of the adviser	1

Geological Sciences with Geophysics Emphasis

Premajor Requirements	Hours
GLY 101 Physical Geology	3
GLY 111 Laboratory for Physical Geology	1
GLY 102 Historical Geology	3
GLY 112 Laboratory for Historical Geology	1
CHE 105/107 General College Chemistry I and II	6
MA 113/114 Calculus I and II	8
CS 221 First Course in Computer Science for Engineers	2

Major Requirements

GLY 225 Field Methods in Geology	3
GLY 260 Mineralogy I	3
GLY 420G Structural Geology	3
GLY 423 Field Work in Regional Geology	6
GLY 424 Field Report in Regional Geology	1
GLY 450G Stratigraphy and Sedimentation	3
GLY 571 Application of Potential Methods in Applied Geophysics	3
GLY 572 Seismology and Seismic Exploration	3
PHY 231/232 General University Physics	8
MA 213/214 Calculus III and IV	7
MA 322 Matrix Algebra and Its Applications	3

and

Three additional courses with the consent of advisers. Students with a grade-point average of at least 3.0 and the consent of their advisers are encouraged to undertake an undergraduate research project (written report required) in lieu of specific course work.

Geological Sciences with Environmental Geoscience Emphasis

Premajor Requirements	Hours
GLY 101 Physical Geology	3
GLY 111 Laboratory for Physical Geology	1
GLY 102 Historical Geology	3
GLY 112 Laboratory for Historical Geology	1
CHE 105/107 General College Chemistry I and II	6
BIO 104 Animal Biology	3
BIO 106 Principles of Plant Biology	3
MA 123 Elementary Calculus* **or**	3
MA 113 Calculus I	4
PHY 151/152 Introduction to Physics*	6
ECO 101 Contemporary Economic Issues **or**	3
ECO 201 Principles of Economics I	3

*These courses do not meet the requirements of the geology emphasis or geophysics emphasis. Should a student wish to transfer to one of these courses of study, MA 113 and a 200-level sequence in physics would be required.

Core Courses	Hours
GLY 225 Field Methods in Geology	3
GLY 242 Environmental Geology	3
GLY 243 Geological Map Interpretation	2
GLY 260 Mineralogy I	3
GLY 262 Elementary Petrology	3
GLY 341 Landforms	3
GLY 420G Structural Geology	3
GLY 430 Environmental Geohydrology	3
GLY 470 Senior Seminar (repeated once)	2
GLY 540 Advanced General Geology	3
Two additional geoscience courses from the 400 or 500 level	6

Related Fields

STA 291 Statistical Method **or**	3
STA 370 Introduction to Statistics	4
CS 221 First Course in Computer Science for Engineers	2
BIO 451G Introductory Ecology	4
GEO 251 Climates of the World	3
AGR 366 Fundamentals of Soil Science	3
One additional course to be chosen with the consent of the adviser	3

Minor in Geology

	Hours
GLY 101 Physical Geology **and**	3
GLY 111 Laboratory for Physical Geology **or**	1
GLY 240 Elementary Geology for Engineers	4
GLY 102 Historical Geology	3
GLY 112 Laboratory for Historical Geology	1
GLY 225 Field Methods in Geology	3
GLY 260 Mineralogy I	3
Plus six more hours	6

GERMANIC LANGUAGES AND LITERATURES

The aim of the Department of Germanic Languages and Literatures is to develop students' German language skills and to provide them with an understanding of the culture and literature of the German-speaking countries. The major in German is offered, leading to the Bachelor of Arts degree. Also available is a limited number of Scandinavian courses.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements	Hours
GER 101/102 Basic German	8
GER 201/202 Intermediate German	6
GER 205 Reading and Writing Practice	2
GER 206 Oral Practice	2

Major Requirements	Hours
GER 307/308 Intermediate German Composition and Conversation I and II	6
GER 311 Introduction to German Literature: Themes	3
GER 312 Introduction to German Literature: Popular Forms	3
At least 15 hours selected from:	
GER 310 German for International Business and Professions	3
GER 315 Masterpieces of German Literature I	3
GER 316 Masterpieces of German Literature II	3
GER 317 History of German Culture	3
GER 319 Contemporary German Literature and Culture	3
GER 361 German Cinema	3
GER 415G Major German Authors*	3-6
GER 416G Genres of German Literature*	3-6
GER 420G Special Studies in German Literary and Cultural History*	3-6
GER 507 Advanced German Composition and Conversation	3
Upon consultation with the adviser, certain 500-level courses may be substituted for two of the above.	

*May be repeated once.

In addition to the requirements listed above, students must have six to eight hours in a second language.

To complete the Field of Concentration: Students must complete 14 hours of related courses beyond the 100 level. With the aid of an adviser, these courses should be selected from the following areas: anthropology, art history, comparative literature, economics, English, French, Greek, geography, history, Italian, Latin, linguistics, music, philosophy, political science, religious studies, Russian and Eastern Studies, sociology, Spanish, theatre, and women's studies.

Teacher Certification Requirements

The requirements for teacher certification in secondary foreign languages are outlined in the *College of Education* section of this Bulletin.

Minor in German

GER 101/102 Basic German	8
GER 201/202 Intermediate German	6
GER 205 Reading and Writing Practice	2

GER 206 Oral Practice.....2
and
Course work at the 300 level or above, including GER 307.....12

HISTORY

The History Department offers to all students a set of significant courses through which an understanding of the growth of civilizations and different social orders can be obtained. The department program is also designed to assure that undergraduate and graduate majors will gain an appreciation of the complexities of the historical process and will examine the dominant historical issues in particular fields of interest. Training in critical thinking and self-expression is crucial to the discipline.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

HIS 104 A History of Europe to 1713.....3
HIS 105 A History of Europe, 1713 to the Present.....3
HIS 108 History of the United States Through 1865.....3
HIS 109 History of the United States Since 1865..3

Major Requirements

1. A minimum of 21 credit hours above the 100 level, of which at least half must be taken in 300-599 level courses.

At least six hours within the Field of Concentration must be in the history of nations or civilizations other than the student's primary area of interest, whether the primary area of interest be defined as American history, European history, or the history of the non-Western world. In addition, of the 21 hours required for the major (excluding HIS 316), no more than 15 hours may be concentrated either in the period before or in the period after 1789.

2. HIS 316 Junior Seminar: Historical Method and Literature. (Strongly recommended for the first semester of the junior year.)

To complete the Field of Concentration: Students must complete 14 credit hours of nonfreshman, related courses outside the department, selected with the approval of the student's adviser.

All course work should be selected with the approval of the student's adviser.

Note: French or German is strongly recommended as the foreign language in Area IV.

Minor in History

A minor in history provides training in critical thinking and expression and a valuable perspective on the varieties of civilizations and modes of human behavior. The minor requires a minimum of 18 hours, to be distributed as follows:

1. A six-hour sequential introduction to the history of a civilization or a nation. This may be selected from:
HIS 104/105 History of Europe
HIS 106/107 Western Culture: Science and Technology I and II
HIS 108/109 History of the United States
HIS 202/203 History of the British People
HIS 229/230 The Ancient World
HIS 247/248 History of Islam and Middle East Peoples
HIS 270/271 Middle Ages
HIS 285/286 History of Russia
HIS 295/296 East Asia

2. Twelve hours of course work at or above the 300 level, at least six hours of which must be at the 500 level.

No more than 12 of the 18 hours required may be in any one of the subfields of American history, European history, or history of the non-Western world.

LATIN AMERICAN STUDIES

The Latin American Studies program provides an integrated, interdisciplinary approach to the study of a geographic and cultural region. The core course (LAS 201), the senior course in directed research, and careful faculty supervision are essential components of the degree program. Stuents choose, however, from a variety of courses in anthropology, economics, geography, history, political science, the Spanish language and Spanish American literature.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements

1. Completion of three hours of Spanish (or an appropriate alternative language approved by the LAS Advisory Committee) beyond the second-year college level. If Spanish is used, the hours must be chosen from language skills courses (SPI 210, 211, 311 or 314). Equivalent language preparation may be substituted for the above.

2. LAS 201 Introduction to Latin America

Major Requirements

Twenty-one hours chosen, as indicated, from the following groups:

Hours

1. LAS 401 Directed Research in Latin American Studies.....3
(Required of all majors; taken during the senior year)

2. **Group A** (3-6 hours)
ANT 420G Contemporary Latin American Cultures.....3
GEO 324 Geography of Central and South America.....3

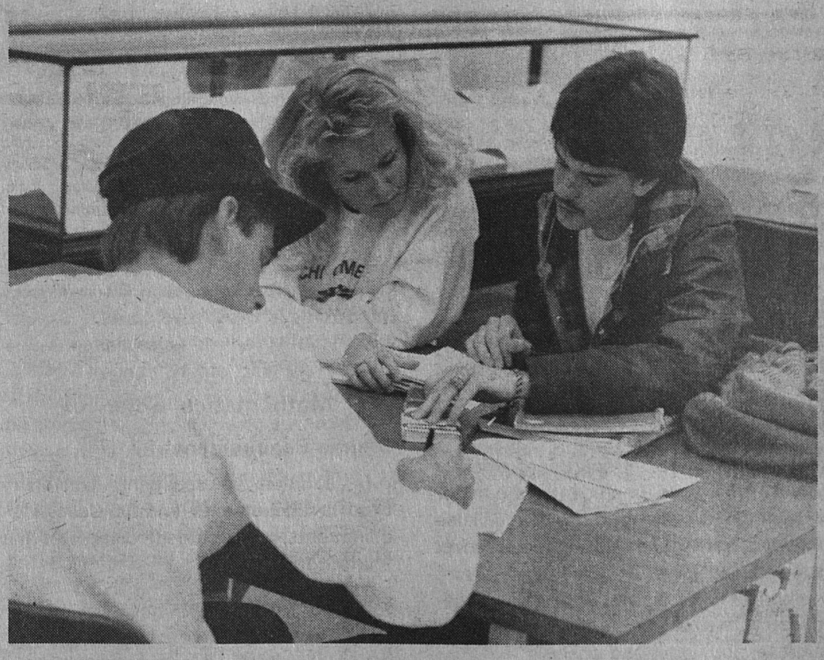
Group B (6-9 hours)
HIS 586 Modern Mexico.....3
HIS 587 Modern Venezuela, Columbia and the Latin Caribbean.....3
PS 428G Latin American Government and Politics.....3
PS 538 Latin American Relations.....3

Group C (3-6 hours)
Note that options in Group C have a course or equivalency prerequisite.

Language:
SPI 310 Stylistic Studies in Spanish.....3
SPI 311 Advanced Spanish Conversation.....1
SPI 501 Spanish Phonetics, Pronunciation and Phonemics.....3
SPI 502 Survey of the Spanish Language.....3
SPI 503 Structure of the Spanish Language.....3
SPI 504/505 Advanced Spanish Grammar and Composition.....6

Literature-Civilization:
SPI 242 Intermediate Spanish IV (reading approach).....3
Any of the Spanish American options:
SPI 215 Culture of Mexico.....3
SPI 314 Civilization of Spanish America.....3
SPI 322 Life, Thought and Literature of Spanish America.....3
SPI 438G Literature of Social Protest in Spanish America.....3
SPI 541 Spanish American Short Story.....3

To complete the Field of Concentration: Students must complete 22 hours chosen from the following areas: agriculture, anthropology, architecture, art, communications, economics, education, geography, geology, history, linguistics, literature and language, philosophy, political science, psychology, and statistics. Fourteen of these hours must be selected from non-Latin American courses.



LINGUISTICS

Linguistics is an interdisciplinary program combining resources from languages, anthropology, psychology, computer science and philosophy to develop an understanding of the nature and implications of language. The Linguistics program provides solid foundations in phonological and grammatical analysis, as well as in the structure and history of a particular language.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements

Students must complete the fourth semester of a foreign language.

Major Requirements

Core Courses:

1. LIN 211 (or, with permission, ANT 215 or ENG 414G)
2. LIN 515 and 516
3. One course in the structure of a language (ENG 512, GER 531, SPI 503)
4. One course in the history of a language (FR 603, with special permission, GER 532, SPI 502, or ANT 519)

Correlated Courses:

At least three additional courses selected from the core courses and from the following: ANT 518, CS 575, ENG 510, 519, FR 407, 516, PHI 520, 565, PSY 529, SPI 501, LIN 395; and with special permission, ANT 614, FR 603, SPI 601, 602.

To complete the Field of Concentration: Students must complete 24 hours of nonfreshman, related courses normally chosen from such disciplines as anthropology, communications, computer science, mathematics, foreign language, psychology and symbolic logic.

Note: Additional work in the language of the premajor and a year or more of an ancient or non-Indo-European language are recommended.

Minor in Linguistics

The minor in linguistics requires 18 hours of course work to be selected as follows:

1. An introductory course: LIN 211, ANT 215, ENG 414G
2. At least two of the following: LIN 515, LIN 516, LIN 519
3. At least one of the following: ENG 512, GER 531, SPI 503
4. Additional courses from the following to make up the total of 18 hours: ANT 518, ENG 519, FR 516, GER 532, SPI 501, SPI 502, SPI 506, ENG 510, CS 575, PHI 565, PSY 529 and courses listed under 2. and 3. above.

MATHEMATICS

The Mathematics Department offers a variety of courses for students who major in mathematics and for those who will use mathematics in other fields. Offerings cover such applied areas as operations research, numerical analysis, and differential equations, as well as the traditional fields of algebra, topology, and analysis.

The department offers two programs in mathematics leading to the Bachelor of Science degree. Students may major in mathematics or mathematical sciences. The requirements for these programs are outlined below.

Mathematics

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

MA 113/114 Calculus I and II.....8
CS 121 Computer Science I.....4
or equivalent

Major Requirements

MA 213/214 Calculus III and IV.....7
MA 322 Matrix Algebra and Its Applications.....3

Students must complete 18 hours in upper division mathematics courses (300 level or above), subject to the following conditions:

a. The courses may not include MA 322, MA 341, MA 371, MA 410G, or MA 432G.

b. The courses must include **two** of the following:
MA 351 Elementary Topology I.....3
MA 352 Elementary Topology II.....3
MA 361 Elementary Modern Algebra I.....3
MA 362 Elementary Modern Algebra II.....3
MA 471G Advanced Calculus I.....3
MA 472G Advanced Calculus II.....3

c. Students must complete at least **one** of the following course sequences:
MA 351/352 Elementary Topology I and II.....6
MA 361/362 Elementary Modern Algebra I and II..6
MA 471G/472G Advanced Calculus I and II.....6
MA 481G/483G Differential Equations I and II.....6
CS/MA 321 and CS/MA 538 Introduction to Numerical Methods and Numerical Analysis II.....6
CS/MA 416G and MA/STA 417G Principles of Operations Research I and II.....6
MA 433G Introduction to Complex Variables **and**.....3
MA 485G Fourier Series and Boundary Value Problems.....3

To complete the Field of Concentration: Students must complete 14 hours of nonfreshman, related courses outside mathematics. Any field to which mathematics has been significantly applied is acceptable. Examples: physics, chemistry, biology, logic, statistics, computer science, economics, and engineering.

Note: Students are reminded that they complete 24 hours in the Field of Concentration at the 300 level or above. Information on programs for students with special career interests is available from the department office.

Mathematical Sciences

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

CS 121/122 Computer Science I and II.....8
MA 113/114 Calculus I and II.....8

Sophomore Core Requirements

MA 213 Calculus III.....4
STA 281 Probability and Statistics Using Interactive Computer Techniques.....3
MA 214 Calculus IV **or**.....3
MA 240 Introduction to Discrete Computer Mathematics.....3
CS 270 File Processing.....3

Upper Division Core Requirements

MA 322 Matrix Algebra and Its Applications.....3
MA/STA 320 Introductory Probability.....3
CS/MA 321 Introduction to Numerical Methods....3
STA 32l Basic Statistical Theory I.....3
STA 422G Basic Statistical Theory II.....3
CS/MA 416G Principles of Operations Research I..3
one of the following:
MA 471G Advanced Calculus I.....3
MA 361 Elementary Modern Algebra I.....3
MA 433G Introduction to Complex Variables.....3

Additional Upper Division Requirements

Students must complete three additional approved courses in the mathematical sciences at or above the 300 level. These courses should be chosen so that the major completes at least **one** of the following sequences:
MA 481G/483G Differential Equations I and II.....6
MA 411G/511 Models in Mathematical Biology and Models in Mathematical Biology II.....6
CS/MA 321/538 Introduction to Numerical Methods and Numerical Analysis II.....6
CS/MA 416G and MA/STA 417G Principles of Operations Research I and II.....6
CS 370/450G Data Structures and Fundamentals of Programming Languages.....6

Approved courses in the mathematical sciences include those courses in computer science, engineering mechanics, mathematics, and statistics which are not of a service nature. Specifically excluded are: MA 341, MA 371, MA 410G, MA 501, MA 502, STA 370, STA 381, and STA 424G. A substitute sequence may be approved upon petition by the student.

Related Courses

The student must complete nine additional hours in nonfreshman courses related to the mathematical sciences. The Director of Undergraduate Studies for the Mathematical Sciences has a list of approved and suggested courses.

Teacher Certification Requirements

All students must apply for and be admitted to the appropriate Teacher Education Program in the College of Education to complete a program leading to teacher certification. The general requirements for teacher certification are outlined in the *College of Education* section of this Bulletin.

Students interested in teacher certification in secondary mathematics should work closely with advisers to ensure that all requirements are met. Students must complete MA 113 and MA 114, Calculus I and II. Students are strongly encouraged to contact the College of Education for possible changes in certification requirements.

Cooperative Education

Qualified students who major in mathematics may participate in the Mathematical Sciences Cooperative Education Program which provides the opportunity for alternate semesters of academic study and full-time employment in business or industry. Guidelines and application forms are available in the Mathematical Sciences Co-op Program Office, 901 Patterson Office Tower.

Minor in Mathematics

Students who choose to minor in mathematics must complete the following:

1. MA 113/114 Calculus I and II **and**.....8
   MA 213 Calculus III.....4
   or equivalent
2. Nine additional hours of mathematics courses numbered greater than 213 (except 215). Possible courses include: MA 214, MA 261, MA 262, MA 320, MA 321, MA 410G, MA 411G, MA 415G, MA 416G, MA 432G, MA 433G.

MILITARY SCIENCE (Army ROTC)

The Army Reserve Officers' Training program at the University of Kentucky is open to both men and women and follows a general military science curriculum which is normally four years in length. However, the program may also be completed in two years. An academic major in military science is not offered. The primary objective of the program is to commission the future leadership of all branches of the Active Army, the Army Reserve, and the Army National Guard.

Scholarships

Students interested in Army ROTC scholarships should refer to the *Student Financial Aid, Awards, and Benefits* section of this Bulletin.

Academic Program

Successful completion of 20 credit hours of military science course work while simultaneously completing undergraduate or graduate degree requirements qualifies a student to be commissioned as a Second Lieutenant in the United States Army. The following courses are required to complete this program: MS 101, MS 102, MS 201, MS 202, MS 301, MS 302, MS 341, and MS 342. In addition to completing these courses, cadets attend a six-week advanced camp, normally during the summer between their junior and senior years.

An alternative two-year program is also available for students who have at least two academic years remaining until graduation and have not taken or completed the MS 100 and MS 200 level courses. This program is particularly suited to the community college student who is transferring to the University of Kentucky. Interested students should contact the Professor of Military Science concerning the six-week camp, Camp Challenge, conducted at Fort Knox, Kentucky, each summer. Successful completion of the camp enables students to enroll in MS 300-level courses and complete the precommission program in two years.

Under certain conditions, veterans or students who have completed Army basic training are also eligible to complete the program in a two-year period. Members of the U.S. Army Reserve or Army National Guard may also directly enroll in the Advanced Course and participate in the Simultaneous Membership program.

The Basic Course classes (100 and 200 level) are orientational in content and deal with the role of the United States Army within the U.S. government. American military history, small unit organizations/operations, and military geography/map reading are also addressed. No military obligation is incurred by the completion of these courses.

Advanced Course classes (300 level) focus on leadership, management, and command/staff responsibilities within military organizations and prepare the student for the role as a leader in the United States Army. All upper division Army ROTC students receive $100 per month tax-free subsistence pay during the academic year. In addition, students are paid approximately $700 during the summer while attending the Basic and/or Advanced Camp.

Leadership Development (laboratory) periods are scheduled during the academic year and meet at the call of the Professor of Military Science. These periods focus on adventure-type training (e.g., rubber rafting, canoeing, orienteering, rappelling, survival training, etc.) and are offered, subject to availability of equipment and facilities, to provide the student with an opportunity to develop leadership skills, organizational abilities, and confidence.

Professional development and enrichment opportunities are also available to the interested student in the form of the Kentucky Rangers, Pershing Rifles Drill Team, and the Scabbard and Blade Honorary Society.

Army ROTC incorporates the dimension of leadership into the academic curriculum and provides training and experience which can be of value in any profession.

PHILOSOPHY

Philosophy encourages critical and systematic inquiry about fundamental questions of value, knowledge, and existence. The courses are designed to encourage discussion so that students may actively engage in the philosophical investigation of problems. The program may be tailored to special interests whether the Bachelor of Arts is viewed as a terminal degree in a liberal arts education; as preparation for graduate work in philosophy or other fields; or as preprofessional training for law, medicine, or the ministry.

Prior to the advance registration period each semester, the Department of Philosophy publishes information on courses (200 level and above) to be offered for the next semester. This information includes details on course topics and materials to be used in each course. Students are encouraged to obtain this information to assist them in course selection.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

1. PHI 260 History of Philosophy I: From Greek Beginnings to the Middle Ages.....3
   PHI 270 History of Philosophy II: From the Renaissance to the Present Era.....3
2. French or German is highly recommended. Greek is recommended if the student plans to concentrate on ancient philosophy. Latin is recommended if the student plans to concentrate on medieval philosophy.

Major Requirements

The major in philosophy requires a minimum of 21 hours of course work above the 200 level. The following courses must be included in the 21 hours:

1. PHI 320 Symbolic Logic I.....3
2. At least **one** course chosen from **each** of the following groups:

Group A

PHI 503 Topics in Ancient Philosophy.....3
PHI 506 Topics in Medieval Philosophy.....3
PHI 509 Topics in the History of Modern Philosophy.....3
PHI 513 Nineteenth Century Philosophy.....3
PHI 514 American Philosophy.....3
PHI 515 Contemporary Philosophy: The Analytic Turn.....3
PHI 516 Contemporary Philosophy: Phenomenological Directions.....3

Group B

PHI 530 Ethical Theory.....3
PHI 535 Social and Political Philosophy.....3
PHI 537 Philosophy of Law.....3
PHI 545 Philosophy of Religion.....3
PHI 592 Aesthetics.....3

Group C

PHI 550 Philosophical Problems in Knowledge and Reality.....3
PHI 560 Philosophy of Scientific Method.....3
PHI 562 Philosophical Problems in the Social and Behavioral Sciences.....3
PHI 565 Philosophy of Language.....3
PHI 575 Philosophy of Mind.....3

To complete the Field of Concentration: Students must complete 14 credit hours of nonfreshman, related courses. The student and adviser should exercise care to select courses related to the student's total program and aims.

The Philosophy Department each year appoints a faculty member who serves as Director of Undergraduate Studies, and faculty to serve as advisers on program planning. Names of those persons are available from the department office, Room 1415, Patterson Office Tower. A student with a major or minor in philosophy may choose an adviser or request assignment to an adviser.

Minor in Philosophy

The minor in philosophy requires a minimum of 18 hours of course work to include the following:

a. No more than two 100-level courses
b. At least one course in logic (PHI 120, PHI 320, or PHI 520)

c. At least one course in the history of philosophy (PHI 260, PHI 270, or any course from Group A of the undergraduate curriculum)

d. At least three courses (nine hours) at the 300 level or above, excluding PHI 320 and PHI 399.

PHYSICS AND ASTRONOMY

The Department of Physics and Astronomy helps many students acquire a general understanding and appreciation of physics and astronomy. In the liberal arts tradition, the undergraduate curriculum is complete and flexible enough to allow a graduate with a major in physics to pursue a variety of careers.

Physics

For the student interested in combining the study of physics with studies in other areas, the department can assist in the planning of an individual curriculum which meets **both** the minimum requirements of the Physics program and the student's needs and interests. Such planning is of particular value to students intending to pursue careers in applied physics, medicine, radiation medicine, biophysics, law, meteorology, oceanography, geophysics, environmental sciences, or the teaching of physics and/or physical science at the junior and senior high school levels. By working closely with an adviser, the student with special interests can take advantage of the opportunity to take several other courses from one or more departments outside physics.

Bachelor of Arts in Physics

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements — **Hours**

Physics: Choose 1 or 2
1. PHY 231/232 General University Physics.....8
   PHY 241/242 General University Physics Laboratory.....2
2. PHY 211/213 General Elementary Physics.....10

Chemistry:
1. CHE 105/107 General College Chemistry I and II.....6
2. CHE 115 General Chemistry Laboratory.....3

Mathematics:
1. MA 113 Calculus I.....4
2. MA 114 Calculus II.....4
3. MA 213 Calculus III.....4

Major Requirements — **Hours**

Requirement One
PHY 361 Principles of Modern Physics.....3
PHY 404G Mechanics.....3
PHY 416G Electricity and Magnetism.....3
PHY 520 Introduction to Quantum Mechanics.....3
MA 214 Calculus IV.....3

Requirement Two
Any six hours from the physics 300-500 series including at least **one** of the following laboratory courses: PHY 530 **or** PHY 538, 402G, 535, 545.

Bachelor of Science in Physics

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements — **Hours**

Physics: Choose 1 or 2
1. PHY 231/232 General University Physics.....8
   PHY 241/242 General University Physics Laboratory.....2
2. PHY 211/213 General Elementary Physics.....10

Chemistry:
1. CHE 105/107 General College Chemistry I and II.....6
2. CHE 115 General Chemistry Laboratory.....3

Mathematics:
1. MA 113 Calculus I.....4
2. MA 114 Calculus II.....4
3. MA 213 Calculus III.....4

The foreign language requirement should be fulfilled in French, German or Russian.

Major Requirements — **Hours**

Requirement One
PHY 361 Principles of Modern Physics.....3
PHY 404G Mechanics.....3
PHY 416G Electricity and Magnetism.....3
PHY 520 Introduction to Quantum Mechanics.....3
MA 214 Calculus IV.....3

Requirement Two
Two courses from the following:
PHY 508 Optics.....3
PHY 522 Heat and Thermodynamics.....3
PHY 524 Solid State Physics.....3
PHY 554 Fundamental Atomic Physics.....3
PHY 555 Fundamental Nuclear Physics.....3
PHY 567 Introduction to Lasers and Masers.....3
AST 595 Introduction to Astrophysics I.....3

Requirement Three
Three laboratory courses selected from the following: PHY 402G, 535, or 530 or 538.

Suggested Curriculum for B.S. in Physics

Freshman Year

First Semester — **Hours**
ENG 101 Writing I.....3
CHE 105 General College Chemistry I.....3
MA 113 Calculus I.....4
PHY 105 Physics and Astronomy Today (suggested for freshmen).....1
University Studies.....3

Second Semester
ENG 102 Writing II.....3
CHE 107 General College Chemistry II.....3
MA 114 Calculus II.....4
PHY 231 General University Physics.....4
PHY 241 General University Physics Laboratory.....1

Sophomore Year

First Semester
CHE 115 General Chemistry Laboratory.....3
MA 213 Calculus III.....4
PHY 232 General University Physics.....4
PHY 242 General University Physics Laboratory.....1
Foreign Language.....3

Second Semester
MA 214 Calculus IV.....3
PHY 361 Principles of Modern Physics.....3
Foreign Language.....3
University Studies.....6

Junior Year

First Semester
PHY 404G Mechanics.....3
PHY 416G Electricity and Magnetism.....3
PHY 402G Electronic Instrumentation and Measurements.....3
University Studies.....3
Foreign Language.....3

Second Semester
PHY 417G Electricity and Magnetism.....3
PHY 508 Optics.....3
PHY 535 Experimental Physics: Atomic and Nuclear.....2
MA 432G Methods of Applied Mathematics I.....3
Foreign Language.....3

Senior Year

First Semester
MA 485G Fourier Series and Boundary Value Problems.....3
PHY 520 Introduction to Quantum Mechanics.....3
PHY 522 Heat and Thermodynamics.....3
PHY 530 Experimental Physics: Spectroscopy.....2
Electives.....6

Second Semester
PHY 554 Fundamental Atomic Physics.....3
PHY 524 Solid State Physics **or**.....3
PHY 555 Fundamental Nuclear Physics **or**.....3
AST 595 Introduction to Astrophysics I.....3
MA 433G Introduction to Complex Variables.....3
Electives.....6

Astronomy

An astronomer seeks to understand the Universe by making measurements of the radiation from cosmic objects and applying the laws of physics to them. Consequently, the talents needed for astronomy are similar to the abilities required for a career in physics. A prospective astronomer should be skilled in physics and mathematics, should have an intense curiosity about natural phenomena, and should be interested in understanding these phenomena in an exact and quantitative way.

For students with an interest in astronomy, this department offers the B.S. degree in physics with a concentration in astronomy. Among the major requirements, AST 595, Introduction to Astrophysics I, should be selected as one of the courses which fulfill Requirement Two. PHY 395, Independent Work in Physics, may be substituted for one of the laboratory courses of Requirement Three, subject to the work being done in astronomy and astrophysics. Students are encouraged, though not required, to enroll in AST 191, The Solar System, and AST 192, Galactic and Extra-galactic Astronomy.

POLITICAL SCIENCE

The courses and facilities of the Department of Political Science are designed to serve a number of purposes. The department provides orientation and training in the problems of citizenship for undergraduate students. It provides further special background for students majoring

in journalism or preparing for admission to professional areas such as law.

Among other purposes, the department also provides the necessary background and skills for undertaking graduate work in political science and related fields.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

PS 101 American Government....3
PS 202 Orientation to Political Science....1
and two of the following:
PS 245 Introduction to Political Analysis....3
PS 271 Introduction to Political Behavior....3
PS 210 Comparative Politics and Political Development....3
PS 235 World Politics....3
PS 240 Ideology, Political Change and Contemporary Industrial Society....3
PS 280 Issues in Public Policy....3

Major Requirements

A minimum of 21 hours is required in political science, of which at least 15 must be above the 200 level. At least one course must be taken in each of the fields 1, 2, and 3 listed below and at least one course must be taken in another field. Undergraduate courses are divided into the following fields:

Field One **Hours**
Theory and Methodology:
PS 245 Introduction to Political Analysis....3
PS 240 Ideology, Political Change and Contemporary Industrial Society....3
PS 441G Early Political Theory....3
PS 442G Modern Political Theory....3
PS 545 American Political Thought....3
PS 549 Science, Technology and Political Theory..3

Field Two
Comparative Government:
PS 210 Comparative Politics and Political Development....3
PS 412G Comparative Government-Parliamentary Democracies II....3
PS 417G Survey of Sub-Saharan Politics....3
PS 419G The Governments and Politics of Eastern Asia....3
PS 420G Governments and Politics of South Asia.3
PS 428G Latin American Government and Politics.3
PS 429G Government and Politics of the Soviet Union....3
PS 532 Comparative Foreign Policies....3
PS 538 Latin American Relations....3

Field Three
International Relations:
PS 235 World Politics....3
PS 430G The Conduct of American Foreign Relations....3
PS 431G National Security Policy....3
PS 433G Politics of International Economic Relations....3
PS 436G International Organization....3
PS 437G Dynamics of International Law....3
PS 439G Contemporary International Problems....3
PS 532 Comparative Foreign Policies....3
PS 538 Latin American Relations....3
PS 539 The Foreign Policy of the Soviet Union....3

Field Four
Political Process:
PS 470G American Political Parties....3
PS 472G Political Campaigns and Elections....3
PS 473G Public Opinion....3
PS 476G Legislative Process....3
PS 479 Women and Politics....3
PS 571 Interest Groups....3
PS 584 The American Presidency and the Federal Executive....3

Field Five
Public Administration:
PS 487G Introduction to Public Administration....3
PS 489G The Analysis of Public Policy....3
PS 455G Intergovernmental Relations in the American Federal System....3
PS 580 The Budgetary Process....3
PS 584 The American Presidency and the Federal Executive....3

Field Six
Public Law and Judicial Behavior:
PS 461G Civil Liberties....3
PS 463G The American Judicial Process....3
PS 465G Constitutional Politics....3

Field Seven
State and Local Government:
PS 255 State Government....3
PS 450G Rural Local Government....3
PS 452G Municipal Government....3
PS 456G Appalachian Politics....3
PS 553 Urban Government and Politics....3
PS 554 Politics of Land Use and Growth Management....3
PS 455G Intergovernmental Relations in the American Federal System....3
PS 557 Kentucky Government and Politics....3

To complete the Field of Concentration: Students must take a minimum of 14 hours outside political science to fulfill this requirement. At least six hours in each of two other departments must be included, unless the student has a double major.

Minor in Political Science

The minor in political science requires a prerequisite course (PS 101 or PS 280) and 18 hours of course work to be distributed as follows:

1. Six hours of 200-level courses including PS 271 and one of the following: PS 210, PS 235, or PS 240.
2. Four other courses, at least three of which must be at the 400 or 500 level. (Of this group, no more than one course at the 200 or 300 level may count toward the 18-hour requirement for the minor.)

PSYCHOLOGY

The undergraduate curriculum in psychology includes courses in the major content areas of psychology. The program provides course work emphasizing the fundamental concepts and techniques of this basic behavioral science. In addition to course work, the program provides for experience in conducting and analyzing laboratory and field research.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

PSY 100 Introduction to Psychology....4
PSY 215 Experimental Psychology....4

Major Requirements **Hours**

Students must complete a minimum of 18 hours in psychology to include the following:

Requirement One
PSY 216 Applications of Statistics in Psychology..4

Requirement Two
One of the following courses:
PSY 423G Processes of Psychological Development....3
PSY 523 Research Methods in Developmental Psychology....4
PSY 525 Human Senses and Perception....3
PSY 527 Cognitive Processes....3

Requirement Three
One of the following courses:
PSY 532 Personality....3
PSY 533 Abnormal Psychology....3

Requirement Four
PSY 444G Social Psychology....3

Requirement Five
One of the following courses:
PSY 550 Psychology of Learning....3
PSY 552 Animal Behavior....3
PSY 556 Physiological Psychology....3

Requirement Six
One of the following laboratory courses:
PSY 521 Cognitive Processes Laboratory....1
PSY 523 Research Methods in Developmental Psychology....4
PSY 526 Human Senses and Perception Laboratory....1
PSY 547 Experimental Social Psychology....4
PSY 551 Psychology of Learning Laboratory....1
PSY 553 Animal Behavior Laboratory....1
PSY 557 Physiological Psychology Laboratory....1

Elective psychology courses include:
PSY 223 Developmental Psychology....3
PSY 301 Introduction to Humanistic Psychology....3
PSY 305 Psychology of Sex Roles....3
PSY 331 The Psychology of Adjustment....3
PSY 395 Independent Work in Psychology....3
PSY 399 Field Based/Community Based Education....1 to 6
PSY 400 Theories of Psychology in Historical Perspective....3
PSY 500 Senior Seminar in Psychology....3
PSY 502 Introduction to Industrial Psychology....3
PSY 503 Psychology of Industrial Personnel Procedure....3
PSY 529 Psycholinguistics....3
PSY 535 Psychological Testing....3
PSY 539 Interpersonal Dynamics....3
PSY 545 Small Group Behavior....3
PSY 548 Applied Social Psychology....3
PSY 558 Biology of Motivation....3

To complete the Field of Concentration: Students must complete a minimum of 14 hours of nonfreshman, related courses. The student should consult with the adviser about course selection.

Minor in Psychology

The minor in psychology requires a minimum of 20 hours to include the following:

1. **Prerequisite courses**
PSY 100 Introduction to Psychology....4
PSY 215 Experimental Psychology....4

2. Any **two** courses from these four options:
Cognitive studies (one of the following)
PSY 423G Processes of Psychological Development....3
PSY 523 Research Methods in Developmental Psychology....4
PSY 525 Human Senses and Perception....3
PSY 527 Cognitive Processes....3
Clinical psychology (one of the following)
PSY 532 Personality....3
PSY 533 Abnormal Psychology....3
Social psychology
PSY 444G Social Psychology....3
Learning and physiological psychology (one of the following)

PSY 550 Psychology of Learning.....3
PSY 552 Animal Behavior.....3
PSY 556 Physiological Psychology.....3
3. Two additional upper division courses, one of which must be at or above the 400 level.....6

RUSSIAN AND EASTERN STUDIES

The Department of Russian and Eastern Studies offers language courses in Russian, Hebrew, and Arabic, as well as related literature and culture courses.

Russian and East European Studies

The Department of Russian and Eastern Studies offers an undergraduate major in Russian and East European Studies. The program is designed to produce an integrated knowledge of Russian language, literature, culture, history, politics, and society. This interdisciplinary major provides the broadest possible base for further study of the Soviet Union and East Europe.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

RAE 202 Intermediate Russian.....3
RAE 280 Soviet Culture and Its Origins.....3

Field of Concentration

Students must complete a total of 42 credit hours at the 200 level or above, with at least 24 hours at the 300 level or above, distributed as follows.

History (six hours)
HIS 285 History of Russia to 1825.....3
HIS 286 History of Russia since 1825.....3

Literature (six hours)
RAE 380 Survey of Nineteenth-Century Russian Literature (in English).....3
RAE 390 Modern Russian Literature (in English).....3

Language (six hours)
RAE 303 Russian Pronunciation and Conversation.3
RAE 304 Russian Pronunciation and Conversation.3
Two semesters of another language of the U.S.S.R. or Eastern Europe may be substituted for the third-year Russian requirement with the approval of the RAE adviser.

Social Sciences (three hours)
PS 429G Government and Politics of the Soviet Union.....3
PS 491 Special Topics in Political Science.....1-3 (when topic is appropriate)
PS 539 The Foreign Policy of the Soviet Union....3
SOC 561 Comparative Sociology.....3 (when topic is appropriate)
ECO 465G Comparative Economic Systems.....3

Interdisciplinary Seminars (six hours)
Two of the following:
RAE 401 Seminar in Russian and East European Studies I.....3
RAE 402 Seminar in Russian and East European Studies II.....3
RAE 403 Seminar in Russian and East European Studies III.....3
RAE 404 Seminar in Russian and East European Studies IV.....3

In addition, students must complete at least 13 elective credits at or above the 200 level from Russian Area courses selected with the approval of the RAE adviser. At least 14 credit hours in the field of concentration must be taken in other departments.

Minor in Russian

The minor in Russian requires 18 hours of course work, to be distributed as follows:
1. RAE 202 Intermediate Russian.....3
   or demonstrated equivalent
2. RAE 303 Russian Pronunciation and Conversation.....3
   RAE 304 Russian Pronunciation and Conversation.....3
3. The remaining hours may be satisfied by any of the following:
RAE 280, 380, 390, 410, 411, 450G, 460G, 463, 480.

Note: RAE 395, Independent Study, may not be used for the minor.

SOCIOLOGY

Sociology emphasizes the study of human behavior and basic social processes. The discipline provides excellent preparation for careers in a variety of occupations and professions including planning and community development, law, public relations and advertising, personnel administration, private business and government administration, health and human services, family relations, criminal justice fields, and others.

Students may major or minor in sociology. The department offers a Bachelor of Arts through the College of Arts and Sciences. Students may also complete a second major or minor in sociology even though they are enrolled in other colleges. In addition, students seeking certification in social studies education at the secondary level through the College of Education may also emphasize sociology in their programs.

Courses offered by the department cover a wide range of topics and issues. Areas such as urban problems, health, social psychology, social change, institutions and organizations, social differentiation, criminology and deviance, and family comprise a large part of the curriculum. Students may also pursue special readings courses and experiential education placements or internships through the department.

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

SOC 101 Introductory Sociology **or**.....3
GEN 102 The Dynamics of Rural Social Life **and**..3
Any other 100- or 200-level sociology course.....3

All students wishing to declare a major in sociology should see the Director of Undergraduate Studies in Sociology. This should be done prior to declaring the major or during the first semester of residence in the case of entering freshmen.

Major Requirements

Students must complete 21 hours in sociology courses above the 100 level including the following:
SOC 302 Sociological Research Methods I.....3
SOC 303 Sociological Research Methods II.....3
SOC 451G History of Sociology.....3
SOC 452G Contemporary Social Theory.....3

To complete the Field of Concentration: At least 14 hours of nonfreshman courses in areas related to the discipline of sociology and to the interests of the student are required to fulfill this requirement. Courses must be taken from at least two other areas unless the student has a double major. These courses should be chosen in consultation with the student's academic adviser.

Plan Sheet: Students are required to file a Plan Sheet by the end of the junior year. The Plan Sheet summarizes the combination of 42 hours in the major and related areas which make up the Field of Concentration. This Plan Sheet must be developed in consultation with a faculty adviser.

Students, especially those contemplating graduate work, are strongly urged to develop skills in the areas of statistics and uses of the computer as well as taking additional theory and research methods courses.

Minor in Sociology

Hours

Prerequisites
SOC 101 Introductory Sociology **or**.....3
GEN 102 The Dynamics of Rural Social Life.....3
Any other 100- or 200-level sociology course.....3

Minor Requirements

Students complete an additional 15 hours in sociology, at least 12 of which must be at the 300 level or above and must include **one** of the following six-hour blocks:
SOC 302 and SOC 303 **or**
SOC 451G and SOC 452G **or**
SOC 302 and SOC 451G

Any student wishing to minor in sociology should file an application with the Director of Undergraduate Studies in Sociology prior to entering the program.

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

The Department of Spanish and Italian Languages and Literatures aims to develop the student's language skills, as well as to provide an understanding of the cultures and literatures of people who are natives of the Hispanic- and Italian-speaking worlds. The department offers majors and minors in both Spanish and Italian.

Spanish

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements **Hours**

1. SPI 210 Spanish Composition.....3
2. SPI 211 Spanish Conversation.....3
3. Six hours in another foreign language

Major Requirements

Students must complete 21 hours in 300-500 level courses in Spanish with at least nine hours in 400-500 level courses.

To complete the Field of Concentration: Students must take 14 hours of nonfreshman, related courses chosen from anthropology, art history, classics, comparative literature, English, French, geography, German, history, honors, Latin American studies, linguistics, music, philosophy, political science, Russian and Eastern Studies, sociology, theatre, or other courses selected with the approval of an adviser.

Electives (8 hours)

1. Must be taken at the 200 level and above.
2. May be taken in Spanish or departments within the Field of Concentration.

Minor in Spanish

Undergraduates wishing to minor in Spanish should take a total of 18 hours based on the following distribution:

1. SPI 202 **or** SPI 242 **or** equivalent
2. SPI 211
3. SPI 210
4. Nine additional hours selected from Spanish courses beyond the first four-semester sequence, at least six hours of which must be taken at the 300 level or above

Note: No courses taken in translation may be counted toward the minor in Spanish.

Teacher Certification Requirements

The requirements for teacher certification in secondary foreign languages are outlined in the *College of Education* section of this Bulletin.

Italian

Degree Requirements

In addition to satisfying University Studies requirements, and the College requirements, each student completes the following:

Premajor Requirements	Hours
1. SPI 292 Intermediate Italian	3
2. Six hours of another language	6

Major Requirements	Hours
1. SPI 295 Italian Conversation and Composition	3
or SPI 296 Italian Civilization	3
2. Fifteen hours in 500 level courses in Italian. Must include:	
SPI 443G Survey of Italian Literature I **or**	3
SPI 444G Survey of Italian Literature II	3

To complete the Field of Concentration: Students complete 22 hours of nonfreshman, related courses chosen from the areas listed in the Spanish Field of Concentration as well as from Spanish courses. Eight hours may be elective Italian courses. The student should consult with an adviser about course selection.

Minor in Italian

	Hours
SPI 291/292 Intermediate Italian (or equivalent)	6
SPI 295 Italian Conversation and Composition	3
SPI 296 Italian Civilization	3
Plus six hours beyond the 200 level, excluding courses in English translation	6

STATISTICS

The Department of Statistics at the University of Kentucky is concerned with three essential functions: teaching, research, and consulting in statistics.

The department does not offer an undergraduate degree, but students may elect to include statistics as part of a topical major. The program in mathematical sciences also includes several statistics courses. The Master of Science and the Doctor of Philosophy degrees are offered.

Research is being actively pursued in statistical theory and methods, both parametric and nonparametric, experimental design, linear models, inference, stochastic processes, and applied probability.

Consultation on statistical analysis and interpretation of data is provided to research workers on and off the campus. Particular attention is paid to the consulting needs of graduate students.

INTERDISCIPLINARY MINORS

Appalachian Studies

This minor offers the student with serious interests in Appalachian regional studies an opportunity to pursue a minor concentration to complement a major in



one of the University's professional or liberal arts programs. This interdisciplinary program enables students to comprehend more fully the history, social structure, and culture of the region—its people, its problems, and its future. The minor in Appalachian Studies requires the following:

1. A minimum of six hours in any Appalachian Studies courses in the humanities (English, history, music, theater);
2. A minimum of six hours in any Appalachian Studies courses in the social sciences (sociology, political science, anthropology, family studies, geography);
3. Any additional courses in Appalachian Studies to total at least 18 hours. A list of suitable electives can be obtained from the Appalachian Center.

Note: In addition to regularly scheduled courses in Appalachian Studies, independent study and experiential education courses may be counted toward the minor in Appalachian Studies if approved by an Appalachian Studies adviser.

Black Studies

The minor in Black Studies provides students with an opportunity to examine the contributions of established academic disciplines towards the understanding of African peoples, particularly those peoples in the New World. It also provides a framework for research and analysis of issues which focus on black experiences in artistic, literary, historical, and sociopolitical environments. The minor requires 21 hours of study as follows:

1. BLK 200 Introduction to Black Studies
2. a. At least **six** hours of course work in the humanities (as approved by the Black Studies Committee). Among these are:
   - A-H 390/590 Topical Research/Studies in Art History (if appropriate)
   - ENG 264 Major Black Writers
   - ENG 356 Studies in Black American Literature
   - ENG 363 Special Topics in Literature (if appropriate)
   - ENG 390 Undergraduate Seminar (if appropriate)
   - FR 504 Topics in French Literature and Culture (if appropriate)
   - HIS 254 History of Sub-Saharan Africa
   - HIS 260 Afro-American History to 1865
   - HIS 261 Afro-American History 1865-Present
   - MUS 300 History of Jazz
   - PHI 300 Undergraduate Seminar (if appropriate)
   - SPI 438G Literature of Social Protest in Spanish America
   - SPI 468G Twentieth Century Spanish American Literature in Translation (if appropriate)
2. b. At least **six** hours in the social sciences (as approved by the Black Studies Committee). Among these are:
   - ANT 232 Modern Human Variation (Race)
   - ANT 431G Culture and Societies of Sub-Saharan Africa
   - EDC 550 Teaching the Culturally Different
   - GEO 336 Geography of Sub-Saharan Africa
   - PS 417G Survey of Sub-Saharan Politics
   - PS 461G Civil Liberties
   - SOC 532 Race and Ethnic Relations
3. BLK 400 Special Topics in Black Studies
4. BLK 401 Independent Reading and Research in Black Studies

Religious Studies

The minor in Religious Studies offers students the opportunity to study the phenomena and expressions of religious life and thought. The minor concentration may be used to complement a major in one of the University's professional or liberal arts programs and is of assistance to the student seeking pretheological training. The minor in Religious Studies requires a minimum of 21 hours of course work, of which at least 9 hours must be at the 300 level or above, to be distributed as follows:

1. RS 101 Introduction to Religious Studies
   RS 130 Introduction to Comparative Religion
2. RS 301 Understanding Religion
3. At least one course in historical and literary studies to be chosen from the following:

CLA 390	HIS 247	HIS 520	RAE 325
ENG 270	HIS 330	RAE 260	RAE 328
ENG 271	HIS 331	RAE 324	RS 351

4. At least one course in comparative and systematic studies to be chosen from the following:

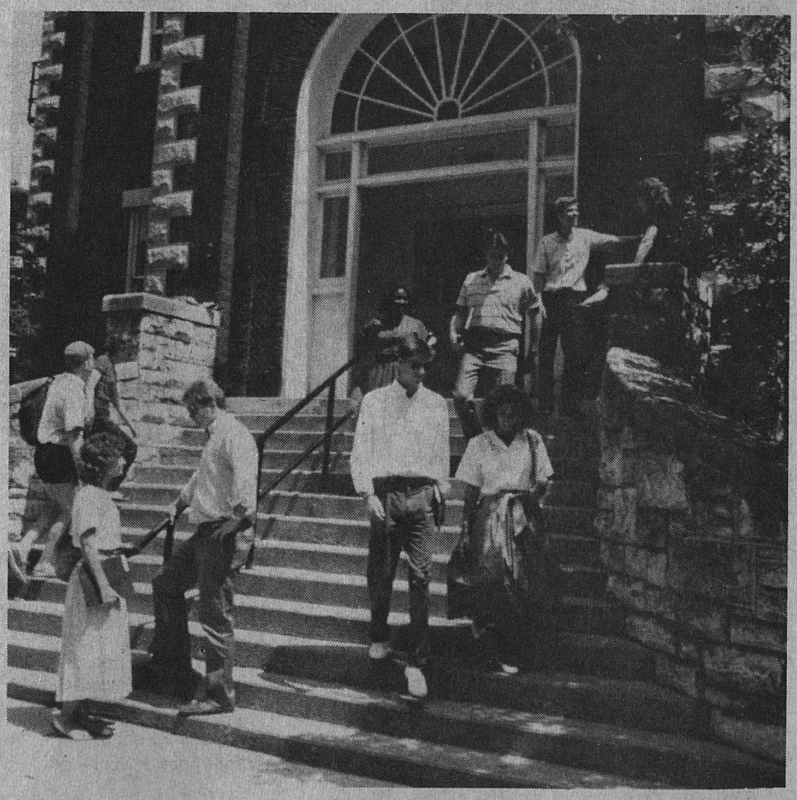
ANT 428G	ANT 524	SOC 525
ANT 430G	PHI 545	RS 352
ANT 338		

5. Two additional courses to be chosen from the courses listed under 3. and 4. above or RS 395. (No more than two courses may be taken from the same department with the exception of Religious Studies.)

Women's Studies

The minor in Women's Studies provides students an opportunity to examine and integrate the contributions of established academic disciplines in understanding the historical and contemporary roles and status of women. Also, the program provides a framework for research and analysis which focus upon women's issues. The minor requires 18 hours of course work, as outlined below:

1. WS 200 Introduction to Women's Studies in the Social Sciences
2. An additional 15 hours in courses identified by the Women's Studies Committee. Among these are:
   - ANT 401 Sex Roles in Cross-Cultural Perspective
   - A-E 545 Topical Studies in Art Education (if appropriate)
   - A-H 390 Topical Research in Art History (if appropriate)
   - ENG 363 Special Topics in Literature (if appropriate)
   - ENG 375 The Woman Writer
   - ENG 390 Undergraduate Seminar (if appropriate)
   - ENG 570 Selected Topics for Advanced Studies in Literature (if appropriate)
   - EXP 396 Experiential Education
   - FAM 551 Woman in Contemporary Society
   - FAM 562 Management for Multi-Roles
   - HIS 265 History of Women in America
   - HIS 350-355 Topics in History (if appropriate)
   - HIS 589 American Social History Since 1865
   - PS 479 Women and Politics
   - PS 491 Special Topics in Political Science (if appropriate)
   - PSY 305 Psychology of Sex Roles
   - RAE 341 Seminar in Middle East Studies (if appropriate)
   - SOC 509 The U.S. Family in Historical Perspective (Same as FAM 509/HIS 596)
   - WS 400 Research in Women's Studies



BUSINESS AND ECONOMICS

Richard W. Furst, D.B.A., is Dean of the College of Business and Economics; Daniel L. Fulks, Ph.D., Associate Dean for Undergraduate Studies; Merlin M. Hackbart, Ph.D., Associate Dean for Graduate Studies and Research.

The College of Business and Economics was established at the University of Kentucky in 1925 as the College of Commerce. The name was changed to College of Business and Economics in 1966. The College of Business and Economics is a member of the American Assembly of Collegiate Schools of Business which accredits undergraduate programs in accounting, business administration, and economics as well as master's programs in accounting and business administration. The programs of the college enjoy the Assembly's full accreditation.

The objective of the instructional programs in the College of Business and Economics is to prepare the student for a lifelong career in business, government, or research and teaching. The programs are structured to provide each student an opportunity to acquire a background in the basic areas of the arts and sciences, to obtain a broad knowledge of business and economics, and to study in depth one or more fields of special interest.

ADMISSION POLICY

Admission to the University is sufficient for admission to the College of Business and Economics for students with less than a junior standing. However, lower division admission to the college or any admission to the University does **not** guarantee upper division admission to one of the degree programs in the College of Business and Economics. In general, admission depends upon the qualifications and preparation of the applicants, as well as the availability of the resources for maintaining quality instruction.

Upper division admission into a degree program is necessary in order to be granted a baccalaureate degree from the College of Business and Economics.

Annually the College of Business and Economics faculty will establish the minimum standards required for admission to the college. The standards will be established at least one year prior to their implementation. Any change in standards will be implemented at the beginning of the academic year (fall semester) and will be in effect for the entire academic year. If the standards are to be changed, the Dean of the College of Business and Economics will submit the proposed change by February 1 to the University Senate Council for approval, with prior circulation to the University deans and directors. The grade-point average will be no lower than 2.5.

Students who have attained a 3.0 cumulative grade-point average or higher in the English and premajor component required of all students in the College of Business and Economics and have completed 60 semester hours of college-level credit will be assured admission.

To be considered for admission to any of the undergraduate degree programs offered by the College of Business and Economics, an applicant must fulfill the following requirements:

1. Enrollment in the University of Kentucky (Students are considered for acceptance by the college only after acceptance by the University.);
2. Completion of 60 semester hours with a minimum cumulative grade-point average of 2.5;
3. Completion of the English and premajor component required of all students within the College of Business and Economics with a minimum grade-point average of 2.5 (The courses meeting these requirements are listed under *Graduation Requirements*.);
4. Submission of an application form which includes an official transcript and a list of courses planned, indicating that the English and premajor courses will be completed prior to taking upper division work.

Normally students apply for upper division admission during the second semester of their sophomore year (the semester in which they will have completed the English and premajor components). The applications for admission to the College of Business and Economics must be received by the Undergraduate Admissions Office no later than April 1 for summer sessions, June 1 for the fall semester, and October 15 for the spring semester.

Those students seeking upper division admission who have not completed 60 semester hours or all of the English and premajor courses will be permitted to advance register for upper division courses if they satisfy the minimum grade-point average standards at the time of application and they are concurrently enrolled in the courses necessary to complete the English and premajor requirements. Failure to meet all requirements for admission prior to beginning upper division work will result in denial of admission.

Students not admitted to an upper division program should be aware that others who have been admitted will be given first preference for enrollment in the upper division courses offered by the College of Business and Economics.

Enrollment in Business and Economics courses numbered 300 or above will be limited to:

1. Business and Economics students;
2. Non-Business and Economics students who are registered for specific programs requiring Business and Economics courses;
3. Other students or categories of students with specific permission of the department offering the course (department may choose to declare certain courses as open enrollment courses).

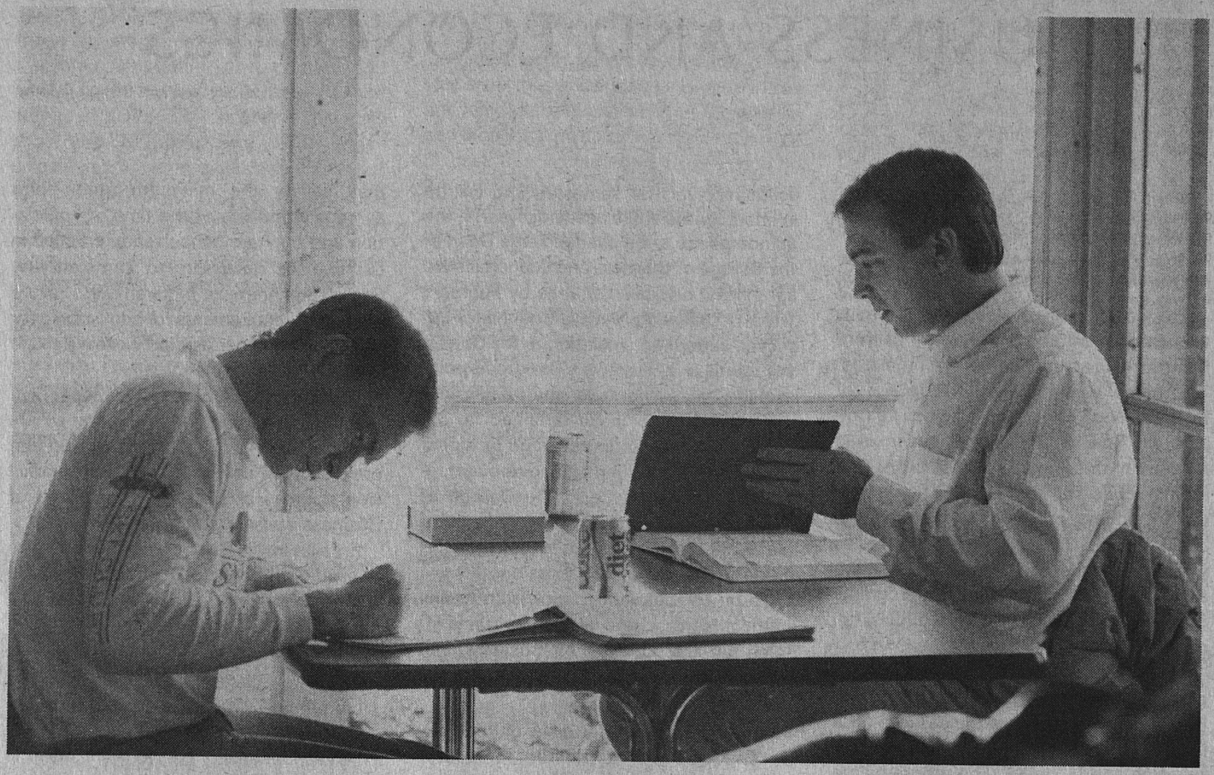
In the admission considerations, when personal, academic, professional, or intellectual circumstances tend to discount low academic scores, admission may be granted if there is other persuasive evidence of both the capability and motivation to undertake successfully a Business and Economics program.

An applicant from a non-English speaking country is required to take the Test of English as a Foreign Language (TOEFL) and must have a minimum score of 550 in order to be considered for admission. (An equivalent score from another English proficiency test similar to TOEFL may be allowed upon request.)

DIVISIONS

School of Accountancy

The faculty in the School of Accountancy is committed to providing the best possible educational experience for students. The faculty has both breadth and depth of training and experience in public accounting, industry, government and regulated industries, and previous classroom experience.



Decision Science and Information Systems

The faculty of the Department of Decision Science and Information Systems provides theoretical and applied courses in management science, operations management, management information systems, decision support systems, and business expert systems. Members of the department have interest and experience in both the theoretical development and business application of decision systems.

Department of Economics

The Department of Economics provides theoretical and applied courses in widely diverse areas including urban problems, labor, monetary economics, international economics, comparative economic systems, and economic history.

Department of Finance

The Department of Finance offers a variety of courses, both to students who concentrate their studies in finance and to those who desire additional knowledge in various financial areas. Such areas include financial management, security analysis and portfolio management, capital market theory, banking and institutions, and real estate.

Department of Management

The faculty in the Department of Management brings extensive academic and practical experience to the classroom. Course offerings cover an array of management areas such as personnel, production and operations, analysis, development and design, and business policy.

Department of Marketing

The faculty in the Department of Marketing has extensive experience in industry and government and includes individuals with interests and training in all areas of marketing. Aspects of marketing such as research, strategy and planning, and retail and sales management are covered in marketing course work.

GRADUATION REQUIREMENTS

All students in the College of Business and Economics must fulfill the University Studies requirements as outlined in the *University Studies* section of this Bulletin.

All students in the College of Business and Economics must fulfill the College requirements, premajor requirements, and College core requirements which are listed below. Major requirements for each program in the college are also listed below.

College Requirements

To graduate from the College of Business and Economics, a student must have a total of 120 credit hours (exclusive of lower division military science courses, physical education service courses, and performance-type courses) with a 2.0 grade-point standing. Students must earn 24 credit hours of University of Kentucky residence from the College core and departmental major with a 2.0 grade-point standing.

In addition to fulfilling the University Writing requirement, students must also complete ENG 203, Business Writing.

Premajor Requirements

Students must complete 22-24 credit hours taken from the following courses:

	Hours
CS 101 Introduction to Computing I	3
ACC 201/202 Principles of Accounting	6
ECO 201/202 Principles of Economics I and II	6
STA 291 Statistical Method	3
MA 123 Elementary Calculus and Its Applications **and**	3
MA 162 Finite Mathematics and Its Applications **or**	3
MA 113 Calculus I	4

College Core

The Core, a total of 24 credit hours, consists of the following courses:

MKT 300 Marketing Management	3
MGT 301 Business Management	3
MGT 340 Ethical and Regulatory Environment	3

MGT 499 Strategic Management.....3
DIS 300 Quantitative Analysis in Operations Management.....3
FIN 300 Corporation Finance.....3
ECO 391 Economic and Business Statistics.....3
Economics elective.....3

Electives

Each of the degree programs affords the student considerable opportunity and freedom of choice to take elective courses. At least 12 semester hours must be upper division courses and not more than 18 semester hours can be taken in courses offered by the College of Business and Economics. (The maximum number of hours in lower division business courses acceptable is six.) Preparation for a career in business can be combined with study in some depth in agriculture, engineering, and the various fields in the arts and sciences.

Major Requirements

Accounting

To graduate with a Bachelor of Science in accounting, a student is required to have 21 or more credit hours taken from the School of Accountancy in the following courses:

	Hours
ACC 301 Intermediate Accounting I	3
ACC 302 Intermediate Accounting II	3
ACC 324 Accounting Information Systems	3
ACC 403G Auditing	3
ACC 408G Cost Accounting	3
ACC 417G Income Taxation	3
At least three hours from the following:	
ACC 401G Accounting Theory	3
ACC 410G Not-For-Profit Accounting	3
ACC 416G Accounting for Business Combinations	3
ACC 517 Corporate Taxation	2
ACC 518 Controllership	3

Professional Program in Accountancy

In addition to the traditional four-year program in accounting, the School of Accountancy also offers a five-year professional program. This program requires the successful completion of 150 semester hours and leads to both the bachelor's and master's degrees. For more information about admission requirements, retention standards, and the five-year curriculum, students should contact the School of Accountancy, College of Business and Economics.

Management

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

	Hours
MGT 320 Survey of Personnel and Industrial Relations	3
MGT 410 Analysis of Organizational Behavior	3
MGT 450 Decision Analysis	3
MGT Elective	3
Approved Electives	6

Approved Electives: Students select six hours, with adviser's consent, from the following—any upper level ACC, MGT, MKT, ECO, or FIN course consistent with student's interest; ANT 527, 533, 538; COM 519, 581; ENG 305; HIS 390, 570, 571; JOU 361, 541; PHI 335, 338; PS 433G, 487G; PSY 400, 444G; SOC 442G, 444G.

Marketing

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

MKT 310 Behavioral Systems in Marketing.....3
MKT 340 Introductory Marketing Research.....3
MKT 450 Marketing Strategy and Planning.....3
plus three of the following:
MKT 320 Retail and Distribution Management.....3
MKT 400 Promotion Management.....3
MKT 420 Contemporary Marketing Problems.....3
MKT 440 Advanced Marketing Research.....3

Finance

To graduate with a Bachelor of Business Administration degree, a student is required to have at least 18 credit hours as follows:

ACC 301 Intermediate Accounting I.....3
FIN 410 Analysis of Financial Information.....3
FIN 445 Capital Investment and Financing Decisions.....3
FIN 450 Security Analysis.....3
plus at least two additional finance courses at the 400 or 500 level. (Under certain circumstances, other courses may be approved with the written consent of the adviser.)

Note: ECO 485G, Monetary Economics, is required in partial fulfillment of the College core in this major.

Economics

To graduate with a Bachelor of Science in Business and Economics, a student is required to have 18 credit hours as follows:

	Hours
ECO 487G Intermediate Macroeconomic Theory	3
ECO 488G Intermediate Microeconomic Theory	3
plus departmental electives	12

(One seminar is recommended.)

GRADUATE PROGRAMS

The College of Business and Economics offers the following graduate degrees through The Graduate School at the University: (1) Master of Science in Accounting, (2) Master of Business Administration, (3) Doctor of Business Administration, (4) Master of Science in Economics, (5) Master of Arts in Economics, and (6) Ph.D. in Economics. Additional information may be obtained from the Associate Dean for Graduate Studies, College of Business and Economics, and from The Graduate School Bulletin.



COMMUNICATIONS

Douglas A. Boyd, Ph.D., is Dean of the College of Communications.

The College of Communications consists of the Departments of Communication and Telecommunications and the School of Journalism. The Department of Communication educates its students in interpersonal, small group, mass, and organizational communication, and communication theory and research. Graduates pursue a variety of career paths in areas such as public relations, personnel, education, media, and government. The Department of Telecommunications was established in 1981 to better serve the needs of students interested in the telecommunications area. The School of Journalism educates its students for professional careers in the media as writers or editors, or in public relations, advertising or management.

The college offers four majors: communication, journalism—general editorial, journalism—advertising, and telecommunications. The college also offers a minor in communication.

ADMISSION POLICY

Admission to the University is sufficient for admission to the College of Communications as a **premajor** for students who have completed less than 45 semester hours. However, admission as a premajor does not guarantee admission as a **major** in one of the degree programs in the College of Communications. In general, admission as a major depends upon the qualifications and preparation of the applicant, as well as the availability of resources for maintaining quality instruction.

Admission to Degree Programs

In order to be admitted to any of the undergraduate degree programs offered by the College of Communications, an applicant must fulfill the following requirements:

1. Enrollment in the University of Kentucky (Students are considered for acceptance by the college only after acceptance by the University.);
2. Completion of 45 semester hours of course work;
3. Minimum of 2.6 cumulative grade-point average;
4. Completion of premajor requirements of the program to which application is made;
5. Completion of 30 semester hours in the University Studies program;
6. Submission of an application form which includes an official transcript of college courses accepted by the University of Kentucky.

Students meeting these requirements will be designated as **majors** in the program to which admission is granted.

In the admission considerations, when personal, academic, professional, or intellectual circumstances tend to discount lower academic scores, admission may be granted if there is other persuasive evidence of both the capability and motivation to undertake successfully a program in the College of Communications.

Annually, the College of Communications faculty will review the minimum standards required for admission to the college. Any change in requirements will be implemented at the beginning of the academic year (fall semester) and will be in effect for the entire academic year. If the standards are to be changed, the Dean of the College of Communications will submit the proposed change by February 1 to the University Senate Council for approval, with prior circulation to the University deans and directors.

Admissions Process

Application for admission as a **major** must be made to a specific degree program, not the college as a whole. Application must be made directly to the College Coordinator of Academic Affairs. Normally, such application will be made prior to the satisfactory completion of 60 semester hours of college level studies. Subsequent transfer between programs will be permitted, and may be accomplished by applying to that program and satisfying the admissions requirements.

Normally (for advance registration purposes) applications are to be submitted by March 1 for the fall semester and summer sessions, and by October 1 for the spring semester. Transfer students not wishing to advance register must submit applications by July 1 for the fall semester, by November 15 for the spring semester, and by April 1 for the summer sessions. All applications should include a transcript(s) showing all grades earned at all colleges and universities attended by the applicant. The transcripts should offer proof that 45 semester hours have been completed and accepted by the University, and that all other requirements for the program have been completed.

Each applicant bears the responsibility to see that the application contains all the requested materials.

Automatic acceptance: Assuming all else is in order, applicants with a 2.6 or above undergraduate grade-point average will be accepted. Once accepted, each student will be assigned a major adviser by the appropriate department office.

Provisional acceptance: Students who have completed 40-44 credit hours with a minimum grade-point average of 3.0 and who have completed the other admission requirements will be granted provisional admission to allow them to advance register for upper-division College of Communications courses. A student admitted provisionally who, upon completion of 45 credit hours has a minimum grade-point average of 2.6, automatically will be granted full admission status (no further application process is necessary). A student whose grade-point average is below 2.6 will be denied admission.

Admission based upon departmental review: Students who do not meet one or more of the requirements for either full or provisional admission, but who feel that this is due to extenuating personal, academic, professional, or intellectual circumstances, must describe these circumstances in detail in their application for admission. These circumstances will be considered by the Admissions Committee of the appropriate program. The applicant will be informed in writing of the committee's decision, which also will be forwarded to the college's Coordinator of Academic Affairs.

Any applicant rejected twice by the college is not permitted to apply again.

Advising of premajors: Those with fewer than 45 hours and those awaiting decision on their applications who wish to be advised for programs within the college will be enrolled as **premajors** in the college.

During advance registration periods, the college will advise premajors through collective advising sessions for each undergraduate program. Individual advising will be available for those with special problems. Between advance registration periods, including registration at the beginning of each term, one faculty or staff member from each program area will be available to advise those with less than 45 hours.

Enrollment in Upper Division Courses

Enrollment in College of Communications courses numbered 300-599 will be limited in order of priority to:

1. majors in College of Communications degree programs;
2. non-College of Communications students who are registered for specific programs requiring College of Communications courses;
3. other students or categories of students with the express permission of the department offering the course (departments may choose to declare certain courses as open enrollment courses).

GRADUATION REQUIREMENTS

To earn either the Bachelor of Arts or the Bachelor of Science degree in the College of Communications, each student must (1) complete 120 hours of course work (excluding courses lower than the 100 level and physical education service courses) with a grade-point average of at least 2.0 and (2) complete at least 42 hours in upper division courses (300 or above). No more than 60 hours may be taken within the college.

Other requirements include University Studies, Basic Skills, premajor requirements, field of concentration (24 hours of major work and 15 hours of cognate courses earned outside the college as defined by the units), and a minimum of six hours of free electives.

Bachelor of Arts Degree Requirements

Students who pursue the B.A. within the College of Communications must filfill the following requirements.

University Studies: Students should work closely with advisers on course selection.

Basic Skills

1. **Composition and Expression.** Complete two semesters of writing courses or the equivalent as described in the *Academic Requirements* section of this Bulletin.

2. **Language/Linguistics.** Complete one of the four options that follow. (One unit is equal to one year of high school work or one semester of college work.)

Option A: Complete the fourth unit of one foreign language.

Option B: Complete the third unit of one foreign language, and **one course** from the following group of courses which deal with the comparative study of languages: ANT 215, LIN/ENG 211, ANT 518, ANT/LIN 519, PSY 529.

Option C: Complete the second unit of one foreign language and a sequence of two courses dealing with the nature and structure of language, language behavior, or the comparative study of languages. This sequence may be completed by selecting **one** course from Group I and **one** course from Group II, as follows: Group I—ANT 215, LIN/ENG 211, ENG 414G*; Group II—ANT/LIN/ENG 515, ANT/LIN/ENG 516, ANT 518, ANT/LIN 519, ENG 510, ENG 512, PSY 529.

*Students who select this course must select at least one course from Group II which deals with the comparative study of languages. These courses are ANT 518, ANT/LIN 519, and PSY 529.

Option D: Complete one unit of one foreign language and a sequence of **three** courses dealing with the nature and structure of language, language behavior, or the comparative study of languages. This sequence may be completed by selecting **one** course from Group I (above) and **two** courses from Group II (above).

3. **Mathematics/Statistics.** Complete four units of mathematics or statistics. One unit must be in statistics. High school classes which typically apply are Algebra I and II, Geometry, and Trigonometry. High school courses in general, business, and shop mathematics may not be used to complete this requirement. University courses which meet this requirement are:

MA 108R, 109, 112, 113, 123, and 162 (Either PHI 120 or PHI 520 may be substituted for any one of the MA courses listed.)

STA 200, 291, 292/293/294, and 370.

Bachelor of Science Degree Requirements

Students who pursue the B.S. within the College of Communications must fulfill the following requirements:

General: The student's program must include at least 60 hours from the following areas: mathematics, including statistics and computer science; physical sciences; biological sciences; social and behavioral sciences, with only 9 of the 60 hours in communication (COM) courses.

Students also may take appropriate science courses from the Colleges of Agriculture, Allied Health Professions, Architecture, Education, Engineering and Medicine. These courses must be approved by a designated faculty adviser in the College of Communications.

University Studies: Students should work closely with advisers on course selection.

Basic Skills

1. **Composition and Expression.** Complete two semesters of writing courses or the equivalent as described in the *Academic Requirements* section of this Bulletin.

2. **Statistics.** Complete one unit in statistics. University courses which meet this requirement are STA 200, 291, 292/293/294, and 370.

COMMUNICATION

Communication is a fundamental behavior which enables human beings to exist in societies. It is necessary to relationships at all levels, from interpersonal through complex forms of organization. The major in communication is intended to help students develop skills for communicating effectively and to acquaint them with perspectives on the communication process. For example, students become familiar with techniques for more effective communication and develop an awareness of why differences in audiences, situations, and messages produce different effects.

The program offered by the Department of Communication focuses on human information seeking and decision making at the level of the individual, on the role of communication in interpersonal and small group relationships and in organizations, on the functions and effects of mass communication, and on policy implications drawn from these potential effects. It also includes, within the department or in related departments, courses in oral, written, visual, and analytic skills. The department has an active internship program offering students positions in major corporate and government agencies.

Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes the following:

Premajor Requirements	Hours
COM 101 Introduction to Communications	3
COM 181 Basic Public Speaking	3

Major Requirements

Students must complete 24 hours in COM courses, 200 level or above, including the following:

COM 550 Introduction to Communications Research	3
COM 551 The Individual and the Communication Process	3
COM 552 Studies in Interpersonal Communication	3
COM 553 Mass Communication and Social Issues	3

Cognate Area(s): Students must complete 15 hours in courses in one or more related areas (not COM courses) at the 300 level or above, as approved by the student's adviser.

Minor in Communication

Any student wishing to minor in communication should file an application with the Department of Communication prior to entering the program. The minor in communication requires a minimum of 21 hours to include the following:

1. COM 101 Introduction to Communications 3

2. Three courses* from the following list:

COM 181 Basic Public Speaking	3
COM 249 Mass Media and Mass Culture	3
COM 252 Introduction to Interpersonal Communication	3
COM 280 Small Group Discussion	3
COM 287 Persuasive Speaking	3
COM 325 Business and Industrial Communication	3
COM 350 Language and Communication	3

3. Three additional COM courses (nine hours) at the 500 level.

*A writing course (200 level or above) may be substituted for one course from this list with the permission of the chairperson of the Department of Communication.

JOURNALISM

The School of Journalism provides undergraduate professional education within the context of a liberal arts program. Founded in 1914, the School was a part of the College of Arts and Sciences until July 1976, when it became part of the new College of Communications.

The General Editorial and Advertising sequences in the School of Journalism have full national accreditation by the American Council on Education in Journalism and Mass Communications. Only about 80 schools and departments of journalism in the United States have accredited sequences in the field.

Students are encouraged to work on the *Kentucky Kernel,* the independent campus daily newspaper; *The Kentuckian,* the student yearbook; and WBKY, the University's public radio station. The School of Journalism assists students in obtaining internships with newspapers, broadcasting stations, magazines, and advertising and public relations agencies and helps in job placement in these fields after graduation.

Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes one of the two following sequences:

General Editorial Sequence

Premajor Requirements **Hours**

JOU 101 Introduction to Journalism.....3
JOU 204 Writing for the Mass Media.....3

Major Requirements

JOU 501 News Reporting.....3
JOU 503 Copyreading and Editing.....3
JOU 531 Law of the Press.....3

Journalism Options

One course from each of the following pairs:
1. JOU 539 Reporting Public Affairs.....3
   JOU 599 Advanced Writing for the Mass Media.....3
2. JOU 535 History of Journalism.....3
   COM 553 Mass Communication and Social Issues.....3

Communication Electives

Nine hours of course work in journalism and communications, at least six to be in journalism.

Field of Concentration

Breadth will be insured in students' programs by at least 16-18 credit hours of upper division liberal arts courses such as economics, philosophy, history, languages, literature, political science, psychology, sociology, or the sciences. Within those 16-18 hours, at least 15 hours should involve concentrated study in one field. This does not mean that all such courses must be in a single department, but they should be united under a topic heading such as "international relations," "American government," or "political behavior."

Note: Of a student's total course work for a bachelor's degree, 90 of the 120 hours required for graduation must be in courses other than journalism or communications.

Advertising Sequence

Premajor Requirements **Hours**

JOU 101 Introduction to Journalism.....3
JOU 204 Writing for the Mass Media.....3

Major Requirements

JOU 361 Principles of Advertising.....3
JOU 461 Advertising Media Planning.....3
JOU 471 Advertising Research.....3
JOU 481 Advertising Message Preparation.....3

Capstone Requirement

JOU 591 Advertising Campaigns.....3

Major Electives

Nine hours are to be taken from the following courses:

Writing and Editing
JOU 501 News Reporting.....3
JOU 503 Copyreading and Editing.....3
JOU 581 Broadcast Advertising Message Preparation.....3
JOU 599 Advanced Writing for the Mass Media....3

Broadcasting and Telecommunications
TEL 312 Television Production I.....3

Public Relations and Communications
JOU 541 Public Relations.....3
COM 582 Persuasion.....3
COM 325 Business and Industrial Communication..3

Legal and Administrative
JOU 531 Law of the Press.....3

Photography
JOU 387 Introduction to Press Photography.....3
JOU 487 Photojournalism.....3

Other Special Courses
JOU 597 Special Topics in Journalism.....1-3
JOU 395 Independent Work.....1-3
EXP 396 Experiential Education.....1-3

Field of Concentration

In addition to MKT 300 (which is required) advertising majors are required to complete 15 additional credit hours of upper division courses outside the College of Comunications. In consultation with his or her adviser, each student should design a field of concentration which helps develop an area of in-depth, specialized knowledge.

This specialized knowledge should complement each student's career goals fully. The school and the faculty will help identify a range of career areas—from creative positions to account management. For each of these career areas, a select group of courses will be recommended for their value in furthering career interests.

Many of these courses are from the disciplines of psychology, sociology, English, and philosophy. Selected marketing courses are also recommended; students should be aware that entrance into these courses is highly competitive and may preclude being able to include a specific marketing course in the field of concentration designed.

Electives

Accreditation standards require that no more than one-fourth of a student's courses be from journalism and from the other units of the College of Communications. Thus, at least 90 hours of a journalism major's program must be outside the college.

TELECOMMUNICATIONS

Telecommunications is the study of societal effects, public and private policy, and managerial processes of information produced and distributed by electronic technology. The Department of Telecommunications seeks to prepare students with the professional and critical thinking skills necessary for placement in a rapidly changing field.

The Telecommunications program offers course work in three areas: programming and research, including theoretical and social evaluation of media uses and effects; communications technology, including planning and implementation; and policy and regulation of telecommunications. All students receive a thorough introduction to major concepts of telecommunications through required course work in those three areas. Media professionals from the region teach special topics courses on a regular basis. Telecommunications majors can also receive instruction in audio and video production and performance.

Internships are available to qualified students who are interested in gaining experience with commercial and public broadcasting stations, advertising agencies, cable systems, public agencies, and other telecommunications firms.

Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes the following:

Premajor Requirements **Hours**

TEL 101 Telecommunications Today.....3
TEL 201 Telecommunications: Process and Effect..3

Major Requirements

TEL 304 Telecommunications Technology, History and Policy.....3
TEL 305 Telecommunications Program Analysis....3
TEL 300 Telecommunications Research Methods...3
plus 15 hours from the following courses:
TEL 312 Television Production I.....3
TEL 395 Independent Study.....1-3
TEL 399 Internship in Telecommunications*.....3
TEL 412 Television Production II.....3
TEL 413 Audio Production.....3
TEL 420 Telecommunications Program Criticism....3
TEL 504 Telecommunications Management.....3
TEL 505 Advanced Topics in Telecommunications Policy.....3
TEL 508 Advanced Research Methods.....3
TEL 510 Advertising and Electronic Media.....3
TEL 511 Telecommunications Instructional Systems.....3
TEL 513 Social Effects of Telecommunications.....3
TEL 520 Economics of Information.....3
TEL 530 Proseminar in Telecommunications.....3
TEL 599 Telecommunications Topical Seminar.....3

*While TEL 399 may be repeated once for credit, only three hours may be counted toward fulfillment of departmental requirements.

Cognate Area: All new majors must fulfill the field of concentration or cognate area requirement by taking a minimum of 15 hours of courses at or above the 300 level.

GRADUATE PROGRAMS

The College of Communications offers the following graduate degrees: (1) Master of Arts in Communication and (2) Ph.D. in Communication. Additional information may be obtained from the Director of Graduate Studies for the College of Communications and from The Graduate School Bulletin.

DENTISTRY

David A. Nash, D.M.D, Ed. D., is Dean of the College of Dentistry.

The College of Dentistry offers a professional program leading to the Doctor of Dental Medicine degree and post-doctoral programs in several specialties of dentistry. The major goal of the College of Dentistry is the development of biologically oriented, clinically capable, and socially responsible practitioners who are sensitive to the significance of their contribution to the oral health of their patients.

For further information on the D.M.D. program and the post-doctoral programs, students should refer to the College of Dentistry Bulletin.

Admission—Doctor of Dental Medicine

The College of Dentistry seeks to enroll students whose backgrounds, personalities, and motivations indicate that they will make capable future practitioners. The college gives preference to qualified applicants who are residents of Kentucky. However, highly qualified out-of-state applicants are considered each year and such candidates are encouraged to apply.

Recommended Predental Preparation

The University of Kentucky College of Dentistry strongly recommends that applicants gain a broad liberal arts education with a strong introduction to the sciences. Suggestions for recommended course work may be obtained from the Office of Student Affairs in the College of Dentistry. A minimum of two years at the college level is necessary. Gaining admission is a competitive process and possessing a baccalaureate degree is an advantage.

Prospective dental students should contact the Office of Student Affairs of the College of Dentistry at an early stage in their undergraduate careers for guidance. The College of Dentistry will work with students to afford them the best opportunity for gaining admission.

Application

The University of Kentucky College of Dentistry is a participant in the American Association of Dental Schools Application Service (AADSAS), a centralized application service. Application forms may be obtained from predental advisers, the College of Dentistry, or by writing to:

AADSAS
1625 Massachusetts Ave. NW
Suite 101
Washington, D.C. 20036

Application for admission to the College of Dentistry should be submitted to AADSAS between July 1 and March 1 preceding the fall in which admission is desired. Candidates are advised to complete their applications at the earliest possible date. Applicants are accepted beginning December 1 of each year, and those applying near the application deadline are at a disadvantage due to the time required to fully process an application.

One official transcript of record must be requested from each college or university attended. Transfer credits entered on a transcript from a previous institution attended are not sufficient. The transcript of record must come from the college in which the credits were earned.

Letters of Recommendation

Applicants are required to submit three letters of recommendation. Letters should be requested from individuals who know the applicant well and can provide meaningful comments about the applicant's sense of responsibility, social sensitivity, community orientation, and awareness of social problems. Because transcripts and Dental Admission Test results provide ample evidence of academic potential, the letters of recommendation should not emphasize this area.

Dental Admission Test

The Dental Admission Test was developed and adopted by the Council on Dental Education of the American Dental Association as a means of determining an individual's potential for dentistry. It is a standardized examination required by all dental schools and administered and graded by the Division of Educational Measurements of the American Dental Association. This examination is given twice a year (April and October) at a number of locations throughout the nation. The applicant should complete the test during the junior year

Any questions regarding admission or arranging a visit to the college should be directed to:

Office of Student Services
College of Dentistry
Albert B. Chandler Medical Center
Room D155
University of Kentucky
Lexington, KY 40536-0084
(606) 233-6071



EDUCATION

Edgar Sagan, Ph.D., is Dean of the College of Education.

Objectives

The College of Education is responsible for designing, developing, and implementing programs concerned with the professional preparation of personnel in educational roles in many types and levels of schools, colleges, and other social agencies.

Within this context the college administers and coordinates all teacher education programs and serves as the liaison with the Kentucky State Department of Education.

Instruction at both undergraduate and graduate levels focuses on the professional dimensions of teaching, administration, and the work of educational specialists, while the college's educational research and development contributes to understanding of education in general and in Kentucky. The college assists school systems and social agencies in program planning, evaluation, and the continuing education of staff members.

Degrees

The College of Education offers the following degrees:

Bachelor of Arts in Education
Bachelor of Science in Education (Industrial and Technical Education)
Master of Arts in Education
Master of Science (Health, Physical Education and Recreation)
Master of Science in Education
Specialist in Education
Doctor of Education (Ed.D.)
Doctor of Philosophy (Ph.D.)

Accreditation

All programs for the preparation of elementary and secondary teachers and school service personnel at the bachelor's, master's, and doctoral degree levels are accredited by the National Council for the Accreditation of Teacher Education and the Southern Association of Colleges and Schools and approved by the state of Kentucky.

Special Facilities and Services

The **Education Library** contains more than 63,000 volumes, over 510 periodicals, and approximately 300,000 pieces of microfiche; a complete microfiche collection of all ERIC documents is on file. The facilities and resources of other libraries on campus are also available to all students.

The **Instructional Technology Center** provides media services to the students, faculty, and programs of the College of Education. These services include circulation of nonprint teaching materials, circulation of audio visual equipment, operation of a materials preparation laboratory, operation of a microcomputer laboratory/classroom, production of graphic, photographic, and recorded media, and maintenance of facilities for viewing films and video tapes. The staff of the ITC is also available to assist students and faculty in the production and utilization of media.

The **Reading Center** provides diagnostic and instructional services. Collections of published reading and language arts materials, professional texts and journals, and other materials related to reading instruction and research are maintained for students' referral.

The **Educational Assessment Clinic** and **Speech and Hearing Clinic** are operated by the Department of Special Education. The Educational Assessment Clinic provides diagnostic and prescriptive services to children with learning difficulties. The Speech and Hearing Clinic provides speech, language, and hearing evaluation and remediation for University students and all other Kentucky residents. The clinics serve as training and practicum sites for special education and speech and communication disorders majors. Students enrolled in course work are afforded opportunities to assess and remediate the learning problems or communication disorders of both children and adults.

The **Center for Professional Development** is an office of the college which facilitates educational research and service to agencies outside the University. Liaison between such agencies and University resources makes available in-service programming, field service, and research expertise.

General Information

Students in other colleges at UK who wish to receive teaching certificates must meet the requirements of the College of Education, as well as the requirements of the college in which they are enrolled. Some programs require that the student be enrolled in the College of Education.

Students expecting to receive teaching certificates must apply for and be admitted to a Teacher Education Program before upper division courses in the required professional education sequence may be taken. In general, admission depends upon the qualifications and preparation of the applicant, as well as the availability of resources for maintaining quality instruction.

ADMISSION TO TEACHER EDUCATION PROGRAM

A student must apply and be admitted to a Teacher Education Program in order to receive a teaching certificate. Applications are accepted for review by the Program Faculty from students who have completed, or will complete during the semester in which they apply, 60 semester hours of work, which must include EDP 202 completed with a grade of C or better. Program Faculties review applications and interviews, which are required of all students admitted, and recommend to the Dean of the College of Education that an applicant be accepted, accepted provisionally, or rejected. A student's education adviser, academic adviser, and the Admission Coordinator also may make recommendations concerning the disposition of an application. Information considered during the review process includes but is not limited to an applicant's

1. total academic record. A minimum overall grade-point average of 2.5 is required for admission.
2. performance on required tests of skills in written and oral communication, reading, and mathematics. A demonstrated skill level equal to or greater than the minimum, acceptable level mandated by the State Department of Education is required for admission.
3. record of preprofessional curricula experiences.
4. commitment to the profession based on a realistic understanding of employment conditions and demands.
5. proficiency in human relation skills.
6. recommendations from at least three persons familiar with the student's qualifications.
7. willingness to help provide an adequate education for children and youth.

Retention Policy

The teacher candidate's progress in a Teacher Education Program is continously monitored. The following conditions result in the student being placed on probationary status in the Teacher Education Program:

1. The student fails to earn a grade of C or better in a professional education class.
2. The student fails to maintain a grade-point average of 2.5.
3. The student fails to demonstrate the ability to work successfully with youngsters in a classroom setting during field experiences or student teaching.

In conditions 1 and 2, a student will be placed on probationary status for one semester. If the student fails to meet the specified criteria within one semester after being placed on probationary status, he or she will be suspended from the program. If concerns are raised under condition 3, the case will be referred to the appropriate Program Faculty and the student may be suspended upon the recommendation of the Program Faculty. If the Program Faculty deems it necessary to suspend the student from the Teacher Education Program, the student may request a hearing before the Program Faculty. If the student wishes to appeal the decision of the Program Faculty, he or she may request a hearing before the College of Education Undergraduate Admissions and Retention Committee.

Students should note that this retention policy currently is under review and changes are anticipated for the 1988-89 academic year.

Questions regarding admission to and continuation in the Teacher Education Program should be directed to:

Director of Admissions
Teacher Education and Certification
166 Taylor Education Building
University of Kentucky
Lexington, KY 40506-0001

Student Teaching

A student may enroll in student teaching in one of the prescribed curricula of the College of Education provided he or she has satisfied the following requirements:

1. The student has taken one semester of course work in residence on campus;
2. has been admitted to the appropriate professional Teacher Education Program;
3. has maintained a grade-point standing of at least 2.5 in (a) the area of concentration, major, minor and/or support areas, (b) professional education courses, and (c) entire undergraduate program;
4. has completed all prerequisites in professional education courses;
5. has completed a minimum of 75 percent of the required hours in the area of concentration or the major (this 75 percent must include all courses required in the minor). All of the minor must be completed if student teaching is to be done in that field;
6. has applied and been accepted for enrollment in student teaching the semester prior to the one in which he or she plans to do student teaching;
7. has been accepted by the school system and supervising teacher where he or she plans to do student teaching;
8. has a schedule of not more than 15 hours of college work to be carried during student teaching with no college classes scheduled to interfere with the teaching assignment;
9. has presented evidence of having had a thorough physical examination.

An additional factor considered in the review of applications for student teaching is the availability of acceptable school classroom placement opportunities. **Students must be prepared to accept student teaching assignments in the Lexington area.**

The student teacher is expected to follow the calendar of the school where he or she will do student teaching. Typically the student will be involved for the full school day.

Students wishing to participate in the **COST** program (overseas student teaching) must apply and be accepted two semesters prior to the semester in which they plan to do student teaching.

Student Teaching in Vocational Agriculture and Vocational Home Economics

Transient students and graduate students in agricultural education may take student teaching without having a semester in residence on the campus. Students take 18 semester hours of work (including EDP 203) during the student teaching semester. If they have had EDP 203, they will take 15 semester hours including student teaching.

In order to take student teaching in home economics, a student must have completed three hours in techniques of teaching home economics in the secondary school. Student teaching and adult education are experienced in off-campus teaching centers. Students may elect to live in the community for approximately 12 weeks and perform the activities of a teacher in the community under the guidance of a trained supervising teacher.

National Teacher Examination Programs and Internship

All students who wish to receive a Provisional Teaching Certificate in Kentucky must meet the state-defined scores on the National Teacher Examination, and successfully complete a one-year paid teaching internship. Students wishing certification in other states are responsible for obtaining requirements and applications for those states, as certification requirements vary among states.

Certification

The University of Kentucky offers curricula for most certificates issued by the State Department of Education.

Based upon completion of a program leading to certification, including College of Education requirements, and submission of satisfactory NTE scores to the State Department of Education, the student is qualified for a Certificate of Eligibility to do a one-year internship in Kentucky. Upon successful completion of the internship, the student is eligible for the Provisional Teaching Certificate. Application for the desired certificate must be made by the student during the student teaching semester.

Students accepted into a Teacher Education program after the 1986 Spring Semester will be required to complete one of three levels of certification: Early Elementary (grades K-4), Middle School (grades 5-8), or Secondary (grades 9-12). Students may obtain additional information in 166 Taylor Education Building.

Curricula are also offered for the following: fifth-year programs for renewal of provisional certificates for elementary and secondary teachers, master's degree programs leading to Rank II and/or Standard Certificates for elementary and secondary teachers, master's degree programs leading to provisional certification for school guidance counselors and speech pathologists, programs above the master's degree which lead to certification in school administration and supervision and school psychology, and Rank I programs for all graduate certification areas.

Twelve-Grade Certification in Music or Art

Students seeking a 12-grade certificate in music or art must take EDC 325, Teaching in the Elementary School, after they have earned junior classification. This means that EDC 325 may be taken concurrently with other courses in the professional sequence, but the course should be completed prior to student teaching. Also required is a course in materials and methods in the special subject at the elementary and/or 12-grade level. Half of the student teaching must be done in an elementary school and half in a secondary school. Other requirements, including the area of concentration course work, for this certification are outlined in the *College of Fine Arts* section of this Bulletin.

Extension of Certification in Elementary Music Education

Students who choose majors in other areas of education may wish to become certified to teach music in the elementary school. Requirements for this certification are outlined in the *College of Fine Arts* section of this Bulletin.

Twelve-Grade Certification in Physical Education

Students seeking a 12-grade certificate in Physical Education must take EDC 325, Teaching in the Elementary School, after they have earned junior classification. Also, there are specific required physical education courses in addition to the major which must be taken. Half of the student teaching must be done in an elementary school and half in a secondary school.

GRADUATION REQUIREMENTS

To graduate from the College of Education, a student must, while meeting specified requirements, complete all program requirements with specified grade-point averages in professional education; in an area of concentration, or major and minor and/or support area, or teaching field and subject concentrations; and in overall University work. The minimum number of hours required for graduation is 128. Some programs exceed this minimum number. Students who wish to obtain a teaching certificate must satisfy state certification requirements as well as University requirements for graduation.

All students must fulfill University Studies requirements for graduation. Students should work closely with advisers to ensure that they select courses which best satisfy both University Studies requirements and state certification requirements.

Special Studies Component

All students who wish to obtain a teaching certificate must complete a Special Studies Component. This component varies among programs. Students should work closely with their advisers to ensure that the correct courses are selected to meet the Special Studies Component.

All other program requirements, including professional requirements and requirements in the student's subject matter area, are outlined in the sections that follow. Requirements for teacher education programs are subject to change. Students are encouraged to contact the College of Education for additional information.

Students should note that several changes in the undergraduate programs in the College of Education are anticipated, due to the implementation of the University Studies program in the 1988 Fall Semester. Students should check with the College of Education, 166 Taylor Education Building, for further information on changes in program requirements.

DEPARTMENTS AND PROGRAMS

ADMINISTRATION AND SUPERVISION

The Department of Administration and Supervision seeks to improve the quality of American education through improved training and competence of its administrators. The department is particularly mindful of its obligation to supply the needs of the state of Kentucky for high quality administrators in its public schools and in a variety of educational agencies. Advanced degrees are offered to meet certification requirements for elementary principals, secondary principals, directors of pupil personnel, supervisors of instruction, and superintendents of schools.

CURRICULUM AND INSTRUCTION

The Department of Curriculum and Instruction offers graduate programs designed to prepare specialists for instructional design roles in business and industry as well as for teaching, supervising, and coordinating subject matter specialization at the elementary, secondary, and junior college levels.

The Department of Curriculum and Instruction coordinates undergraduate programs in elementary and secondary education.

REQUIREMENTS FOR EARLY ELEMENTARY EDUCATION

University Studies

Students should work closely with advisers to ensure that they select courses which best meet both University Studies requirements and state certification requirements.

Related Studies

Students should work closely with advisers in selecting appropriate courses for the Related Studies requirement.

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms*	3
EPE 301 Education in American Culture	3
EDC 317 Introduction to Instructional Media	1
Block 1	
EDC 323 Classroom Management and Discipline*	3
EDC 326 Teaching Social Studies in the Elementary School	3
EDC 328 Teaching Science in the Elementary School	3
EDC 329 Teaching Reading and Language Arts	3
EDC 322 Elementary Practicum	2-3
Block 2	
EDC 337 Teaching Mathematics in Elementary Schools	3
EDC 339 Designing a Reading and Language Arts Program for the Elementary School	3
FAM 554 Working with Parents*	3
EDC 433 Student Teaching in the Elementary School**	12

*Elementary/special education majors may substitute EDS 375 for EDP 203, EDS 516 for EDC 323, and EDS 513 for FAM 554.

**Weekly seminars will include sessions on beginning teacher internships, school law and students' rights, administrative organization, and professional development.

Area of Specialization

Students must complete 21 semester hours in one of the areas listed below. At least 12 hours beyond University Studies and Breadth of Studies must be taken.

All course work within the area of specialization must be planned by the student and the adviser. Only Areas I, II, III and IV have equivalent components in Middle School (grades 5-8) certification. Students interested in acquiring a teaching endorsement for grades 5-8 should inform their advisers for efficient program planning.

I. **Mathematics**

Students select at least 12 hours from MA 109, MA 112, MA 123 or MA 113, MA 341, MA 310.

II. **Science** (12-13 hours)

Students choose one course in each of the science disciplines listed below, if the discipline was not included in meeting University Studies requirements. Students also choose additional electives from the science disciplines listed below and/or astronomy and climatology to total at least 12 hours beyond University Studies requirements.

Biology, Chemistry, Geology, Physics

III. **Social and Behavioral Sciences** (12 hours)

Students choose one course in each of two social and behavioral science areas not taken in University Studies and Breadth of Studies and an additional six hours from one social or behavioral science area. At least 3 hours of Kentucky studies must be included within the total program.

History, Sociology, Anthropology, Geography, Economics, Political Science, Psychology

IV. **Language and Writing** (12 hours)

Students must complete EDC 334 **and** one course from each of the following areas: 1) ENG 414G or EDS 277; 2) a 400-level folklore course; and 3) an additional course in composition.

V. **Foreign Language** (15-21 hours)

Course work should include ENG 414G and ENG/EDC 513 **or** ANT 518.

VI. **Creative Arts** (12 hours)

HPR 154, HPR 390, TA 126, TA 350, MUS courses (3-4 hours), art (3-4 hours in A-H, ART, or A-E courses)

VII. **Special Education**

Only dual majors in elementary/special education may choose this option. Requirements for the Learning and Behavior Disorders program and the Trainable Mentally Handicapped program are listed under *Special Education*.

REQUIREMENTS FOR MIDDLE SCHOOL EDUCATION

University Studies

Students should work closely with advisers to ensure that they select courses which best meet both University Studies requirements and state certification requirements.

Related Studies

Students should work closely with advisers in selecting appropriate courses for the Related Studies requirement.

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning*	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms*	3
EPE 301 Education in American Culture	3
EDC 317 Introduction to Instructional Media	1
EDC 329 Teaching Reading and Language Arts*	3
EDC 330 Designing a Reading and Language Arts Program for the Middle School	3
EDC 341 Middle School Curriculum and Instruction*	3
EDC 343 The Early Adolescent Learner: Practicum*	3
Special Methods courses in two areas of specialization* (from EDC 345, 346, 347, 348)	6
EDC 349 Student Teaching in the Middle School	12

*These courses include clinical and/or field hours.

Areas of Specialization

Middle school majors must select two areas of specialization from the following: 1) English and Communication, 2) Mathematics, 3) Science, and 4) Social Studies. Required course work within the specializations has been planned by the program faculties in each area. Students should work closely with advisers on selecting courses to fulfill area of specialization requirements.

I. **English and Communication**

A. Composition (6 hours beyond University Requirement)
B. Linguistics (3 hours)
C. Adolescent Literature (3 hours)
D. Literature (6 hours, including American literature)
E. Electives (6 hours)

II. **Mathematics**

Option I

A. Mathematics for elementary school teachers (6 hours)
B. Introductory computer science (3 hours)
C. Probability/statistics (3 hours)
D. Introductory calculus (3-4 hours)
E. Geometry (3 hours)
F. Course with emphasis on problem solving (3 hours)
G. Elective in mathematics (3 hours)

Option II

A. Mathematics for elementary school teachers (6 hours)
B. Completion of secondary mathematics major or minor (21-30 hours)

III. **Science**

A. Biology, including laboratory experiences and ecology course (9 hours)
B. Chemistry, earth science, or physics with laboratory (minimum of 9 hours)
C. Course work in two fields not chosen in B, with laboratory experiences (minimum of 5 hours)

IV. **Social Studies**

A. United States history (6 hours)
B. World civilization (6-9 hours)
C. World geography (3 hours)
D. Political science (3 hours)
E. Economics (3 hours)
F. Sociology (3 hours)
G. Cultural anthropology (3 hours)

Electives

Students select elective courses as needed to complete a minimum of 128 hours.

REQUIREMENTS FOR TEACHING IN SENIOR HIGH SCHOOLS

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EPE 301 Education in American Culture **or**	3
EDV 210 Introduction to Vocational Education*	3
EDC 344 Principles and Techniques of Teaching in the Secondary School **or**	3
Vocational methods course (for vocational students only)	3
Special methods course	3
EDC or EDV or HPR 362 Field Experiences in Secondary Education	1
EDC 317 Introduction to Instructional Media	1
EDA 401 The Professional Teacher: Legal Perspectives	1
Student Teaching	12

A minimum of 150 clock hours of planned and approved clinical and field experiences (of which at least one-half must be field experiences) must be completed by all students prior to student teaching.

*EDV 210 is restricted to students majoring in specific vocational education programs. Students should check with advisers prior to enrolling.

Subject Matter Requirements (Majors, Minors, Areas of Concentration)

Students who wish to teach in secondary schools must prepare themselves by intensive study in a selected subject matter area (or areas). Plans for subject matter study include:

1. An area of concentration (minimum of 48 hours) in subject areas where this is permissible.

2. A major of 30 to 36 hours and a minor of 21 to 24 hours chosen from a related field. Generally, the student will be certified in both areas. Minors **must** be chosen with the approval of the major teacher education program faculty and adviser. Students should consult College of Education subject matter materials for acceptable minors and the course work that makes up the teaching minors. Subject majors and minors for teaching may have different course requirements than the same majors and minors offered in other colleges at the University.

3. A major of 30 to 36 hours and supporting courses from two related subject fields (12 hours each). The student is certified in the major only if this plan is used.

4. A major of 30 to 36 hours and 24 hours from appropriate related subject fields chosen from the courses listed in the minors. If the student chooses this plan, he or she will be certified in the major only and the related courses cannot be combined for a minor.

5. A major of 30 hours, a minor of 21 hours, and a support area of 15 hours (available in social studies only).

All of the above plans may not be available in some subject matter areas. Each student is encouraged to work closely with an adviser in choosing the best plan for his or her program and career goals.

Detailed program bulletins for each subject matter area are available for students in 166 Taylor Education Building.

Secondary Art

Students who wish to teach secondary art must take Plan I, an area of concentration, totaling 51 hours. Students may obtain a 12-grade certification (details are listed under "Certification").

Secondary English

Students who wish to teach secondary English must select one of these plans:

Plan 1. Area of concentration in English. English major plus 18 additional hours for a total of 54 hours.

Plan 2. English major and a minor (21 hours).

Plan 3. English major and two support areas of 12 hours each in two related areas approved by the adviser.

Plan 4. English major and support block of 24 hours chosen from three or more related fields approved by the adviser.

Plan 5. English major and School Media Librarian major. Students must have an adviser from the School Media Librarian program.

Secondary Speech

In addition to the 30-hour speech major, the student must select a minor from: English, dramatics (theatre), or a foreign language. English is highly recommended. (Students with a minor in English must also take EDC 525 and EDC 534.)

Secondary Speech and Dramatics

In addition to the 38-hour major, the student must select a minor in English or a foreign language. English is strongly recommended. (Students with a minor in English must also take EDC 525 and EDC 534.)

Secondary Foreign Languages

Students who wish to teach secondary foreign language will select **one** of the following plans:

Plan 1.—Major and minor
Thirty hours for a major chosen from:
French, German, Latin, Russian, Spanish
Twenty-four hours for a minor

Plan 2.—Major with two 12-hour support areas
Thirty hours for a major chosen from:
French, German, Latin, Russian, Spanish **plus**

Option A

Support area of 12 hours in a language (above 100 level, not in the major) **and**
Support area of 12 hours above 100 level in a related field

Option B

Any two languages (other than the major) with 12 hours for each in courses above the 100 level

For specific courses in each language, students should check with a foreign language education adviser.

Note: The State Department of Education no longer grants teaching certification in Russian.

Secondary Mathematics

Students who wish to teach secondary mathematics will select one of the following three plans:

Plan 1. Mathematics major of 30 hours and an approved minor of 24 hours. Students should work closely with advisers in selecting minors.

Plan 2. Mathematics major of 30 hours and two fields of 12 hours each chosen from appropriate support areas.

Plan 3. Mathematics major of 30 hours and any combination of 24 hours from appropriate areas related to mathematics. Students should work closely with advisers on course selection.

Secondary Music

Professional Requirements

	Hours
EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EPE 301 Education in American Culture	3
EDC 325 Teaching in the Elementary School	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 377 Student Teaching in Music (All students must have passed piano proficiency examination prior to student teaching.)	12

Subject Matter Area

Students majoring in music complete an area of concentration in music totaling 61-63 hours.

School Media Librarian

Students in this program complete a 30-hour major and an additional academic specialization totaling 21 hours.

Required Courses (24 hours)	Hours
LIS 550 Introduction to Cataloging and Classification	3
LIS 530 Information Sources and Services	3
LIS 547 Administration of School Media Centers	3
LIS 510 Children's Literature and Related Materials	3
LIS 513 Literature and Related Materials for Early Adolescence	3
LIS 514 Information Resources and Services for Young Adults	3
EDC 544 Utilization of Educational Media	3
EDC 545 Preparation of Instructional Materials	3
LIS 576 School Media Practicum	9

Electives

Six hours chosen from the following:

EDC 549 Social Processes and Effects of Mass Communication	3
COM 101 Introduction to Communications	3
COM 249 Mass Media and Mass Culture	3
COM 550 Introduction to Communications Research	3
COM 551 The Individual and the Communication Process	3
COM 553 Mass Communication and Social Issues	3
JOU 535 History of Journalism	3
JOU 387 Introduction to Press Photography	3
LIS 560 Management in Library and Information Science	3
LIS 587 Multi-Media Materials in Libraries	3

Additional Specialization

The student consults adviser concerning work to be taken in a single academic field.

School Media Librarian majors and English majors must have an English Education adviser.

School Media Librarian Endorsement

Students already holding valid teaching certificates may earn an endorsement as a school media librarian at the elementary, secondary, or K-12 levels. Detailed information is available in 166 Taylor Education Building.

Secondary Sciences

Students who wish to teach secondary science may choose one of the following five plans:

Plan 1: Major (30 hours in one of the sciences) plus A) a supporting certifiable minor (21 hours) in mathematics OR B) a supporting noncertifiable minor (21 hours) in one of the other sciences

The science fields from which the major and the noncertifiable minor may be chosen are: biological sciences, chemistry, earth science and physics. If the student chooses option A, he or she will be certified in both the science major and the mathematics minor. If the student chooses option B, he or she will be certified only in the science major.

Plan 2: Major with two 12-hour supporting subjects

The major of at least 30 semester hours must be chosen from the list in Plan 1, and the two 12-hour blocks of supporting subjects must also be chosen from two other sciences in that list, except that one of the supporting subjects may be mathematics.

Plan 3: Major and four supporting subjects

Persons selecting Plan III will complete a major of at least 30 semester hours in one of the sciences listed in Plan 1 and will complete a total of 24 semester hours from the three remaining science fields listed above and mathematics, with a minimum of three semester hours in each.

Plan 4: A mathematics-physical science area of concentration

A teaching area in mathematics-physical science consists of a minimum of 48 semester hours in chemistry, physics, and mathematics with no fewer than 15 semester hours in each. Students who choose this area are urged to exceed the minimum semester hours requirement and complete 21 semester hours in each of two of the three fields.

Plan 5: Science area of concentration

A teaching area in science consists of a minimum of 48 semester hours which includes the core requirements. The core courses shall include biology—two courses; chemistry—two courses; earth science—two courses; and physics—two courses. A course is defined as at least three semester hours. Laboratory experience must be afforded in at least one course from each discipline. All core courses will count toward the major and/or minor in the respective disciplines listed. Also included must be **one** of the following:

A) A major of 30 hours chosen from one of the disciplines listed in the core, or*

B) Two certifiable minors chosen from the disciplines listed in the core, or

C) One certifiable science minor chosen from the disciplines listed in the core, plus a certifiable minor in mathematics (21 hours including the prerequisite courses). If this option is chosen, the total required will be 69 hours—48 for the science area plus 21 for the mathematics minor.

*If biology is chosen as the major, at least nine hours of the work must be done at or above the 400 level.

Secondary Social Studies

The following are goals for social studies education graduates:

1. An understanding of American society, its past and contemporary situation and its place in the larger world, to be fulfilled by course work.
2. Knowledge of social science concepts and inquiry and interpretative skills to be fulfilled by course work.
3. Opportunities for reflective thinking and values clarification and for development of human relationship skills to be fulfilled by course work and experience.
4. A historical perspective to be fulfilled by history as a primary or secondary area.
5. A multicultural and global perspective to be fulfilled by experiences and/or course work prior to and as a part of the program.
6. Experiences in community participation to be fulfilled prior to and as a part of the program.

Students will fulfill most of the above goals by choosing **one** of the plans below. Goals 5 and 6, however, can best be fulfilled by experiences which will vary greatly according to the individual and therefore cannot be required in the same way course requirements are set. Students may include experiential education credit in their programs if approved by the Program Faculty.

Secondary social studies students should select one of the following plans:

Plan A: Major in history (30 hours) with a minor (21 hours) in anthropology, economics, geography, political science, psychology, or sociology, and a support area (15 hours) which includes one course from each of the social sciences not chosen as a major or a minor. PSY 100, required for all teachers, may count as the psychology course.

Plan B: Major (30 hours) in economics, geography, political science, psychology, or sociology with a minor (21 hours) in history and a support area (15 hours) which includes one course from each of the social sciences not chosen as a major or a minor. PSY 100, required for all teachers, may count as the psychology course.

Plan C: Area of concentration in social studies, including history (21 hours and same requirements as for the minor), anthropology (6 hours), economics (6 hours), geography (6 hours), political science (6 hours), and sociology (6 hours) with an 18-hour concentration in one of the last five subjects.

EDUCATIONAL AND COUNSELING PSYCHOLOGY

The Department of Educational and Counseling Psychology offers work leading to advanced degrees. General areas of emphasis within the department include educational psychology, school psychology, and counseling psychology. No undergraduate degrees are awarded.

EDUCATIONAL POLICY STUDIES AND EVALUATION

The Department of Educational Policy Studies and Evaluation prepares students for educational policy studies, decision making, and analysis. Students are offered the resources of historical, sociological, philosophical, and comparative analysis; knowledge of current educational issues; expertise in evaluation research; and the skills necessary to conduct and evaluate the meaning and significance of studies that bear on policy. The department offers advanced degrees only.

HEALTH, PHYSICAL EDUCATION AND RECREATION

The Department of Health, Physical Education and Recreation offers undergraduate activity courses and degree programs in physical education, health and safety, and recreation and leisure studies.

Students are encouraged to take two years of physical education, earning one hour of credit for each semester successfully completed. The Physical Education University Service program offers beginning instruction in both individual and team activities. Individual skill instruction is available in archery, weight training, conditioning and fitness, fencing, golf, racquet sports, gymnastics, swimming, scuba diving, cycling, canoeing and kayaking, aerobic running and swimming, as well as dance courses such as modern, folk, and jazz. Skill instruction in such team activities as basketball, soccer, volleyball, and field hockey is also available. In addition, intermediate and advanced level courses in many of the activities are offered. The *Schedule of Classes* should be consulted for the specific courses to be offered during each semester.

The program in physical education is designed for students interested in teaching as well as those interested in physical education positions in private industry. Students desiring to receive certification for teaching physical education in the secondary schools complete standard University requirements and a 40-hour program in the major. Students interested in a physical education degree program without teacher certification may select from two options: business and exercise.

The purpose of health and safety education is to promote quality life for all people. This area of study is interdisciplinary in nature and its roots extend into biology, psychology, sociology, and medicine. Information is drawn from all these disciplines in an attempt to help people acquire new knowledge, explore their attitudes, and evaluate their health behavior. An attempt is made to encourage people to take responsibility for their own health and to make intelligent decisions in relation to their health behavior. Health education generally focuses on the whole individual including the social, emotional, and spiritual dimensions, and not just the physical. Career opportunities are diverse. The program at the University of Kentucky is geared toward training people to teach health and safety education in the public schools. However, other job opportunities for health educators exist in community agencies, adult fitness programs, and health education programs in industry or private business.

Health education programs address such topics as nutrition, physical fitness, diseases, aging, death and dying, sexuality, reproduction, family life, environmental health, and controlling stresses as well as other topics.

The Recreation and Leisure Studies program prepares students for entry level programming positions in a variety of leisure service settings. Program graduates are capable of planning, implementing and evaluating a wide range of recreation programs. Two options are offered: Community Recreation, for those interested in working in public and private agencies; and Therapeutic Recreation, for those interested in working with selected special groups such as the physically disabled, aging, mentally handicapped, emotionally disturbed, and/or socially deviant. The program (including both options) is accredited by the National Recreation and Parks Association/American Association for Leisure and Recreation.

For the general physical education activity classes a locker fee of $5 per semester is charged. This fee includes towel service, locker rental and the privilege of using the equipment, facilities and swimming pool of the department during specified nonclass periods. Students must furnish their own swimsuits.

Health and Safety

In addition to University Studies requirements, the Special Studies Component, and Professional Education requirements (for secondary teaching), the student must complete the program requirements listed below.

Premajor Requirements	Hours
PSY 100 Introduction to Psychology	4
SOC 101 Introductory Sociology	3
BIO 104/105 Animal Biology and Laboratory	4
BIO 108/109 Principles of Microbiology and Laboratory	5
ANA 206 Elementary Anatomy	3
PGY 206 Elementary Physiology	3
CHE 105/107 General College Chemistry I and II	6

Major Requirements	Hours
Required:	
HPR 190 First Aid and Emergency Care	2
HPR 220 School Health Curriculum: Teaching Sexual Health and Substance Abuse in the Schools	3
HPR 230 Problems and Issues in School Health Education	3
HPR 307 Introduction to Safety Education	3
HPR 330 School Health Education	3
HPR 430 Methods of Teaching Health Education	3
HPR 445 Introduction to Tests and Measurements	3
HPR 535 School Health Dilemmas of Special Populations	3
NFS 101 Food and Nutrition for Man	3
Students choose at least four hours from the following:	
HPR 395 Independent Work in Health and Safety or Physical Education or Recreation	3
HPR 509 Workshop in Health and Safety	1-3
EDP 518 Mental Hygiene	3

Health Minor

	Hours
Required:	
HPR 190 First Aid and Emergency Care	2
HPR 220 School Health Curriculum: Teaching Sexual Health and Substance Abuse in the Schools	3
HPR 230 Problems and Issues in School Health Education	3
HPR 330 School Health Education	3
HPR 430 Methods of Teaching Health Education	3
NFS 101 Food and Nutrition for Man	3
Electives	
Students select seven hours from the following:	
HPR 307 Introduction to Safety Education	3
HPR 395 Independent Work in Health and Safety or Physical Education or Recreation	3
HPR 509 Workshop in Health and Safety	1-3
HPR 535 School Health Dilemmas of Special Populations	3
EDP 518 Mental Hygiene	3

Teaching Minor

Students who major in health and safety are also required to select a 21-hour minor from the following: biology (noncertified), chemistry (noncertified), psychology, sociology. Students should obtain College of Education brochures for specific program requirements in each of the minors. If the student desires a double major in health and physical education, the minor requirement is not necessary.

Support Areas and Endorsements

Any two of the following support areas may be selected instead of the minor:

1. Premajor (ANA 206, PGY 206, PSY 100, SOC 101)
2. Biology (12 hours from major requirements)
3. Sociology (SOC 101, SOC 152, SOC 409, SOC 551)
4. Psychology (PSY 100 and 8-9 hours PSY electives)
5. Anthropology (ANT 120, ANT 121 and 6 hours ANT electives)
6. Special Education (selected by adviser)
7. Physics (12 hours from major requirements)
8. Chemistry (12 hours from major requirements)
9. Coaching (consult adviser)
10. Driver Safety (HPR 307, HPR 407, HPR 408, HPR 410)

Physical Education Teacher Certification Program

In addition to University Studies requirements, the Special Studies Component, and Professional Education requirements (for secondary teaching), the student must complete the program requirements listed below.

Preprofessional Requirements	Hours
ANA 206 Elementary Anatomy	3
PGY 206 Elementary Physiology	3
NFS 101 Food and Nutrition for Man	3
PSY 100 General Psychology	4
HPR 115 Service Course (Gymnastics)	1
HPR Service Course elective	1

Professional Physical Education Major

	Hours
HPR 147 Dance Foundations I	1
HPR 148 Basketball **or**	
HPR 149 Wrestling	1
HPR 150 Soccer **or** HPR 151 Field Hockey	1
HPR 152 Techniques of Swimming **or**	
HPR 252 Water Safety Leadership	2
HPR 153 Volleyball	1
HPR 154 Dance Foundations II	1
HPR 155 Principles of Conditioning	1
HPR 156 Gymnastics	1
HPR 157 Track and Field	2
HPR 159 Tennis	1
HPR 180 Professional Orientation	2
HPR 190 First Aid and Emergency Care **or**	
HPR 340 Athletic Training	2
HPR 344 Physical Education in the Secondary School	3
HPR 360 Physical Education in the Elementary School	3
One of the following officiating courses:	
HPR 320, 321, 322, 323	1
HPR 440 Organization and Administration of Physical Education	3
HPR 420G Physiology of Exercise	3
HPR 445 Introduction to Tests and Measurements	3
HPR 515 Anatomical and Mechanical Kinesiology	3
HPR 579 Adapted Physical Education	3

Professional activity course electives—each student must elect two with approval of adviser:

TEAM

HPR 146 Flagball and Speedball
HPR 148 Basketball
HPR 150 Soccer
HPR 151 Field Hockey

INDIVIDUAL

HPR 149 Wrestling
HPR 158 Archery and Softball
HPR 160 Badminton
HPR 161 Golf

Minors (21-24 hours)

Physical education majors may minor in the following areas only: biology, chemistry, dance, health (24 hours), mathematics, physics, psychology, and sociology. Students should check with the College of Education for the specific program requirements in the selected minor.

Dance Minor

It should be noted that **there is no dance minor for certification purposes in Kentucky**.

1. The following courses are required for the dance minor. Those marked with an asterisk (*) constitute the related subject field for physical education majors.

	Hours
HPR Ballet	1
HPR Modern Dance*	1
HPR 181 Modern Dance I*	2
HPR 182 Modern Dance II*	2
HPR 291 Folk Dance*	2
HPR 592 Choreography*	2

2. In consultation with an adviser, and depending upon, academic and professional interests, the student shall choose at least eight hours of courses from the following list.

HPR 290 History and Philosophy of the Dance	3
HPR 293 Classical Ballet I	2
HPR 390 Dance Activities in the Elementary School	2
HPR 391 Theater Dance I	2
HPR 392 Theater Dance II	2
HPR 395 Independent Work in Health and Safety or Physical Education or Recreation	3

Support Areas and Endorsements

Any **two** of the following support areas may be selected instead of the minor.

1. Premajor (ANA 206, PGY 206, NFS 101, and PSY 100)
2. Biology (12 hours from major requirements)
3. Sociology (SOC 101, SOC 152, six hours in upper division courses)
4. Psychology (PSY 100, and nine hours in PSY electives)
5. Anthropology (ANT 120, ANT 121 and six hours in ANT electives)
6. Special Education (selected by adviser)
7. Physics (12 hours from major requirements)
8. Chemistry (12 hours from major requirements)
9. Health Education (HPR 220, HPR 230, HPR 330 and HPR 430)
10. Elementary Physical Education—required for K-12 certificate:

HPR 263 Developmental Sports Skills for the Elementary School Child
HPR 360 Teaching Physical Education in the Elementary School
HPR 361 Field Experiences with Elementary School Children
HPR 390 Dance Activities in the Elementary School
HPR 560 Motor Development in Infants and Young Children

11. Coaching (Related Area): Consult adviser and see College of Education brochure.

Required	Hours
HPR 340 Athletic Training	2
HPR 420G Physiology of Exercise	3
HPR 515 Anatomical and Mechanical Kinesiology	3
Select any two of the following courses:	
HPR 241 Basketball Coaching Fundamentals	2
HPR 243 Track and Field Teaching and Coaching	2
HPR 244 Baseball and Softball Coaching Fundamentals	2
HPR 546 Physical Education Workshop	2

12. Endorsement for Driver and Traffic Safety Education

HPR 307 Introduction to Safety Education	3
HPR 407 Driver and Traffic Safety Education I	3
HPR 408 Driver and Traffic Safety Education II	3
HPR 410 Advanced Topics in Driver and Traffic Safety Education	3

Note: Certification in any secondary teaching field is required.

Physical Education Non-certification Program

Students in this program may choose from two areas of specialization: business or exercise. In addition to fulfilling University Studies requirements, students complete the following:

Special Studies

	Hours
Speech (COM 101 or 181)	3
English (Writing courses)	6
Communication and Humanities elective	3

Preprofessional Requirements

ANA 206 Elementary Anatomy	3
PGY 206 Elementary Physiology	3
NFS 101 Food and Nutrition for Man	3
PSY 100 Introduction to Psychology	4
HPR 115 Service Course (Gymnastics)	1
HPR Service Course Elective (Business option only)	1
HPR 120 Service Course (Weight Training) (Exercise option only)	1

Professional Physical Education Requirements

Professional Activity Courses:

HPR 155 Principles of Conditioning **or**	1
HPR 157 Track and Field	2
HPR 152 Techniques of Swimming **or**	2
HPR 252 Water Safety Leadership	2

The Business option requires three or four courses (one credit hour each) from the following list. The Exercise option requires five courses (one credit hour each) from the list.

HPR 146 Flagball and Speedball
HPR 147 Dance Foundations I
HPR 148 Basketball
HPR 149 Wrestling
HPR 150 Soccer
HPR 151 Field Hockey
HPR 153 Volleyball
HPR 154 Dance Foundations II
HPR 156 Gymnastics
HPR 158 Archery and Softball
HPR 159 Tennis
HPR 160 Badminton
HPR 161 Golf

Theory Courses:

HPR 180 Professional Orientation	2
HPR 190 First Aid and Emergency Care	2
HPR 230 Problems and Issues in School Health Education	3
HPR 280 Recreation Program Planning and Leadership (Business option only)	3

One officiating course (one credit hour) from the following:

HPR 320 Officiating Football
HPR 321 Officiating Basketball
HPR 322 Officiating Volleyball
HPR 323 Officiating Baseball-Softball

HPR 420G Physiology of Exercise	3
HPR 445 Introduction to Tests and Measurements	3
HPR 515 Anatomical and Mechanical Kinesiology	3
HPR 573 Administration and Organization of Recreation	3

Education Courses

The student must select six hours of education courses, in consultation with an adviser.

Area of Specialization

Business

CS 101 Introduction to Computing I	3
ENG 203 Business Writing	3
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
ECO 201 Principles of Economics I	3
ECO 202 Principles of Economics II	3
MKT 300 Marketing Management	3
FIN 300 Corporation Finance	3
One of the following:	
MGT 320 Survey of Personnel and Industrial Relations	3
DIS 300 Quantitative Analysis in Operations Management	3
ACC 417G Income Taxation	3
ACC 301 Intermediate Accounting I	3

Exercise

CHE 104/106 Elements of College Chemistry I and II	6
PHY 201 General Elementary Physics	4
HPR 240 Nutrition and Physical Fitness	3
STA 291 Statistical Method	3
HPR 340 Athletic Training	2
PGY 412G Principles of Human Physiology Lectures	4

Practicum

HPR 577 Practicum in Recreation.....6
This practicum experience, arranged jointly by the student and the adviser, should take place in a setting appropriate to the student's career track.

Electives

Students in the Business option select eight or nine hours of appropriate electives. Six hours of these are free electives and three hours should be chosen in consultation with the adviser.

Students in the Exercise option must select three hours of appropriate electives.

Recreation and Leisure Studies Non-certification Program

In addition to fulfilling University Studies requirements, students complete the following:

Special Studies

	Hours
BIO 110 Introduction to Human Biology and Health **or**	3
NFS 101 Food and Nutrition for Man	3
Writing Courses (ENG 101, 102)	6
COM 181 Basic Public Speaking	3
Communication and Humanities electives	3-6
PSY 100 Introduction to Psychology	4
HPR Service Courses	2

Major Requirements

(Minimum of 37 hours)	Hours
HPR 170 Introduction to Community Recreation*	3
HPR 280 Recreation Program Planning and Leadership*	3
HPR 370 Fundamentals of Camping	2
HPR 374 Principles of Outdoor Recreation and Park Management	3
HPR 379 Field Studies in Recreation (two sections)*	4
HPR 381 Leisure Services for Special Populations*	3
HPR 395 Independent Work in Health and Safety or Physical Education or Recreation**	3
HPR 471 Outdoor Education Through Camping	2
HPR 478 Senior Seminar in Recreation*	3
HPR 481 Therapeutic Recreation Services	3
HPR 548 Special Topics in Recreation and Leisure Studies	1-3
HPR 570 Planning of Recreation Facilities and Areas*	3
HPR 572 Principles and Practices in Therapeutic Recreation	3
HPR 573 Administration and Organization of Recreation*	3
HPR 575 Interpretations of Leisure and Recreation*	3
HPR 576 Intramural Programming and Administration*	3
HPR 577 Practicum in Recreation*	9

*Required of all majors
**Senior standing and consent of instructor

Related Professional Requirements

	Hours
STA 370 Introduction to Statistics **or**	4
HPR 445 Introduction to Tests and Measurements	3
Social and Behavioral Sciences (upper division) ECO, ANT, PSY, GEO, PS, and/or SOC*	6
Activities—A minimum of eight credit hours, with at least two hours taken in four of the following areas: HPR professional activity courses, studio courses in theatre, dance, music, and art.	

*These requirements will not count in any other requirements in the program.

Special Option Requirements

The student must select one of the following options.

Community Recreation (12 hours)

	Hours
HPR 374 Principles of Outdoor Recreation and Park Management	3
PS 271 Introduction to Political Behavior	3
Government course (PS 255, 450G, 452G, or 553)	3
PS 473G, 476G, 487G, or 489G **or**	3
MGT 341 Business Law I	3

Therapeutic Recreation (15 hours)

	Hours
ANA 206 Elementary Anatomy	3
HPR 481 Therapeutic Recreation Services	3
HPR 572 Principles and Practices in Therapeutic Recreation	3
PSY 533 Abnormal Psychology	3
EDS 375 Introduction to Education of Exceptional Children	3

Electives

The student may take courses from any college or department. These courses should be approved by the student's adviser and should be selected to supplement and strengthen the student's area of specialization.

SPECIAL EDUCATION

The Department of Special Education offers three different programs of study at the undergraduate level: (1) Learning and Behavior Disorders, (2) Trainable Mentally Handicapped, and (3) Speech and Communication Disorders.

Students enrolling in an undergraduate program should note that it is **not** possible to obtain teacher certification in the usual four-year (eight-semester) undergraduate program. Interested students should contact the department for sample programs that illustrate various options for scheduling course work in order to facilitate program completion at the earliest possible time.

Students should consult The Graduate School Bulletin for graduate-level degree requirements.

Learning and Behavior Disorders

Students graduating from this program obtain Kentucky teacher certification in elementary education (grades 1-8) and in the area of learning and behavior disorders (kindergarten-grade 12). Graduates will be qualified to teach in regular elementary schools; in public school programs for the educable mentally retarded, learning disabled, emotionally disturbed, and orthopedically handicapped; and in noncategorical special education programs for the mildly handicapped. Students are required to complete 143 semester hours of course work. With careful scheduling beginning in the freshman year, this program can be completed in either four and one-half years or four years plus enrollment in two summer sessions.

Academic Requirements

Students follow the same requirements as elementary education majors.

Professional Education Requirements

Students follow the same requirements as elementary education majors.

Core Requirements	Hours
EDS 357 Initial Practicum in Special Education	1
EDS 375 Introduction to Education of Exceptional Children	3
EDS 510 Early Childhood Education of the Handicapped	3
EDS 511 Speech-Language Development and Disorders for the Severely Handicapped (recommended for TMH)	3
or	
EDS 512 Speech-Language Development and Disorders for the Mildly Handicapped (recommended for LBD)	3
EDS 513 Legal and Parental Issues in Special Education	3
EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners	3
EDS 517 Prosthetics for Handicapped Children	3
EDC 317 Introduction to Instructional Media	1

Area Requirements	Hours
EDS 528 Educational Assessment of the Mildly Handicapped	3
EDS 529 Educational Programming for the Mildly Handicapped	3
EDS 458 Field Experiences with Mildly Handicapped Children	3
EDS 459 Student Teaching in Special Education	6

Trainable Mentally Handicapped

Students graduating from this program obtain Kentucky teacher certification in elementary education (grades 1-8) and in the area of the trainable mentally handicapped (kindergarten-grade 12). Students are required to complete 144 semester hours of course work. With careful scheduling beginning in the freshman year, this program can be completed in either four and one-half years or four years plus enrollment in two summer sessions.

Academic Requirements

Students follow the same requirements as elementary education majors.

Professional Education Requirements

Students follow the same requirements as elementary education majors.

Core Requirements	Hours
EDS 357 Initial Practicum in Special Education	1
EDS 375 Introduction to Education of Exceptional Children	3
EDS 510 Early Childhood Education of the Handicapped	3
EDS 511 Speech-Language Development and Disorders for the Severely Handicapped (recommended for TMH)	3
or	
EDS 512 Speech-Language Development and Disorders for the Mildly Handicapped (recommended for LBD)	3
EDS 513 Legal and Parental Issues in Special Education	3
EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners	3
EDS 517 Prosthetics for Handicapped Children	3
EDC 317 Introduction to Instructional Media	1

Area Requirements	Hours
EDS 478 Adaptive Behavior Assessment and Curriculum Design for the TMH Classroom	3
EDS 530 Characteristics of the Mentally Retarded **or**	3
EDS 541 Characteristics of the Trainable Mentally Handicapped	2
EDS 549 Practicum in the Trainable Mentally Handicapped Classroom	4
EDS 360 Teaching Internship in Trainable Mentally Handicapped	6

Speech and Communications Disorders

In keeping with the standards of the American Speech-Language-Hearing Association, the undergraduate program in speech and communication disorders is considered to be a preprofessional degree program. Graduates of the undergraduate program **will not** qualify for public school certification as speech-language clinicians. In order to meet Kentucky and American Speech-Language-Hearing Association certification requirements for this program, it is necessary to complete the master's degree. Consequently, students who desire this certification should plan on devoting five and one-half to six years to complete both the Bachelor of Arts and Master of Science programs.

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning (Prerequisite to all other professional education courses. Upper division education courses may not be taken until after the student has completed EDP 202 and has been admitted to the Teacher Education Program.)	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EPE 301 Education in American Culture	3

Students should consult the University of Kentucky *Schedule of Classes* for prerequisite requirements for each EDS course.

Area Requirements

	Hours
EDS 277 Introduction to Disorders of Speech and Language	3
EDS 285 Applied Phonetics	3
EDS 375 Introduction to Education of Exceptional Children	3
EDS 378 Anatomy and Physiology of Speech	3
EDS 379 Fundamentals of Hearing	3
EDS 380 Pathologies of the Auditory System	3
EDS 382 Clinical Orientation in Speech and Language I	3
EDS 383 Clinical Orientation in Speech and Language II	3
EDS 384 Introduction to Diagnostic Procedures in Speech and Language	3
EDS 511 Speech-Language Development and Disorders for the Severely Handicapped	3
EDS 512 Speech-Language Development and Disorders for the Mildly Handicapped	3
EDS 516 Principles of Behavior Management and Instruction for Exceptional Learners	3
PSY 529 Psycholinguistics	3
EDS 587 Audiometry	3
EDS 588 Disorders of Articulation	3
EDS 589 Cleft Palate	3
EDS 591 Aural Rehabilitation	3

Elective courses

Students select 22-25 semester hours from areas such as special education, linguistics, psychology, and allied health professions to complete the minimum requirements for graduation.

Certification and the Master's Degree

Upon completion of the undergraduate degree and with admission to the master's program,* students complete the following courses for certification and the master's degree.

Course Requirements	Hours
EDS 591 Aural Rehabilitation	3
EDS 656 Clinical Laboratory in Diagnostic Procedures for Speech and Language	2
EDS 657 Clinical Laboratory in Speech and Language	1-4
EDS 670 Disorders of Phonation	3
EDS 673 Neurogenic Disorders of Speech and Language	3
EDS 674 Disorders of Fluency	3
EDS 659 Clinical Externship in Speech Pathology	1-12
EDS 647 Language Disorders II	3
EDS 658 Clinical Laboratory in Audiology	1
EDS 702 Seminar in Speech Pathology	3
Electives outside education	6

*Information concerning admission requirements and criteria is available from the Admissions Coordinator, 166 Taylor Education Building.

VOCATIONAL EDUCATION

The Department of Vocational Education provides for the education of teachers of agriculture, business, distributive education, home economics, trades and industry, and emerging occupations, and for the preparation of administrators, coordinators, and supervisors of local and area programs of vocational education.

The department offers master's degree options in agricultural education, business education, distributive education, home economics education, industrial education, and vocational education. Also, the specialist degree and the Ed.D. are offered in vocational education.

Vocational Agriculture

Requirements are listed in the *College of Agriculture* section of this Bulletin.

Business Education

Students should note that several changes in the Business Education program are anticipated. Students should check with the College of Education, 166 Taylor Education Building, for information on these curricular changes.

University Studies

Students should work closely with advisers to ensure that they select courses which best meet both University Studies requirements and state certification requirements.

Special Studies Component

	Hours
Communications and Humanities*	3
COM 181 Basic Public Speaking **or**	3
COM 101 Introduction to Communications	3
BIO 110 Introduction to Human Biology and Health **or**	3
HPR 145 Concepts in Health and Fitness **or**	3
NFS 101 Food and Nutrition for Man	3
PSY 100 Introduction to Psychology	4

*Consult adviser.

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EDC 317 Introduction to Instructional Media	1
EDV 210 Introduction to Vocational Education **or**	3
EPE 301 Education in American Culture	3
EDV 511 Teaching Secretarial Subjects*	1
EDV 512 Teaching Accounting Subjects*	1
EDV 513 Teaching Typewriting and Clerical Practice	3
EDV 514 Teaching General Business Subjects in the Secondary Schools	3
EDV 393 Student Teaching in Business Education	12
EDA 401 The Professional Teacher: Legal Perspectives	1
EDV 362 Field Experiences in Secondary Education	1

*Professional Education requirements vary slightly, according to which academic area plan (described below) the student selects. EDV 512 is not required for students who choose Plan 1 (Secretarial). EDV 511 is not required for students who select Plan 2 (Basic Business). All of the above courses are required for Plan 3 (Area of Concentration).

Academic Area Plans

Students in business education must select one of the following plans:

Plan 1: Secretarial—31-32 hours of major requirements and two 12-hour support areas

Plan 2: Basic Business—31 hours of major requirements and two 12-hour support areas

Plan 3: Area of Concentration—55 hours.

Students who select Plan 2 or Plan 3 may receive an endorsement for teaching advanced data processing by completing nine hours in data processing (as approved by adviser).

Academic Area Requirements

Secretarial	Hours
BUS 110 Introduction to Office Technology	1
BUS 116 Keyboarding	1
BUS 117 Typewriting	2
BUS 118 Advanced Typewriting	3
BUS 112 Theories and Principles of Shorthand	3
BUS 212 Accelerated Shorthand	3
ACC 201 Principles of Accounting **or**	3
BUS 209 Office Accounting Principles and Applications	4
ECO 201 Principles of Economics I	3
BUS 315 Administrative Office Procedures	3
BUS 317 Business Data Processing for the Office	3
BUS 318 Principles of Information Processing for the Office	3
BUS 556 Business Reports and Communications	3

In addition to these courses, students must complete two 12-hour support areas, which are described below. These areas should be selected with the aid of an adviser.

Basic Business	Hours
BUS 110 Introduction to Office Technology	1
BUS 116 Keyboarding	1
BUS 117 Typewriting	2
BUS 118 Advanced Typewriting	3
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
ECO 201 Principles of Economics I	3
MGT 301 Business Management	3
MGT 340 Law, Business, and Society	3
BUS 315 Administrative Office Procedures	3
BUS 317 Business Data Processing for the Office	3
BUS 556 Business Reports and Communications	3

In addition to these courses, students must complete two 12-hour support areas, which are described below. These areas should be selected with the aid of an adviser.

Area of Concentration

Students complete a total of 55 hours, including all courses listed above for Secretarial and Basic Business academic areas. In addition, they must complete BUS 445, BUS 519, and nine hours of electives from the following: FAM 250, courses from the College of Business and Economics, business and office technology courses, or computer science courses. Electives should be approved by the student's adviser.

Support Areas

Accounting (under direction of adviser)
Business Management (courses selected from MGT 301, 320, 340, 410, 491; FIN 300; COM 325; BUS 445)
Business and Office Technology (courses selected from BUS 315, 316, 318, 445, 460, 519; COM 325; ENG 201)
Data Processing (under direction of adviser)
Economics (courses above ECO 201, under direction of adviser)
Investments (courses selected from FIN 300, 350, 445, 450, 464; MGT 491; and FAM 250)
Marketing (courses selected from MKT 300, 310, 320, 340, 400, 420)
Personnel Management (courses selected from MGT 301, 320, 410, 421, 422, 529)

Courses used in the major may not be counted in support areas. A course cannot be used in more than one support area.

Business and Office Technology

The Business and Office Technology program is available to students enrolled in the College of Education, but it is not a teacher certification program. Students in this program complete one of two areas of concentration: the Office Administration option, for students with supervisory goals; or the Administrative Secretary option, for students with secretarial or administrative support goals. While current requirements for this program are outlined below, students should note that several changes in the Business and Office Technology program are anticipated. Students should check with the College of Education, 166 Taylor Education Building, for information on these curricular changes.

Special Studies	Hours
PSY 100 Introduction to Psychology	4
COM 181 Basic Public Speaking **or**	3
COM 101 Introduction to Communications	3

Special Curriculum Requirements

ENG 203 Business Writing	3
EDP 202 Human Development and Learning	3
EDC 317 Introduction to Instructional Media	1
COM 325 Business and Industrial Communication	3
PSY 502 Introduction to Industrial Psychology **or**	3
PSY 503 Psychology of Industrial Personnel Procedure	3

Area of Concentration

Option A: Office Administration

BUS 110 Introduction to Office Technology	1
BUS 117 Typewriting	2
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
ECO 201 Principles of Economics I	3
ECO 202 Principles of Economics II	3
ACC 301 Intermediate Accounting I	3
ACC 302 Intermediate Accounting II	3
BUS 315 Administrative Office Procedures	3
MGT 301 Business Management	3
MGT 320 Survey of Personnel and Industrial Relations	3
FIN 300 Corporation Finance	3
BUS 445 Office Administration and Services	3
BUS 317 Business Data Processing for the Office	3
BUS 519 Records Management	3
BUS 556 Business Reports and Communications	3

Required Electives

Students select nine hours from the following: BUS 118, 209, 318, 460; ENG 201; MKT 300; MGT 340, 341, 410; ACC 408G.

Option B: Administrative Secretary

	Hours
BUS 110 Introduction to Office Technology	1
BUS 117 Typewriting	2
BUS 118 Advanced Typewriting	3
BUS 112 Theories and Principles of Shorthand	3
BUS 212 Accelerated Shorthand	3
BUS 209 Office Accounting Principles and Applications	4
ENG 201 Etymology	3
ECO 201 Principles of Economics I	3
BUS 315 Administrative Office Procedures	3
BUS 316 Office Simulation	3
MGT 340 Ethical and Regulatory Environment	3
BUS 445 Office Administration and Services	3
BUS 318 Principles of Information Processing for the Office	3
BUS 317 Business Data Processing for the Office	3
BUS 519 Records Management	3
BUS 556 Business Reports and Communications	3

Required Electives

Students select nine hours from the following: STA 200; ACC 201, 202; MKT 300; MGT 301, 341; BUS 460.

Vocational Home Economics

Requirements are listed in the *College of Home Economics* section of this Bulletin.

Industrial and Technical Education

In addition to University Studies requirements, and the Special Studies Component, and Professional requirements (for secondary teaching) listed previously, students in this program must complete the following:

Academic Area Requirements Area of Concentration	Hours
IND 222 Occupational Internship for Industrial Teachers	9
IND 226 Basic Competencies in Industrial Occupations	9
IND 228 Advanced Competencies in Industrial Occupations	9
IND 525 Supervised Work Experience in Business or Industry	9
Courses related to technical specialty (Students should consult with the department chairperson about occupational experience requirements.)	12

ENGINEERING

Ray M. Bowen, Ph.D., is Dean of the College of Engineering. Donald C. Leigh, Ph.D., is Associate Dean of Engineering. David T. Kao, Ph.D., is Associate Dean for Academic Affairs. Lyle N. Back, M.S., is Associate Dean for Undergraduate Affairs and Admissions.

The College of Engineering offers programs leading to undergraduate and graduate degrees in agricultural, chemical, civil, electrical, materials, mechanical, and mining engineering as well as a graduate degree in engineering mechanics. Graduate training in biomedical engineering is also offered through the Colleges of Engineering and Medicine.

Creative accomplishment in the career of an engineer depends upon an education that stresses major ideas and fundamental concepts of engineering rather than specific technologies. The academic programs in engineering provide a sound background in the mathematical, physical and engineering sciences blended with the social sciences and humanities to ensure both a thorough education in engineering and a liberal education. Such an approach provides the best preparation for the engineer who must envisage and develop the technologies of the future and deal with scientific advances at present unknown.

The various curricula in the College of Engineering are broad, so that no student is limited to a narrow field of specialized knowledge but receives sufficient technical depth to provide a sound preparation for a career in engineering.

The first engineering degree from the University of Kentucky was granted in 1890. Since that time over 10,000 degrees have been awarded in the various fields of engineering. Among the alumni of the College of Engineering are those who have distinguished themselves in the major fields of industry, government and education.

Concern for the individual is a most important feature of education in the College of Engineering. Close faculty-student relationships are necessarily a meaningful part of the educational process. The faculty, in addition to their duties related to instruction and research, serve as advisers to the student in the preparation of the academic program best matched to the student's needs and intellectual capabilities.

ADMISSION POLICY

Admission to the University of Kentucky does not guarantee admission to one of the degree programs in the College of Engineering. In addition to the requirements for admission to the University, all applicants seeking admission to one of the engineering degree programs will be considered on the basis of the criteria outlined below. In general, admission depends upon the qualifications and preparation of the applicant, as well as the availability of resources for maintaining quality instruction. The admission criteria listed below are the minimum requirements common for all engineering degree programs. Admission recommendations based on these criteria will be made to the dean by the faculty of the department administering the degree program.

Application must be made for admission to a specific degree program. However, subsequent transfer between programs will be permitted and may be accomplished by applying and satisfying the appropriate specified criteria.

In all admission categories, an applicant whose native language is other than English and who is not a citizen of the United States is required to take the Test of English as a Foreign Language (TOEFL) and to have a minimum score of 550 in order to be considered for admission. (An equivalent score from another English proficiency test similar to TOEFL may be allowed upon request.)

In the admission considerations, when personal, academic, professional, or intellectual circumstances tend to discount low academic or ACT scores, admission may be granted if there is other persuasive evidence of both the capability and motivation to undertake successfully an engineering program.

All undergraduate degree programs are divided into two divisions. The lower division is broadly defined as the first two years of a program, while the upper division is defined as the last two years of the program. Every student must be admitted to the upper division of a specific program prior to graduation.

Lower Division Admission

A. High school applicants with no transfer work must meet all the following minimum admission criteria: (1) a high school grade-point average of 2.5; (2) an ACT composite score at or above the 60th percentile on national (college-bound) norms; (3) an ACT mathematics score at or above the 70th percentile on national (college-bound) norms.

B. Transfer applicants who have completed at least 10 semester hours of mathematics, chemistry, and/or physics applicable to their degree program must meet the following minimum criteria: (1) a cumulative grade-point average of 2.5; (2) a grade-point average of 2.5 in the group of courses made up of the mathematics, chemistry, physics, and English applicable to the degree program.

C. Transfer applicants with fewer hours than specified in B. above must meet the requirements in A. above plus meet the grade-point average requirements in B. for the transfer work that has been attempted.

Application deadlines for lower division admission to the College of Engineering are the same as those for general admission to the University.

Upper Division Admission

There are two procedures available to obtain upper division admission into a College of Engineering degree program. These two procedures are described in detail below. Upper division admission into a degree program is necessary in order to be granted a baccalaureate degree from the College of Engineering. Students must complete at least 30 of the last 36 hours of their programs in residence at the University. At least 24 of these 30 credit hours must be earned in engineering courses at or above the 300 level approved for this purpose by the department.

A. **Automatic Admission.** Students enrolled in the lower division of a degree program and those applying to enter a program who are qualified to enter lower division may progress to the upper division of that program if they meet the following criteria: (1) submission of application for upper division in a department; (2) completion of a minimum of 50 semester hours acceptable toward the degree program with a minimum cumulative grade-point average of 2.5.; (3) completion of the program requirements with a minimum grade-point average of 3.0 in the following courses—freshman English (writing courses), freshman chemistry course sequence, physics course sequence, calculus course sequence; (4) completion of the additional specific program admission requirements as listed below.

B. **Admission Based Upon Departmental Review.** This procedure is available for those individuals who meet the requirements in A. above (1, 2, 3, and 4) with the exception of the grade-point averages. These individuals are encouraged to apply for a review of their academic record by the department of their choice. This review will give the student the oppor-

tunity to have his or her record evaluated in order to determine if there are special circumstances which should be considered in support of the admission decision. The specific criteria to be used during the departmental review can be obtained from each departmental office. In general terms, the criteria will consist of tangible factors such as overall grade-point averages, grades in specific courses, and resources available and intangible factors such as personal motivation, work experiences, and career plans. No department will consider an individual for admission unless the two grade points mentioned in A. above are both greater than or equal to 2.25.

All students must apply for admission to the upper division of a specific engineering department. Those students who do not qualify for upper division in the department of their choice may be eligible for consideration for upper division in another engineering department.

Applications for students on the Lexington campus must be received no later than February 1 for admission for the fall semester and/or summer sessions. Off-campus students must apply no later than March 1 for admission to either summer term and May 15 for the fall semester. For spring semester admission, on-campus applications must be received by September 15 and off-campus applications must be received by October 1.

Lower division students who meet all of the other requirements for upper division but who do not have a sufficient grade-point average to qualify for upper division in their department must move to another department in which they qualify for upper division or leave the College of Engineering within two semesters.

Additional Specific Program Admission Requirements

Civil Engineering requires the completion of EM 221, Statics, in addition to previously listed required program courses, and a grade of C or better in any civil engineering (or equivalent) course used to satisfy a degree requirement.

Electrical Engineering requires completion of EE 211, EE 221, and EE 222 with a grade of C or better in each course.

COMBINED DEGREE PROGRAM

The College of Engineering has formal three-two-year dual degree programs with some academic institutions throughout the state. Other academic institutions choose to offer this option to their students without benefit of a formal agreement. These programs enable students to enroll in a pre-engineering curriculum for the first three years at their respective schools and then transfer to the College of Engineering for the final two years. Upon completion, they receive two degrees, one from the school at which they originally enrolled and the other, a Bachelor of Science in the appropriate field of engineering from the University of Kentucky.

COOPERATIVE EDUCATION PROGRAM

The Cooperative Education program gives students the opportunity to gain practical work experience before graduation by allowing them to alternate semesters of academic study with salaried, full-time career-related employment. Students who wish to participate in the Cooperative Education program in the College of Engineering should contact the Director of Cooperative Education or the Coordinator, 205 Anderson Hall, (606) 257-8864 or 257-8863.

To be eligible for this program, students should have a minimum grade-point average of 3.0. In addition, they should complete all the courses in the first two semesters of the degree program prior to the first work tour. Students will remain on a full-time, continuing student status while they are at work by registering for a one-hour, pass/fail course. The grade, assigned by the director, is based on both a work report written by the student and an evaluation completed by the immediate supervisor. Students who follow the program directives will extend their time in college by about one year and will gain a minimum of one year of professional experience.

The Cooperative Education program contributes significantly to the student's academic motivation, career preparation, and interpersonal skills development. Over 100 students and 40 employers nationwide now participate in the UK program.

CONTINUING EDUCATION AND EXTENSION

The College of Engineering recognizes the rapid changes occurring in modern engineering technology. Students in engineering are made aware of the need to continue their studies after graduation. One of the ways to keep abreast of advances in engineering is for graduates to participate in continuing education programs now available through the engineering colleges throughout the country.

The responsibilities of the Office of Continuing Education and Extension at the University of Kentucky are to:

1. create and manage appropriate intensive noncredit technical courses of interest to and needed by practicing engineers;
2. plan programs to aid other colleges in the University requiring engineering services to develop the economy of the state (This service is provided as a cooperative effort with the practicing professional engineers in Kentucky.);
3. plan international programs to aid other offices in the University for the improvement of educational institutions of developing countries.

UNDERGRADUATE DEGREES

The College of Engineering offers instruction leading to the following baccalaureate degrees:

Bachelor of Science in Agricultural Engineering
Bachelor of Science in Chemical Engineering
Bachelor of Science in Civil Engineering
Bachelor of Science in Electrical Engineering
Bachelor of Science in Materials Engineering
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Mining Engineering

All of these programs are fully accredited by the Accreditation Board for Engineering and Technology.

While these are the official degrees granted at the bachelor's level in the college, the prospective student is encouraged to study the wide variety of options available through technical electives, some of which are listed following the degree requirements of each department. Technical electives are included in each curriculum to allow the student to apply the fundamentals of a particular department to an area of special interest during the senior year.

Students in any department interested in biomedical engineering may make special arrangements to include a limited amount of such studies in the undergraduate program. Biomedical engineering is primarily the application of engineering principles to the solution of medical problems.

The Department of Chemical Engineering has approved an optional program in premedicine or predentistry. Students majoring in chemical engineering may arrange through their adviser to take courses which will satisfy the degree requirements for this program.

Each department lists one or more supportive electives. Only these supportive electives can be taken by the pass-fail option. A supportive elective is any University course excluding more elementary versions of required courses such as precalculus mathematics or PHY 211.

Graduate programs in the engineering fields of study are listed in *The Graduate School* section of this Bulletin.

MINIMUM REQUIREMENTS FOR GRADUATION

To be awarded the Bachelor of Science degree in any of the fields of engineering, a student must:

1. complete University Studies requirements.
2. complete a minimum of 128 hours, exclusive of those earned in freshman college algebra and freshman college trigonometry with a cumulative standing of not less than 2.0 on a 4.0 scale.
3. complete the courses in the required curriculum for the engineering program of the student's choice.
4. complete a minimum of 24 of the last 30 credit hours from courses at or above the 300 level approved by the department.
5. complete any additional departmental graduation requirements that may be listed below.

While the curriculum for each of these degrees is listed under the appropriate department, in the traditional four-year format, the average student usually takes additional time in a summer session(s) or an additional semester to complete the requirements for a degree.

Additional Departmental Graduation Requirements

All students graduating in agricultural engineering must have a cumulative standing of 2.0 in all upper division agricultural engineering courses (300 level or above) and all technical electives to be credited toward satisfying their degree requirements.

In the Department of Chemical Engineering, the student must have a cumulative standing of 2.0 in all required chemical engineering courses except senior laboratories, senior design courses, and the CME elective.

In the Department of Electrical Engineering, the student must have a cumulative standing of 2.0 in all required electrical engineering courses (core courses at the 200, 300, and 400 level).

In the B.S. programs in both civil engineering and mining engineering, the student must have earned a grade of C or better in each civil engineering and mining engineering course to be credited toward satisfying the degree requirements.

Second Bachelor's Degree Requirements

A student who has earned a bachelor's degree in the College of Engineering may earn a second bachelor's degree by meeting the following three conditions on the work applicable to the second degree:

1. The student must have been admitted to the upper division of the program leading to the second degree at least for the final semester, or equivalent terms, prior to the completion of the degree requirements, and must be enrolled as a student in that degree program during the final semester or term. No student can be simultaneously enrolled in two degree programs.
2. The student must complete a minimum of 15 credit hours of departmentally approved courses at or above the 300 level.
3. To earn a second degree, a student must complete all degree requirements in that program.

University Studies and ABET Requirements

While satisfying the University Studies requirements, engineering students must also meet the Accreditation Board for Engineering and Technology (ABET) requirement in humanistic-social studies. This 18-hour requirement can be satisfied with courses selected from University Studies areas III-B, III-C, V, and some courses in area IV. Students should work closely with their advisers to insure proper completion of this requirement.

PROBATION AND ACADEMIC SUSPENSION

Students should refer to the *Academic Requirements* section of this Bulletin for information concerning the College of Engineering's probation and academic suspension rules.

AGRICULTURAL ENGINEERING

The curriculum in agricultural engineering is administered jointly by the College of Engineering and the College of Agriculture.

Work in agricultural engineering depends upon knowledge of both engineering and biological sciences. Agricultural engineers apply the principles of engineering science to agricultural problems, such as the design of controlled environment farm structures, soil and water management systems, and new, more effective ways to use fuel and power.

Degree Requirements

The following curriculum meets the requirements for a B.S. in agricultural engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
ENG 101 Writing I	3
MA 113 Calculus I	4
CHE 105 General College Chemistry I	3
AEN 102 Agricultural Engineering Problems	1
ME 105 Basic Engineering Graphics	2
University Studies*	3
Second Semester	
MA 114 Calculus II	4
CHE 107 General College Chemistry II	3
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
CS 221 First Course in Computer Science for Engineers	2
ENG 102 Writing II	3

Sophomore Year

First Semester	Hours
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
EM 221 Statics	3
AEN 100 Introduction to Surveying	1
University Studies*	3
Second Semester	
MA 214 Calculus IV	3
ME 220 Engineering Thermodynamics I	3
EM 302 Mechanics of Deformable Solids	3
EM 303 Deformable Solids Laboratory	1
Biological Science Elective**	3
University Studies*	3

Junior Year

First Semester	Hours
ME 330 Fluid Mechanics	3
EM 313 Dynamics	3
EE 305 Electrical Circuits and Electronics	3
AEN 301 Microelectronic Applications in Agricultural Engineering	3
COM 181 Basic Public Speaking	3
Second Semester	
AEN 417G Introduction to Design of Agricultural Machinery	3
AEN 437G Soil and Water Conservation Engineering	3
ME 325 Elements of Heat Transfer	3
AEN 302 Analytical and Numerical Methods in Agricultural Engineering	3
University Studies*	3
Biological Science Elective**	3

Senior Year

First Semester	Hours
AEN 007 The Engineering Profession	0
AEN 427G Design of Agricultural Structures	3
AEN 447G Processing and Food Engineering	3
University Studies*	3
Supportive Elective†	3
Technical Electives††	4-6
Second Semester	
University Studies*	3
Technical Electives††	12

*To be selected from University Studies areas in Social Science (6 hours), Humanities (6 hours), Cross-Cultural (3 hours), and Cross-Disciplinary (3 hours/one-half of requirement) in consultation with academic adviser.

**Select from an approved list of biological science electives.

†Supportive electives are to be chosen from any University courses, excluding more elementary versions of required courses such as precalculus mathematics or PHY 211.

††A minimum of 16 hours to be selected in consultation with the student's academic adviser from a list of

courses approved by the Agricultural Engineering Department. At least 7 of these hours must be in course material classified as engineering science and at least 4 hours in material classified as engineering design.

Technical Electives: These courses offer the student an opportunity to concentrate or gain depth in one or more of the various specialty areas of agricultural engineering. They must be selected from the courses listed below and approved by the student's academic adviser. Other courses may be considered, each on its individual merit. In selecting technical electives students may choose to increase their knowledge of agricultural engineering in general, or to concentrate in one or more of the recognized professional areas of agricultural engineering. These include: agricultural processing, food engineering, power and machinery, structures and environment, soil and water engineering, and agricultural waste management. Interested students are encouraged to contact the Agricultural Engineering Department to discuss technical elective sequences recommended by the department for those students wishing to specialize in any of these areas. Acceptable technical electives include: AEN 406G, 450, 480G, 503, 505, 519, 525, 536, 537, 548, 550, 568; AGR 366, 566, 575, 576; ASC 378; BIO 350, 476G, 530; CME 205, 210, 412, 462; CHE 236; CE 351, 381, 382, 451, 461G, 471G, 482, 485G, 521, 542, 549, 559; EE 306; EM 513, 531; FSC 530, 534, 536, 538; ME 321, 340, 344, 440, 480G, 501, 506, 529, 542.

Biological Science Electives: AGR 386, 366; BIO 104, 106, 108, 109, 276; and GEN 104, 106 are recommended. However, other courses will be considered, each on its individual merit.

CHEMICAL ENGINEERING

A foundation in mathematics, chemistry, and physics is required for the study of chemical engineering. Fundamental principles related to the transformations of matter and energy are developed in areas such as thermodynamics, mass transfer, reactor design, and chemical process design. Undergraduate elective options are available in energy engineering and environmental protection. A program is also available to fulfill premedical and predental requirements simultaneously with requirements for the B.S. in chemical engineering.

Degree Requirements

The following curriculum meets requirements for the B.S. in chemical engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
CME 101 Introduction to Chemical Engineering	1
CHE 105 General College Chemistry I	3
ENG 101 Writing I	3
MA 113 Calculus I	4
University Studies*	3
University Studies*	3

Second Semester

CME 002 The Engineering Profession	0
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Writing II	3
MA 114 Calculus II	4
CS 221 First Course in Computer Science for Engineers	2

Sophomore Year

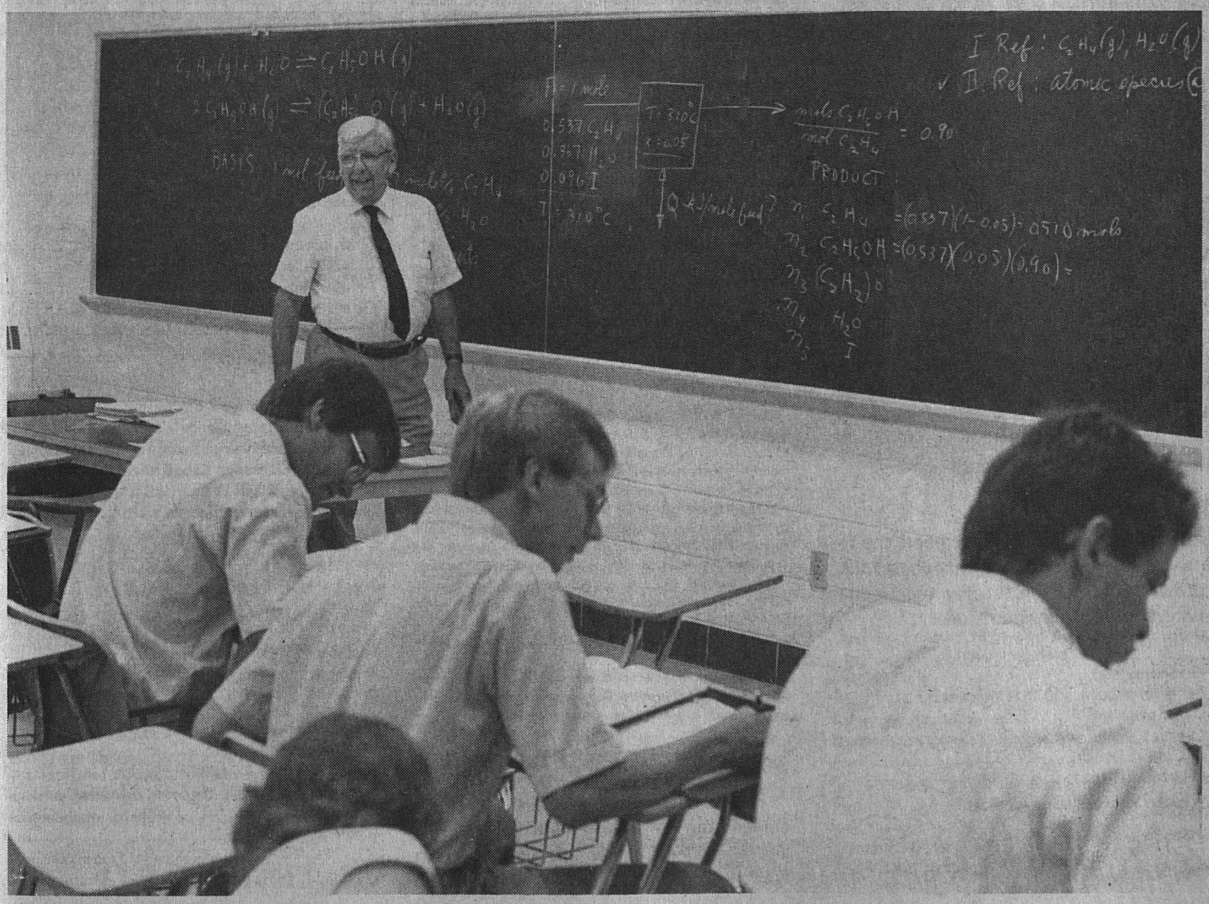
First Semester	Hours
CME 205 Process Principles I	2
CHE 230 Organic Chemistry	3
MA 213 Calculus III	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
University Studies*	3

Second Semester

CME 210 Process Principles II	2
CHE 231 Laboratory for CHE 230	1
CHE 232 Organic Chemistry	3
MSE 201 Materials Science	3
MA 214 Calculus IV	3
PHY 232 General University Physics	4

Junior Year

First Semester	Hours
CME 320 Engineering Thermodynamics	3
CHE 440G Physical Chemistry	3
ME 330 Fluid Mechanics	3
COM 199 Presentation Communication Skills	1
University Studies*	3
Supportive Elective**	3



Second Semester

CME 412 Staged Mass Transfer Processes.....2
CME 425 Heat and Mass Transfer.....4
CME 420 Process Modeling in Chemical Engineering.....3
CHE 441G Physical Chemistry Laboratory.....2
Technical Elective.....3
University Studies*.....3

Senior Year

First Semester	Hours
CME 470 Professionalism, Ethics and Safety	1
CME 431 Chemical Engineering Laboratory I	2
CME 455 Chemical Engineering Process Design I	3
CME 462 Process Control	3
CME 550 Chemical Reactor Design	3
Elective (CME)	3
University Studies*	3

Second Semester

CME 471 Seminar.....1
CME 432 Chemical Engineering Laboratory II.....2
CME 456 Chemical Engineering Process Design II.....4
CME 570 Chemical Separation and Measurement for Chemical Engineers.....4
EE 305 Electrical Circuits and Electronics.....3
Elective (CME).....3

*Select from University Studies areas in Social Science (6 hours), Humanities (6 hours), Cross-Cultural (3 hours) and Cross-Disciplinary (3 hours/one-half the requirement) in consultation with academic adviser.

**Supportive elective is to be chosen from any University course, excluding a more elementary version of a required course, such as precalculus mathematics or PHY 211.

CME Electives: Courses recommended as Chemical Engineering electives are listed below. Other courses will be considered, each on its individual merit.

CME 395 Special Problems in Chemical Engineering
CME 505 Analysis of Chemical Engineering Problems
CME 515 Air Pollution Control
CME 530 Transport I
CME 552 Polymeric Materials
CME 554 Chemical and Physical Processing of Polymer Systems
CME 555 Advanced Chemical Engineering Process Design I
CME 560 Non-Newtonian Flow and Heat Transfer
CME 565 Energy Engineering
CME 580 Design of Rate and Equilibrium Processes for Water Pollution Control

CIVIL ENGINEERING

The student of civil engineering has a broad field of study. Major areas include geotechnical engineering, hydraulic engineering, structural engineering, surveying and photogrammetry, transportation engineering, and water quality engineering.

Degree Requirements

The following curriculum meets the requirements for a B.S. in civil engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
CE 121 Introduction to Civil Engineering Systems	3
CE 106 Computer Graphics and Communication	3
MA 113 Calculus I	4
CHE 105 General College Chemistry I	3
ENG 101 Writing I	3

Second Semester

CE 110 Plane Surveying.....3
ENG 102 Writing II.....3
MA 114 Calculus II.....4
PHY 231 General University Physics.....4
PHY 241 General University Physics Laboratory.....1
CHE 107 General College Chemistry II.....3

Four-Week Intersession

CE 215 Route, Control, and Topographic Surveying.....4

Sophomore Year

First Semester	Hours
CS 221 First Course in Computer Science for Engineers	2
EM 221 Statics	3
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
University Studies*	3

Second Semester

EM 302 Mechanics of Deformable Solids.....3
EM 303 Deformable Solids Laboratory.....1
MA 214 Calculus IV.....3
GLY 240 Elementary Geology for Engineers.....4
ME 220 Engineering Thermodynamics I.....3
University Studies*.....3

Junior Year

First Semester	Hours
CE 381 Civil Engineering Materials	3
CE 382 Structural Mechanics	3
EM 313 Dynamics	3
CE 341 Fluid Mechanics I	3
CE 331 Transportation Engineering	3
University Studies*	3

Second Semester

CE 303 Introduction to Construction Engineering.....3
CE 441 Fluid Mechanics II.....3
CE 451 Water Quality Engineering.....3
CE 471G Soil Mechanics.....3
Mathematics Elective**.....3
University Studies*.....3

Senior Year

First Semester	Hours
CE 421 Civil Engineering Systems Analysis	3
CE 461G Hydrology	3
Structures Elective†	3
Technical Electives***	6
University Studies*	3

Second Semester

CE 401 Seminar.....1
System Design Elective††.....4
Supportive Elective†††.....3
University Studies*.....3
Technical Elective***.....3

*To be selected from University Studies areas in Social Science (6 hours), Humanities (6 hours), Cross-Cultural (3 hours), and Cross-Disciplinary (3 hours/one-half the requirement) in consultation with academic adviser.

**The mathematics elective is to be chosen from the following: MA 432G, 433G, 481G; STA 320, 381; CS/MA 321.

***The technical electives are to be chosen from any of the courses at the 300 level or above which carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. EM 503, 513, 531, and 532 are also acceptable.

†The structures elective is to be chosen from the following: CE 482, 487G, or 486G.

††The system design elective is to be chosen from the following: CE 539, 569, 589.

†††The supportive elective is to be chosen from any University course excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

ELECTRICAL ENGINEERING

The Electrical Engineering program includes courses dealing with the analysis and design of equipment ranging from electronic circuits and systems to machinery and optical devices. Fundamentals of communication theories, electronic devices, quantum electronic devices, computers, digital engineering, and fields and waves are also concerns of the program.

Degree Requirements

The following curriculum meets the requirements for a B.S. in electrical engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
EE 101 Electrical Engineering Professions Seminar	1
MA 113 Calculus I	4
CHE 105 General College Chemistry I	3
CS 221 First Course in Computer Science for Engineers	2
ENG 101 Writing I	3
University Studies*	3

Second Semester

MA 114 Calculus II.....4
CHE 107 General College Chemistry II.....3
PHY 231 General University Physics.....4
PHY 241 General University Physics Laboratory.....1
ENG 102 Writing II.....3

Sophomore Year

First Semester	Hours
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
EE 211 Circuits I	4
COM 181 Basic Public Speaking	3

Second Semester

MA 214 Calculus IV.....3
EE 221 Circuits II.....3
EE 222 Electrical Engineering Laboratory I.....2
Engineering/Science Elective (A)††.....3
Engineering/Science Elective (B)††.....3
University Studies*.....3

Junior Year

First Semester	Hours
EE 420G Electrical Engineering Analysis I	3
EE 461G Introduction to Electronics	3
EE 462G Electrical Engineering Laboratory II	2
EE 467G Electric and Magnetic Fields	3
EE 480G Logical Design	3
Mathematics Selection†	3

Second Semester

EE 415G Electromechanics I.....3
EE 416G Electrical Engineering Laboratory III **or**
EE 481 Logical Design Laboratory.....2
EE 468G Fields and Waves.....3
Engineering/Science Elective (A/B)††.....3
University Studies*.....3
Technical Elective†††.....3

Senior Year

First Semester	Hours
EE 471G Linear Feedback Control Systems	3
Engineering/Science Elective††	3
Electrical Engineering Technical Electives**	6
University Studies*	6

Second Semester

EE 491 Seminar.....1
EE 499 Electrical Engineering Design.....3
Electrical Engineering Technical Electives**.....6
Supportive Elective***.....3
University Studies*.....3

*Select from University Studies areas in Social Science (6 hours), Humanities (6 hours), Cross-Cultural (3 hours) and Cross-

Disciplinary (3 hours/one-half the requirement) in consultation with academic adviser.

**All electrical engineering technical electives are to be selected from the approved course list in consultation with the academic adviser.

***Supportive elective is to be chosen from any University course, excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

†To be selected from MA 320, 321, 322.

††Engineering/Science electives are to be chosen from an approved course list in consultation with the academic adviser. Students must choose at least one course from Group A and at least one course from Group B.

†††The technical elective may be selected from upper division engineering mathematics, statistics, computer science, physics, or other technically-related fields in consultation with the academic adviser.

Engineering/Science Electives: Group A—MSE 212; ME 220, 330; EM 221, 313, 230. Group B—CS 250, 270, 370; PHY 361; MA 432G, 433G.

EE Technical Electives: Courses recommended as electrical engineering technical electives are listed below.

EE 511 Introduction to Communication Systems
EE 512 Digital Communication Systems
EE 517 Advanced Electromechanics
EE 522 Antenna Design
EE 523 Microwave Circuit Design
EE 530 Robotics
EE 537 Electric Power Systems I
EE 538 Electric Power Systems II
EE 560 Semiconductor Device Design
EE 561 Electric and Magnetic Properties of Materials
EE 562 Analog Electronic Circuits
EE 564 Digital Electronic Circuits
EE 567 Introduction to Lasers and Masers
EE 581 Advanced Logical Design
EE 583 Microprocessors
EE 599 Topics in Electrical Engineering

ENGINEERING MECHANICS

The Department of Engineering Mechanics teaches undergraduate courses in the general area of solid mechanics, some of which are required in the curricula in the other engineering departments. Others are available as technical electives. Although there is no baccalaureate degree program in the department, graduate programs leading to the M.S. and Ph.D. degrees are available. Students should consult The Graduate School Bulletin for more information.

MATERIALS ENGINEERING

The materials engineer is responsible for the preparation, fabrication, selection, use and reuse of existing materials and for the development of new and improved materials. The professional in this field is being called on more and more to consider nonmetallic materials as well as metals. The engineer considers chemical, electronic, magnetic, optical, and mechanical properties of materials.

Degree Requirements

The following curriculum meets the requirements for a B.S. in materials engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
MSE 101 Materials Engineering	1
ENG 101 Writing I	3
MA 113 Calculus I	4
CHE 105 General College Chemistry I	3
ME 105 Basic Engineering Graphics	2
University Studies*	3
Second Semester	
MSE 102 Metals Technology	1
MA 114 Calculus II	4
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1

Sophomore Year

First Semester	Hours
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
MSE 201 Materials Science	3
CME 205 Process Principles I	2
ENG 102 Writing II	3
Second Semester	
MA 214 Calculus IV	3
CME 210 Process Principles II	2
MSE 202 Electrical and Electronic Materials	2
EM 221 Statics	3
CS 221 First Course in Computer Science for Engineers	2
ECO 201 Principles of Economics I	3

Junior Year

First Semester	Hours
ME 330 Fluid Mechanics	3
CME 320 Engineering Thermodynamics	3
MSE 361 Structure and Properties of Alloys I	4
EM 302 Mechanics of Deformable Solids	3
ECO 202 Principles of Economics II	3
Second Semester	
ME 325 Elements of Heat Transfer	3
MSE 362 Structure and Properties of Alloys II	4
CHE 440G Physical Chemistry***	3
CE 521 Engineering Economy	3
University Studies*	3

Senior Year

First Semester	Hours
CHE 236 Organic Chemistry	4
MSE 535 Mechanical Metallurgy	3
MSE 442 Extractive Metallurgy	4
MSE 550 Corrosion	3
University Studies*	3
Second Semester	
MSE 538 Deformation Processing	4
EE 305 Electrical Circuits and Electronics	3
MSE 480 Metallurgical Design	3
University Studies*	3
Supportive Elective**	3

*Students select from University Studies in consultation with academic adviser.

**Supportive electives are any University courses, excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

***MSE 451, Metallurgical Thermodynamics and Kinetics, may be substituted.

MECHANICAL ENGINEERING

The training of the mechanical engineer is the broadest among the several fields of engineering. The mechanical engineer uses the techniques of mathematics combined with a specialized knowledge of the thermal and energy sciences, solid and fluid mechanics, and the properties of materials. This information is supplemented by an understanding of manufacturing processes, the design and control of systems, and the economics of the technological community.

Degree Requirements

The following curriculum meets the requirements for a B.S. degree in mechanical engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
ME 101 Orientation to Mechanical Engineering (Freshman and Transfer Student)	1
ME 105 Basic Engineering Graphics	2
CHE 105 General College Chemistry I	3
MA 113 Calculus I	4
ENG 101 Writing I*	3
University Studies**	3
Second Semester	
ME 151 Manufacturing Engineering	3
CHE 107 General College Chemistry II	3
University Studies**	3
MA 114 Calculus II	4
ENG 102 Writing II*	3

Sophomore Year

First Semester	Hours
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
MA 213 Calculus III	4
CS 221 First Course in Computer Science for Engineers	2
University Studies**	6
COM 181 Basic Public Speaking	3
Second Semester	
ME 220 Engineering Thermodynamics I	3
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
MA 214 Calculus IV	3
EM 221 Statics	3
University Studies**	3

Junior Year

First Semester	Hours
ME 321 Engineering Thermodynamics II	3
ME 330 Fluid Mechanics	3
EM 302 Mechanics of Deformable Solids	3
EM 313 Dynamics	3
MSE 201 Materials Science	3
University Studies**	3
Second Semester	
ME 310 Engineering Experimentation I	3
ME 344 Mechanical Design	3
ME 325 Elements of Heat Transfer	3
ME 340 Introduction to Mechanical Systems	3
Technical Elective***	3

Senior Year

First Semester	Hours
ME 007 The Engineering Profession	0
ME 311 Engineering Experimentation II	3
EE 305 Electrical Circuits and Electronics	3
ME 440 Design of Control Systems	3
Mathematics Elective***	3
ME 347 Dynamic Analysis of Design Problems	3
Technical Elective***	3
Second Semester	
ME 008 The Engineering Profession	0
ME 412 Senior Design Project	3
EE 306 Electrical Circuits and Machinery or EE 480G Logical Design	3
Technical Elective***	3
Supportive Elective†	3
University Studies**	3

*Students who complete the University Writing requirement by taking ENG 105 must take a three-hour course to meet the 132 credit hour requirement.

**To be selected from University Studies areas in Social Science (6 hours), Humanities (6 hours), Cross-Cultural (3 hours), and Cross-Disciplinary (3 hours/one-half the requirement) in consultation with academic adviser.

***All electives to be selected in consultation with the academic adviser.

†The supportive elective is to be chosen from any University course, excluding more elementary versions of required courses such as precalculus mathematics or PHY 211.

Technical Electives: Students should select from the list below.

ME 346 Mechanical Systems Design
ME 358 Economic Analysis of Mechanical Systems
ME 359 Management Engineering
ME 366 Thermal Power Systems
ME 380 Topics in Mechanical Engineering
ME 395 Independent Work in Mechanical Engineering
ME 448 Case Studies in Mechanical Design
ME 475G Introduction to Nuclear Engineering
ME 480G Thermal Environmental Engineering
ME 501 Mechanical Design with Finite Element Methods
ME 506 Computer-Aided Graphics and Design
ME 510 Dynamics and Design of Robot Manipulators
ME 514 Nuclear Reactor Analysis I
ME 529 Applied Fluid Mechanics
ME 530 Gas Dynamics
ME 531 Fluid Dynamics I
ME 540 Analysis and Simulation of Dynamic Systems
ME 542 Kinematic Synthesis of Mechanisms
ME 543 Kinematics of Machinery
ME 550 Application of Heat Transfer
ME 560 Engineering Optics
ME 563 Basic Combustion Phenomena
ME 564 Propulsion System Design
ME 566 Direct Energy Conversion Processes
ME 568 Solar Energy Systems
ME 583 Biotechnology
ME 590 Elements of Aerospace Technology
ME 599 Topics in Mechanical Engineering
EGR 599 Topics in Engineering
EM 513 Mechanical Vibrations
EM 531 Advanced Strength of Materials

MINING ENGINEERING

Mining engineering requires the broadest knowledge of sciences and other fields of engineering in its practice after graduation. The curriculum below prepares the student for a career in the field of mining.

Degree Requirements

The following curriculum meets the requirements for a B.S. in mining engineering, provided the student satisfies the graduation requirements listed earlier.

Freshman Year

First Semester	Hours
MA 113 Calculus I	4
MNG 121 Elements of Mining	3
CHE 105 General College Chemistry I	3
ENG 101 Writing I	3
CE 110 Plane Surveying	3

Second Semester

MA 114 Calculus II	4
ME 105 Basic Engineering Graphics	2
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
CHE 107 General College Chemistry II	3
ENG 102 Writing II	3

Four-Week Intersession

CE 215 Route, Control, and Topographic Surveying	4

Sophomore Year

First Semester

ECO 201 Principles of Economics I	3
EM 221 Statics	3
CS 221 First Course in Computer Science for Engineers	2
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1

Second Semester

EM 302 Mechanics of Deformable Solids	3
EM 303 Deformable Solids Laboratory	1
MNG 332 Mine Plant Machinery	3
MA 214 Calculus IV	3
ME 220 Engineering Thermodynamics I	3
ECO 202 Principles of Economics II	3

Junior Year

First Semester	Hours
CE 341 Fluid Mechanics I	3
GLY 240 Elementary Geology for Engineers	4
Supportive Elective**	3
STA 381 Introduction to Engineering Statistics	3
MNG 301 Minerals Processing	3
University Studies*	3

Second Semester

EE 306 Electrical Circuits and Machinery	3
Technical Elective***	3
MNG 341 Mine Ventilation	3
GLY 450G Stratigraphy and Sedimentation	3
MNG 463 Surface Mining Operations	3
University Studies*	3

Senior Year

First Semester	Hours
MNG 551 Rock Mechanics	4
MNG 431 Mine Systems Engineering	3
Technical Elective***	3
MNG 464 Underground Mining Operations	3
University Studies*	3

Second Semester

MNG 371 Seminar	1
MNG 562 Mine Design Project	3
University Studies*	3
Supportive Elective**	3
Technical Electives***	6

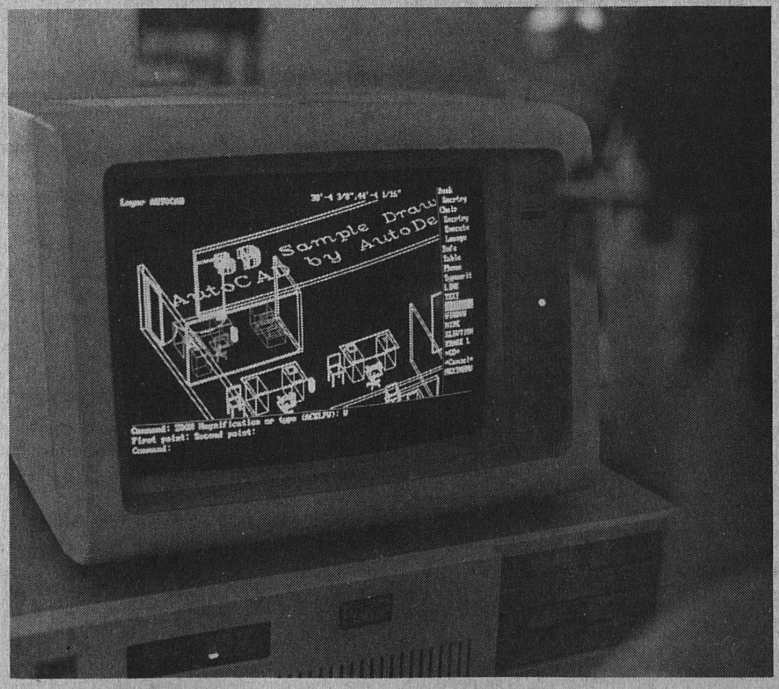
*Students select from University Studies in consultation with academic adviser.

**The supportive electives are to be chosen from any University courses excluding more elementary versions of required courses such as precalculus mathematics.

***The technical electives are to be chosen in consultation with academic adviser.

Technical Electives: Of the four technical electives provided for in the undergraduate program, students are required to select at least three from departmental courses. The remaining course, chosen with the approval of the student's adviser, often can be used to fulfill specific educational goals.

MNG 222 Mine Law and Safety
MNG 312 Computer Methods in Mining Engineering
MNG 322 Coal Preparation
MNG 395 Independent Work in Mining Engineering
MNG 411 Mining Management and Economics
MNG 490G Explosives and Blasting Engineering
MNG 561 Mine Construction Engineering I
MNG 572 Advanced Coal Preparation
MNG 581 Mine Valuation
MNG 599 Topic in Mining Engineering
AEN 536 Fluvial Hydraulics
AGR 501 Reclamation of Disturbed Land
CE 382 Structural Mechanics
CE 471G Soil Mechanics
CE 482 Elementary Structural Design
CE 485G Design of Timber Structures, Formwork and Falsework
CE 521 Engineering Economy
CE 549 Engineering Hydraulics
CE 579 Geotechnical Engineering
GLY 420G Structural Geology
GLY 515 General Coal Geology



FINE ARTS

Richard C. Domek, Jr., Ph.D., is Dean of the College of Fine Arts.

The College of Fine Arts was established in September 1976 and includes the Department of Art, the Department of Theatre, the School of Music, and the Otis A. Singletary Center for the Arts. It offers the following undergraduate degrees: Bachelor of Arts, Bachelor of Fine Arts (in art studio and theatre), Bachelor of Music in music performance, and Bachelor of Music in Music Education. The college also offers several graduate programs, which are described in The Graduate School Bulletin.

Departmental Majors

Students in the College of Fine Arts may select a major from one or more of the following: art education (B.A.), art history (B.A.), art studio (B.A. or B.F.A.), music (B.A.), music performance (B.M.), music education (B.M.E.), theatre (B.A. or B.F.A.), arts administration (B.A.), or individual study (B.A.).

Departmental Minors

Students from any college may choose to have an interdisciplinary minor in the arts, or to minor in art history, art studio, music (performance or general), or theatre. Requirements for these minors may be found under the departmental listings.

Requirements for the Bachelor of Arts Degree

Students who wish to pursue the Bachelor of Arts degree within the College of Fine Arts must fulfill the following requirements:

University Requirements

All students must fulfill University Studies requirements. Students should work closely with advisers in selecting courses in each area.

College Requirements

1. Students must complete at least 120 hours of course work or its equivalent with a grade-point average of at least 2.0. Of these hours, 39 must be at or above the 300 level.

2. In addition to the Basic Skills requirement for foreign language in University Studies, students in music and students in art history (major or minor) must 1) satisfy a four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence, or 2) pass the third semester course in one language and the second semester course in a second language or demonstrate equivalent competence.

3. Students must complete either a major or an individual study program.

Requirements for a Major

The major—selected from art education, art history, art studio, music, theatre, or arts administration—must include at least 45 credit hours. Among these 45 hours students must include the following:

1. At least six hours of premajor work.
2. At least 18 hours at or above the 200 level in a departmental or school program.
3. At least 15 hours in work related to but outside the major department, six hours of which must be within the College of Fine Arts. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

In addition, students must complete the departmental or school requirements that have been established. Specific major requirements are outlined in detail under the appropriate department and school sections which follow.

Requirements for an Individual Study Program

Students who have interests that cross disciplinary lines may prepare, in consultation with a college faculty adviser, an individual study program. In addition to the University and College requirements of the B.A. degree listed above, students must meet these requirements:

1. Of the 120 credit hours required for this degree, at least one-half (60 credit hours) must be in Fine Arts courses. If the student has a focus within a single Fine Arts discipline, at least six of these 60 hours must be outside that discipline. With the approval of the Individual Study Committee and the Dean of the College of Fine Arts, students may take up to 15 of these 60 credit hours in appropriate arts-related courses outside the College of Fine Arts.

2. To enter the Individual Study Program, a student must submit an application proposal to the Office of the Dean. With the assistance and approval of an adviser, the student should outline a cohesive academic program which ranges beyond a departmental/school major, should define degree objectives, and should list courses selected to reach these objectives. Applications must be approved by the Individual Study Committee and by the Dean of the College of Fine Arts. Applications must be filed no later than the conclusion of the sophomore year (when 60 credit hours have been earned).

3. A final statement which assesses the results, values, and cohesiveness of the student's program must be filed in the Office of the Dean four weeks before the end of the student's final semester. A form for this purpose may be obtained in the Office of the Dean.

Requirements for the Bachelor of Fine Arts Degree

The University and College requirements for the B.F.A. are the same as the B.A. requirements outlined above.

Requirements for the Bachelor of Music in Music Performance and in Music Education

These requirements are outlined with other program requirements under the School of Music.

DEPARTMENT OF ART

Requirements for Bachelor of Arts in Art Education

The major in art education is the joint concern of the Department of Art in the College of Fine Arts and the Department of Curriculum and Instruction in the College of Education. Art education majors in the College of Fine Arts who wish to receive a teaching certificate must meet the certification requirements of the College of Education, as well as the requirements of the College of Fine Arts. To qualify for student teaching and teacher certification, a student must be officially admitted into the Teacher Education Program. Application is made by the student through the College of Education after completion of 60 hours of course work, including EDP 202.

In addition to fulfilling College and University requirements as outlined earlier, the major in art education must include the following:

Premajor Requirements

1. ART 191 (two credit hours required)
2. Art and art history: at least six semester hours at the 100 level chosen from ART 100, A-H 105, A-H 106
3. Art studio: 16 semester hours, from the following designated courses: A-S 102, A-S 103, A-S 200, A-S 215, A-S 255

Major Requirements

1. ART 191 (two credit hours required)
2. Art history: six semester hours at or above the 300 level
3. Art studio: 15 semester hours
   a. Nine semester hours as designated: A-S 310 and A-S 370, and either A-S 320 or A-S 321
   b. Six semester hours of art studio electives in two of the following studio areas: a) painting and printmaking; b) sculpture and ceramics; or c) fibers
4. Art education: A-E 575 (required of student wanting 12-grade certification), A-E 577, and A-E 579
5. A total of 15 hours in courses related to the art education major but outside the Art Department, six hours of which must be within the College of Fine Arts. With the approval of an adviser, students are encouraged to elect courses in philosophy, architecture, theatre, music, telecommunications, psychology and anthropology. University Studies courses and six hours of education courses may be counted, when appropriate.

Certification Requirements for Major in Art Education

1. State regulations for certification require 12 hours in sciences, 12 hours in social sciences* and 18 hours in communications and humanities. Students should work closely with advisers in selecting courses that best meet both University Studies requirements and state certification requirements.
2. BIO 110 **or** HPR 145 **or** NFS 101
3. PSY 100
4. COM 101 **or** COM 181

Note: ANT 120 is not accepted as a social science course for teacher certification.

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EPE 301 Education in American Culture	3
EDC 325 Teaching in the Elementary School (Required for K-12 certification)	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 362 Field Experiences in Secondary Education	1
EDC 317 Introduction to Instructional Media	1
EDA 401 The Professional Teacher: Legal Perspectives	1
EDC 342 Student Teaching in Art	12

Requirements for Bachelor of Arts in Art History

In addition to fulfilling College and University requirements as outlined earlier, the major in art history must include the following:

Premajor Requirements

1. ART 191 Art Professions (two credit hours required)
2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. Two art studio courses

Major Requirements

1. ART 191 Art Professions (two credit hours required)
2. Two art studio courses
3. A total of 15 additional hours of art history **or** museum training at the 300 level or above
4. A-H 560 Art History Seminar
5. Students in art history must 1) satisfy a four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence, or 2) pass the third semester course in one language and the second semester course in a second language or demonstrate equivalent competence. (French and/or German recommended.)
6. At least 15 hours in courses related to the art history major but outside the Art Department, six hours of which must be within the College of Fine Arts. With the approval of an adviser, students are encouraged to elect courses in anthropology, classics, history, philosophy, literature, the arts, and most particularly languages—especially French, German, and other languages relevant to special period or regional studies.

Minor in Art History

Students from any college may choose to minor in art history. This minor requires at least 18 hours of course work, plus satisfaction of a language requirement.

1. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
2. At least nine hours of work in art history at the 300 level or above
3. At least one course in art studio
4. Students in art history must 1) satisfy a four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence, or 2) pass the third semester course in one language and the second semester course in a second language or demonstrate equivalent competence. (French and/or German recommended.)

Requirements for Bachelor of Arts in Art Studio

In addition to fulfilling College and University requirements as outlined earlier, the major in art studio must include the following:

Premajor Requirements

1. ART 191 Art Professions (two credit hours required)
2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. A-S 102 Visual Exploration I
   A-S 103 Visual Exploration II
   A-S 200 Studio I
   A-S 215 Studio II
   A-S 255 Studio III

Major Requirements

1. ART 191 Art Professions (two credit hours required)
2. Twenty-four hours of studio courses at or above the 300 level, 12 hours of which must be in a single discipline (e.g., painting, sculpture, printmaking, etc.)
3. At least six hours of art history at or above the 300 level
4. A-S 490 Senior Seminar (taken during the final year of study)
5. Participation in a Graduating Seniors' Exhibition
6. At least 15 hours in work related to but outside the major department, six hours of which must be within the College of Fine Arts.



Requirements for Bachelor of Fine Arts in Art Studio

This degree is available to students selected through the demonstration of special abilities in the visual arts **no earlier** than a student's fourth full semester of college study. The program emphasizes the individual development of expressive means by requiring an approved plan of extended study in the studio major curriculum which will provide the best prospects for each student's interests and abilities. The plan may focus on a single medium (such as graphic design, painting, photography, printmaking, fiber, sculpture, or ceramics) or any combination of media.

In addition to fulfilling College and University requirements as outlined earlier, each student seeking the Bachelor of Fine Arts in art studio must complete the following:

Premajor Requirements

1. ART 191 Art Professions (two credit hours required)
2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. A-S 102 Visual Exploration I
   A-S 103 Visual Exploration II
   A-S 200 Studio I
   A-S 215 Studio II
   A-S 255 Studio III

Major Requirements

1. ART 191 Art Professions (four credit hours required)
2. Thirty-six credit hours of studio courses at or above the 300 level, according to the student's committee-approved plan of study
3. Nine credit hours of art history at the 300 level or above
4. A-S 490 Senior Seminar (taken during the final year of study)
5. Presentation of a one-person senior exhibition for final approval by a studio faculty review committee.
6. At least 15 hours in work related to but outside the major program, six hours of which must be within the College of Fine Arts. Choice of this related work must be approved by the student's adviser. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

Minor in Art Studio

Students from any college may choose to minor in art studio. The minor requirements are as follows:

	Hours
1. ART 191 Art Professions **and**	2
One course chosen from the following:	
A-S 102 Visual Exploration I	3
A-S 103 Visual Exploration II	4
2. One course chosen from the following:	
A-S 200 Studio I	3
A-S 215 Studio II	3
A-S 255 Studio III	3
3. At least nine hours in studio at the 300 level or above	
4. One course chosen from the following:	
ART 100 Introduction to Art	3
A-H 105 Ancient Through Medieval Art	3
A-H 106 Renaissance Through Modern Art	3

SCHOOL OF MUSIC

Requirements for the Bachelor of Arts in Music

Admission to the B.A. program in music is granted only after the successful completion of an audition in the student's performance area. Additionally, students must take a theory placement test.

In addition to fulfilling College and University requirements as outlined earlier, the major in music must include the following:

Lower Division	Hours
1. Premajor courses: MUS 170, 171, 172, 173	6
2. Interrelated music history and theory courses: MUS 203, 302, 303 and MUS 270, 271, 272, 273	15
3. Major musical instrument or voice performance course of two hours each semester	8
4. Ensemble	4
5. Piano: class instruction in piano (MUC 150, 151, 152, 153) or private instruction (MUP 101, 201) as needed to pass the School of Music's piano proficiency requirement	4, or as needed
6. MUS 001 Recital Attendance	0

Upper Division	Hours
1. Continuation of major musical instrument or voice performance courses above the sophomore level	4
2. MUS 372 Musical Analysis	2
3. Ensemble	2
4. Music courses chosen from upper division courses appropriate to the areas of music history, theory, composition, and literature	10
5. Electives: To include 18 hours in courses related to the major but outside the School of Music, six hours of which must be within the College of Fine Arts. Choice of this related work must be approved by the student's adviser. Courses used to fulfill University Studies may be used to fulfill this related work, when appropriate.	

Minor in Music

Students from any college may choose to minor in music. Such a minor consists of at least 18 hours of course work in music, including a minimum of six hours of music theory, a minimum of six hours of music history, and three hours of music performance. The remaining three hours may be chosen from either music theory or music history. The course requirements are listed below.

1. **Music Theory** (six to nine hours)	
Students should choose from:	
MUS 174 Theory for Nonmusic Majors	3
MUS 170/171 Theory I: Elementary Aural and Written Theory	3
(Theory placement examination or MUS 174 is prerequisite.)	
MUS 172/173 Theory I: Elementary Aural and Written Theory	3
(MUS 170/171 are prerequisites.)	
2. **Music History** (six to nine hours)	
Students should choose from:	
MUS 100 Introduction to Music **or**	3
MUS 300 History of Jazz	3
MUS 302 History of Music	3
MUS 303 History of Music	3
3. **Performance** (three hours)	
Students may choose class or private performance instruction (one to two hours) or ensemble (one to two hours).	

Note: Some variation in the above courses is possible, with written approval from the Director of Undergraduate Studies, School of Music.

Requirements for the Bachelor of Music in Music Performance

Admission to the Bachelor of Music program in music performance is granted only after the successful completion of an audition in the student's performance area. Additionally, students must take a theory placement test.

To earn a Bachelor of Music degree in music performance, a student must complete 120 credit hours and have at least a 2.0 grade-point standing. At the conclusion of the sophomore year and before continuing in music performance at the upper division level, each student must perform before the music performance faculty for approval. Each student must also present a full recital during the senior year.

In addition to fulfilling University Studies requirements, students in music performance must complete one of the following concentrations:

Concentration in an Instrument (84 hours)

1. Major Instrument Study (MUP courses)	24
2. Piano (or piano class) one credit courses, MUP 101-MUP 201, each repeated once or MUC 150, 151, 152, 153	4
3. MUS 001 Recital Attendance	0
4. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 371, 372, and choice of MUS 572 or 573	21
5. Conducting: MUS 358	2
6. Music History: MUS 203, 302, 303, **plus** one course elected from MUS 500, 501, 502, 503, 504, 505 or 506	12
7. Appropriate Music Ensemble (each semester)	8
8. Electives	13

Concentration in Piano (84 hours)

1. Piano (three credits each semester): MUP 101, 201, 301, 401 (each course repeated once)	24
2. MUS 001 Recital Attendance	0
3. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, and choice of MUS 572 **or** 573	19
4. Music History: MUS 203, 302, 303, **plus** one course elected from MUS 500, 501, 502, 503, 504, 505 or 506	12
5. Piano Literature: MUS 522	3
6. Appropriate Music Ensemble (each semester)	8
7. Piano Pedagogy: MUS 566	3
8. Electives	15

Concentration in Organ (84 hours)

1. Organ—three credits each semester: MUP 103, 203, 303, 403 (each course repeated once)	24
2. Piano—one credit course MUP 101-MUP 201, each repeated once	4
3. MUS 001 Recital Attendance	0
4. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, and choice of MUS 572 or 573	19
5. Music History: MUS 203, 302, 303, **plus** one course	

selected from MUS 500, 501, 502, 503, 504, 505 or 506.....12
6. Organ Literature: MUS 521.....3
7. Appropriate Music Ensemble (each semester)...8
8. Electives.....14

Concentration in Voice (90-101 hours)

1. Voice—one three-hour course each semester: MUP 102, 202, 302, 402 (each course repeated once)...24
2. Piano—one credit course MUP 101-MUP 201, each repeated once or MUC 150, 151, 152, 153.....4
3. MUS 001 Recital Attendance.....0
4. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, and choice of MUS 572 **or** 573.....19
5. Music History: MUS 203, 302, 303, **plus** one course selected from MUS 500, 501, 502, 503, 504, 505 or 506.....12
6. Foreign Language—Select two languages from Italian, French, or German and pass the third semester course of one language (or demonstrate equivalent competence) and the second semester course of another language (or demonstrate equivalent competence).....6-17
7. Foreign Language Vocal Diction: MUS 120 (two semesters).....2
8. Vocal Solo Literature: MUS 520.....3
9. Conducting: MUS 358.....2
10. Appropriate Music Ensemble (each semester)..8
11. Electives.....6-10

Minor in Music Performance

Students from any college may complete a minor in music performance. A successful audition is required for admission in the designated area (level of performance expected is that of entering freshman music major). A minimum of 18 hours is required for the minor in music performance and should be selected as follows:

1. **Performance Study** (12 hours)
Performance instruction (eight hours)—four semesters, sequential enrollment in MUP courses at appropriate level; two hours per semester.
Ensemble (four hours)—four semesters in appropriate ensemble.
2. **Music History and Theory** (six hours)
Courses to be chosen from the following:
MUS 174 Theory for Nonmusic Majors.....3
MUS 170/171 Theory I: Elementary Aural and Written Theory.....3
(Theory placement examination or MUS 174 is prerequisite.)
MUS 172/173 Theory I: Elementary Aural and Written Theory.....3
(MUS 170/171 are prerequisites.)
MUS 100 Introduction to Music **or**.....3
MUS 300 History of Jazz.....3
MUS 302 History of Music.....3
MUS 303 History of Music.....3

Note: The availability of the minor in music performance is dependent on sufficient time within the appropriate instructor's designated teaching load.

Requirements for the Bachelor of Music in Music Education

The major in music education is the joint concern of the School of Music in the College of Fine Arts and the Department of Curriculum and Instruction in the College of Education. Admission to the program is granted only after the successful completion of an audition in the student's performance area. Students also must take a theory placement test. In addition to completing the required courses, the student must present a half-recital or the equivalent on the major instrument during the last semester of study of the instrument.

Music education majors in the College of Fine Arts who wish to receive a teaching certificate must meet the certification requirements of the College of Education, as well as the requirements of their own college. To qualify for student teaching and teacher certification, a student must be officially admitted into the Teacher Education Program. Application is made by the student through the College of Education after completion of 60 semester hours, including EDP 202, and an interview with the Program Faculty.

In addition to fulfilling University Studies requirements, students in music education must complete:

Certification Requirements for Major in Music Education

1. State regulations for certification require 12 hours in sciences, 12 hours in social sciences* and 18 hours in communications and humanities. Students should work closely with advisers in selecting courses that best meet both University Studies requirements and state certification requirements.
2. BIO 110 **or** HPR 145 **or** NFS 101
3. PSY 100
4. COM 101 **or** COM 181

Note: ANT 120 is not accepted as a social science course for teacher certification.

Professional Education Requirements

	Hours
EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EPE 301 Education in American Culture	3
EDC 325 Teaching in the Elementary School	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 377 Student Teaching in Music	12

Depending on the area of interest, the Music Education major must include one of the following emphases:

Music Courses—Vocal Emphasis (Voice, Piano or Organ)

Hours
1. Music Theory: MUS 170, 171, 172, 173, 270, 271 272, 273, 371, 372.....16
2. Music History: MUS 203, 302, 303.....9
3. Music Performance: MUP—two-hour courses in major instrument.....12
4. MUS 001 Recital Attendance.....0
5. MUS 120 Foreign Language Vocal Diction (two semesters).....2
6. Ensemble.....6
7. **Voice Majors:** class instruction in piano (MUC 150, 151, 152, 153) **or** private instruction (MUP 101 and 201—each repeated once). All students earning this degree must pass the School of Music's piano proficiency examination.....4, or as needed
8. **Keyboard majors:** MUC 176, Piano Ensemble, and MUS 522, Piano Literature to 1830.....4
9. Music Education Courses: MUS 262, 264, 360, 361, 362, 364.....12
10. Electives (except ensembles).....6

Music Courses—Instrumental Emphasis (Band or Orchestral Instruments)

Hours
1. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 371, 372.....16
2. Music History: MUS 203, 302, 303.....9
3. Music Performance: MUP—two-hour courses in major instrument.....12
4. MUS 001 Recital Attendance.....0
5. Piano—one-hour courses: class instruction in piano (MUC 150, 151, 152, 153) **or** private instruction (MUP 101 and 201—each repeated once). All students earning this degree must pass the School of Music's piano proficiency examination.....4, or as needed
6. Secondary instruments: selected from MUC 157, 158, 161, 163, according to student's major instrument.....6
7. Ensembles.....6
8. Music Education Courses: MUS 263, 265, 361, 363, 365.....10
9. Electives (except ensembles).....6

Extension of Certification in Elementary Music Education

Students who choose majors in other areas of education may wish to be certified to teach music in the elementary school. Students may obtain this certification by completing the following requirements:

1. Students must complete requirements for teaching in elementary schools (as required for the Bachelor of Arts degree in Education).

2. Students must be interviewed by the Music Education Program Faculty prior to admission to the program.

3. Students must complete a minimum of 24 hours in music, to be selected as follows:
Music History (6 hours)
MUS 100; MUS 302 or 303
Music Theory (6 hours)
MUS 170 and 171; MUS 172 and 173
(Prerequisite: theory placement examination or MUS 174.)
General Music (5 hours)
MUS 360 and 550
Applied Study (5 hours)*
MUC 164 (guitar); MUP 101 and 201 (piano); MUP 102 and 202 (voice);
MUC 150 and 151 (class instruction in piano)
Ensembles (2 hours)
To be selected from MUC 170 through MUC 177 and/or MUC 189 through MUC 197.

***Note:** Students must demonstrate or develop functional proficiency in three areas—piano, voice, and guitar. If, upon entry into the program, the student is judged functionally proficient in one or more of the three areas, i.e., having the ability to perform elementary school song materials, the student will be asked to select more advanced study in applied music. The total number of hours, five, remains the same for each student; the number of hours to be required in the necessary area(s) will be determined at the time of the interview.

DEPARTMENT OF THEATRE

The Department of Theatre envisions itself as an environment in which theatre can happen—a community of artists and scholars working collectively toward the study, practice, and development of theatre art. While curricular and cocurricular activities extend across the whole range of theatre, special opportunities exist for those interested in acting, directing, design or technical theatre.

Requirements for Bachelor of Arts in Theatre

In addition to fulfilling College and University requirements outlined earlier, the major in theatre must include the following:

1. Successful completion of TA 150 and TA 126.
2. Successful completion of 24 credit hours of theatre courses at or above the 200 level, including TA 387, Seminar in Theatre, in the junior or senior year and TA 495, Senior Project, during the senior year.
3. Successful completion of both curricular and cocurricular experiences in theatre. The necessity for cocurricular experience may be met by successful completion of five credits in practicum courses, including a minimum of two credits in TA 190, TA 390, or TA 590, Production Practicum, and a minimum of two credits in TA 191, TA 391, or TA 591, Performance Practicum. The student will select the fifth credit from TA 190, 191, 390, 391, 590 or 591. Substitution of comparable work for these specific courses must be approved by the student's adviser and the department chairperson.
4. Students are expected to achieve basic competency in acting, directing, scenic and lighting design, costuming and makeup, technical theatre, and theatre history. Each student in consultation with the adviser will decide how this competency will be measured—on the basis of courses completed, cocurricular activities, field-based experiences, special examinations, practical demonstrations, or alternative methods.
5. Successful completion of at least 15 hours in work related to but outside theatre, six hours of which must be within the College of Fine Arts. The department suggests courses from programs in art, music, dance, anthropology, architecture, communications, philosophy, English, psychology, classics, history, languages, or other appropriate programs.
6. A prospectus of theatre courses, methods of determining competency and courses in related departments will be prepared by the student and adviser. Approval of this prospectus by the department chairperson is required for graduation.
7. Students may choose electives within their area of concentration from related courses outside of the Department of Theatre, or from courses outside of the college, to lead to a minimum total of 120 hours required for graduation.

Requirements for the Bachelor of Fine Arts in Theatre

This degree program is available to students demonstrating special abilities in selected areas of theatre. Normally students apply to the program during the second semester of the sophomore year and begin training and study in the first semester of the junior year. Using a professional conservatory approach, this program emphasizes the development of each individual's creative potential by requiring an approved plan of extended study in the theatre curriculum. The program provides the best prospects for the promotion and enhancement of the student's interests and abilities.

The program features two concentrations: acting and design and technology. Program requirements for either concentration may be completed in the traditional four-year format and one summer session.

Concentration in Acting

In addition to fulfilling the College and University requirements, each student seeking the Bachelor of Fine Arts in theatre, with a concentration in acting, must complete the following:

Premajor Requirements	**Hours**
TA 150 Fundamentals of Production	3
TA 126 Acting Ensemble	3
TA 127 Acting Techniques	3
TA 190 Production Practicum (repeated once)	2
TA 191 Performance Practicum	1
TA 225 Vocal Production for the Stage I	3
TA 226 Methods in Acting	3
TA 260 Stagecraft	3
TA 264 Makeup for the Theatre	3

Major Requirements	**Hours**
Course Curricular Requirements	
TA 320/321 Theatre Movement I and II	6
TA 326 Intermediate Acting	3
TA 327 Advanced Acting	3
TA 330 Principles of Directing	3
TA 380/381 History of the Theatre I and II	6
TA 391 Performance Practicum (repeated once)	2
TA 591 Performance Practicum	1
TA 422 Improvisation	3
TA 426 Intermediate Acting Styles	3
TA 427 Advanced Acting Styles	3
TA 430 Theatre Directing I	3
TA 524 Dialects for the Stage	3
TA 525 Vocal Production for the Stage II	3

Cognate Requirements

Twelve credit hours of allied theatre courses selected according to the student's approved Plan of Study.



Summer Program Requirement

Six credit hours selected from TA 396, 397, 398, and 596, Summer Theatre.

Senior Project

TA 495, Senior Project, is taken during the final semester of study.

Related Course Requirements

Students must complete 15 credit hours in work related to but outside the major department, six hours of which must be within the College of Fine Arts. Choice of this related work must be approved by the student's adviser. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

Electives

Students may select six credit hours of free electives in consultation with their advisers.

Review for Retention

At the conclusion of the junior year, a theatre faculty committee will review each student's performance to determine whether retention in the program should be granted.

Concentration in Design and Technology

In addition to fulfilling the College and University requirements, each student seeking the Bachelor of Fine Arts in theatre, with a concentration in design and technology, must complete the following:

Premajor Requirements	**Hours**
A-S 102 Visual Exploration I	3
TA 126 Acting Ensemble	3
TA 150 Fundamentals of Production	3
TA 190 Production Practicum	1
TA 191 Performance Practicum (repeated once)	2
TA 225 Vocal Production for the Stage I	3
TA 260 Stagecraft	3
TA 264 Makeup for the Theatre	3
TA 272 Principles of Stage Drafting	3

Major Requirements	**Hours**
Course Curricular Requirements	
A-S 103 Visual Exploration II	4
A-H 105 Ancient through Medieval Art	3
A-H 106 Renaissance through Modern Art	3
TA 330 Principles of Directing	3
TA 350 Topics in Theatre (technical subtitle)	3
TA 360 Stagecraft II	3
TA 365 Costume Design I	3
TA 266 Stage Lighting	3
TA 374 Scene Design	3
TA 390/590 Production Practicum (one course repeated twice)	3
TA 430 Theatre Directing I	3
TA 465 Costume Design II	3
TA 495 Senior Project	3
TA 380/381 History of Theatre I and II	6

Related Course Requirements

Students must successfully complete at least 15 hours in work related to but outside theatre. Of these hours, six will be taken care of with the earlier requirement of art studio and art history courses. The department suggests that the other nine hours be selected from courses in art, music, dance, English, communications, philosophy, psychology, classics, history, language, apparel design, or other related areas. Choice of this related work must be approved by the student's adviser. Courses which are used to fulfill University Studies requirements may also be used to fulfill this related work, when appropriate.

Students may complete their related course requirements during their two year in-program work. However, a student may not take more than 19 hours during any one semester without the approval of the chairperson of the department and the dean of the college.

Summer Program Requirement

Students in the major specialization program are required to spend the summer between their junior and senior years in an intensified theatre experience. This requirement may be satisfied by enrolling in the UK Summer Theatre for a minimum of six credit hours, to be selected from TA 396, TA 397, TA 398, and TA 596. Off-campus equivalent experiences must be approved in advance by the Design and Technology faculty.

Electives

Students may select six credit hours of free electives in consultation with their advisers.

Review for Retention

Upon completion of the candidate's first year of study in the B.F.A. program, the Design and Technology faculty will review the student's performance to determine whether commitment has been demonstrated and sufficient progress shown. Should the faculty decide to drop the candidate, or should the candidate decide to withdraw from the program, all credits with passing grades will count toward the completion of the B.A. program in theatre.

Graduation Requirements

Students must successfully complete all course work with a cumulative grade-point average of 3.0 or above in all theatre courses, including a grade of B or above in TA 495, Senior Project, which will be juried by all members of the Design and Technology faculty.

Minor in Theatre

Students from any college may choose to minor in theatre. This minor requires at least 21 hours of course work arranged as follows:

1. **Prerequisites**	**Hours**
TA 150 Fundamentals of Production	3
TA 126 Acting Ensemble	3

When appropriate, upper level courses may be substituted with the approval of the student's adviser and the chairperson of the Department of Theatre.

2. **Performance/Production Experience**

TA 190, 390, or 590 Production Practicum.....1
TA 191, 391, or 591 Performance Practicum.....1
The third credit is to be selected from TA 190, 191, 390, 391, 590, or 591.

3. **Elected Theatre courses** (12 hours)

Of these 12 hours, at least three hours must be at the 300 level or above.

INTERDISCIPLINARY PROGRAMS

Requirements for Bachelor of Arts in Arts Administration

With the increase in the number of performing and visual arts facilities, arts councils and arts advocacy groups, there is a growing need for individuals with both artistic sensibilities and business acumen to work in these areas.

The purpose of the Arts Administration program is to expose students to a wider range of study while maintaining an emphasis in one of the established disciplines of art, music or theatre. The program introduces students to practical aspects of arts administration and prepares them for entry-level positions and for graduate study.

In addition to completing University Studies requirements and College requirements, students in arts adminstration fulfill the following program requirements.

General Requirements

Business and Communications	**Hours**
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
MKT 300 Marketing Management	3
MGT 341 Business Law I **or**	3
MGT 340 Law, Business and Society	3
FIN 300 Corporation Finance	3
ECO 201 Principles of Economics I	3
ECO 202 Principles of Economics II	3
COM 325 Business and Industrial Communication	3

Arts Administration

FA 301 Principles and Practices of Arts Administration	3
FA 401 Seminar in Arts Administration	3

Internships (6-9 hours)

FA 499 Internship in Arts Administration (on campus)	1-9
FA 499 Internship in Arts Administration (off campus, preferably out of region)	1-9

The number of hours is dependent upon the nature of the internships.

Free Electives (6 hours)

Directed Electives (9 hours)

Depending upon the student's particular area of interest in arts administration, courses at the 300 to 500 level shall be selected from the following areas with a minimum of 6 of the 9 hours of directed electives to be selected from one of these areas. Consent of adviser is required.

Humanities: To be selected from among 300-500 level courses in history, English, philosophy, foreign languages, or classical languages and literatures.

Social Sciences and Communication: To be selected from among 300-500 level courses in sociology, psychology, anthropology, communication, or political science.

Business: To be selected from among the following courses or their equivalent: MGT 301, MGT 320, MGT 410, MKT 310, MKT 340, MKT 400.

Arts Administration Emphasis

Students in the Arts Administration program must select an emphasis in music, theatre, or art.

Emphasis in Music

Primary Course Requirements (35 Hours)

Students must successfully pass an audition to be admitted to this program emphasis.

Music Theory: MUS 170, 171, 172, 173, 271, 273	10
History of Music: MUS 203, MUS 302, MUS 303	9
Class Instruction in Piano: MUC 150-153 **or**	
MUP: Private Piano	4
MUP: Applied Lessons (voice, instrument)	8
MUC Ensemble	4
MUS 001 Recital Attendance (four semesters)	0

Related Arts Requirement

Students must select either theatre or art as a secondary arts area.

Theatre (10 Hours)

TA 126 Acting Ensemble	3
TA 260 Stagecraft	3
TA 150 Fundamentals of Production	3
TA 191 Performance Practicum	1

These courses may be used to satisfy College requirements.

Art (10-11 hours)
A-H 105 Ancient Through Medieval Art*.....3
A-H 106 Renaissance Through Modern Art*.....3
A-S 102 Visual Exploration I **or**
A-S 103 Visual Exploration II**.....3-4
ART 191 Art Professions.....1

*May satisfy University Studies or College requirements.
**Either may satisfy College requirements.

Emphasis in Theatre

Primary Course Requirements (29 hours)
TA 150 Fundamentals of Production.....3
TA 126 Acting Ensemble.....3
TA 127 Acting Techniques.....3
TA 260 Stagecraft.....3
TA 330 Principles of Directing.....3
TA 380 History of the Theatre I.....3
TA 381 History of the Theatre II.....3
TA 387 Seminar in Theatre 3
(Recommended: The Broadway Musical)
TA 190/390 Production Practicum*.....1
TA 191/391 Performance Practicum*.....1
TA—One course in design.....3
(lighting, costuming, scenery)

*Number dependent upon experience and level of student.

Related Arts Requirement
Students must select either music or art as a secondary arts area.

Music (9 hours)
MUS 174 Theory for Non-Music Majors.....3
(A regular theory class may be substituted)
MUS 100 Introduction to Music.....3
(A regular music history class may be substituted)
Three additional hours in music.....3
MUS 001 Recital Attendance (1 semester).....0
Credited classes may satisfy College requirements.

Art (10-11 hours)
A-H 105 Ancient through Medieval Art*.....3
A-H 106 Renaissance through Modern Art*.....3
A-S 102 Visual Exploration I **or**
A-S 103 Visual Exploration II**.....3-4
ART 191 Art Professions.....1

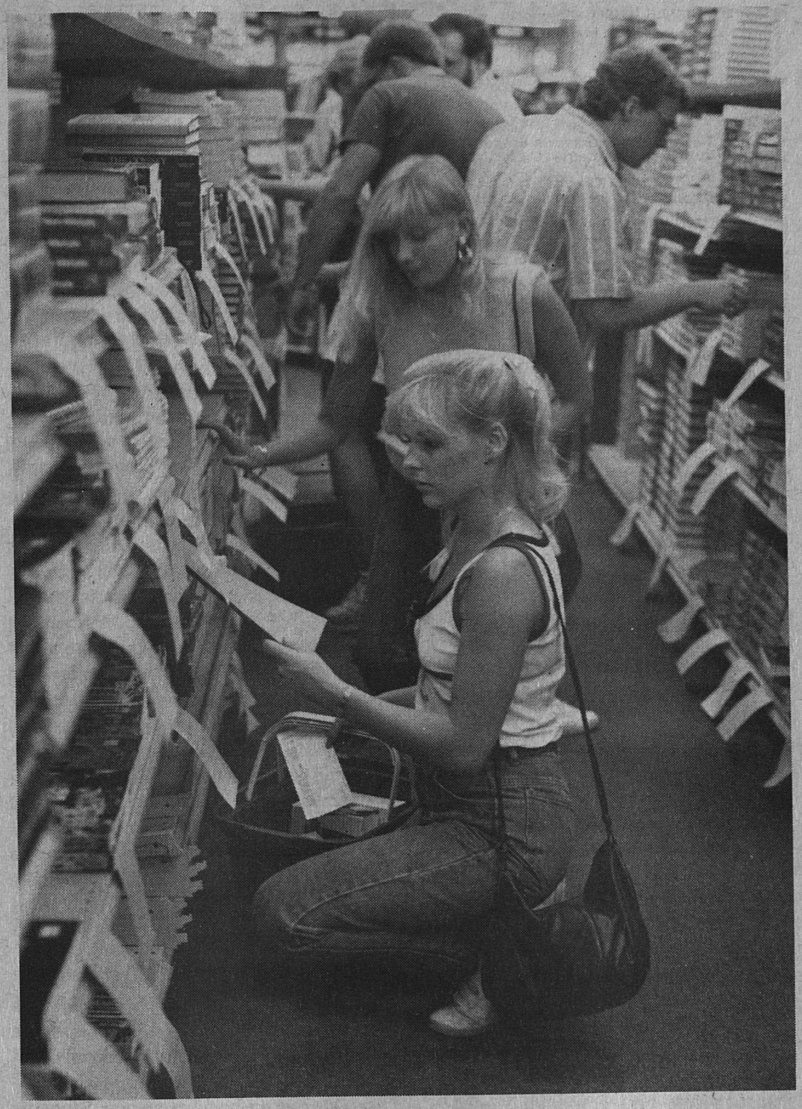
*May satisfy University Studies or College requirements.
**Either may satisfy College requirements.

Emphasis in Art

Primary Course Requirements (31 hours)
ART 191 Art Professions.....1
(May be repeated to 4 credit hours)
A-S 102 Visual Exploration I.....3
A-S 103 Visual Exploration II.....4
A-S 215 Studio II (Painting).....3
A-S 280 Photography I.....3
A-S 200 Studio I (Contemporary Issues).....3
A-S 340 Graphic Design I.....3
A-H 105 Ancient through Medieval Art **or**
A-H 106 Renaissance through Modern Art.....3
Upper division A-H courses.....6
A-E 579 Seminar in Art Education.....2

Related Arts Requirements
Students must select either music or theatre as a secondary arts area.
Music (9 hours)
MUS 174 Theory for Non-Music Majors.....3
(A regular theory class may be substituted)
MUS 100 Introduction to Music.....3
(A regular music history class may be substituted)
Three additional credit hours in Music.....3
MUS 001 Recital Attendance (1 semester).....0
Credited classes may satisfy College requirements.

Theatre (10 hours)
TA 126 Acting Ensemble.....3
TA 260 Stagecraft.....3
TA 150 Fundamentals of Production.....3
TA 191 Performance Practicum.....1
These courses may be used to satisfy College requirements.



Interdisciplinary Minor in the Arts

For Students outside the College

Any student whose major concentration is outside the College of Fine Arts may choose to minor in the arts, an academic program that cuts across disciplinary lines. This minor requires at least 24 hours of course work, arranged as follows:

Prerequisites (9 hours) **Hours**
ART 100 Introduction to Art.....3
MUS 100 Introduction to Music.....3
TA 101 Introduction to Theatre:
Principles and Practice.....3

Note: When appropriate, upper level courses may be substituted with the approval of the student's adviser and the Dean of the College of Fine Arts.

Elected Courses (15 hours)
Of these 15 hours, students must take at least six hours in each of two different disciplines (art, music, or theatre).

Performance and/or Studio Experience
Students must have performance and/or studio experience within the college in at least one of the arts, whether or not for academic credit.

For Students within the College

Any student whose major emphasis lies within the College of Fine Arts may choose to minor in the arts by selecting at least 24 hours of course work in the College of Fine Arts (art, music, or theatre) outside the major. The minor must include at least nine hours of credit in each of the disciplines outside the major department or school. No more than six hours of course work used as "related work" for the major may be used toward the minor.

THE GRADUATE SCHOOL

Wimberly C. Royster, Ph.D., is Vice Chancellor for Research and Dean of The Graduate School, Medical Center and Lexington Campus.

The University of Kentucky began offering graduate work in 1870, and awarding degrees in 1876. The Graduate School as a distinct unit was organized in 1912.

The Graduate School is concerned with advanced study and research carried on by the faculty and students of all colleges and departments. Under it the total graduate resources of the University are merged in order to promote the achievement of knowledge in an atmosphere of free and lively inquiry.

GRADUATE DEGREES

Graduate work is offered in most colleges in the University. The following advanced degrees are conferred:

DOCTOR OF BUSINESS ADMINISTRATION
DOCTOR OF EDUCATION
DOCTOR OF MUSICAL ARTS
DOCTOR OF PHILOSOPHY
MASTER OF ARTS
MASTER OF ARTS IN EDUCATION
MASTER OF ARTS IN TEACHING
MASTER OF ARTS IN TEXTILES AND CLOTHING
MASTER OF BUSINESS ADMINISTRATION
MASTER IN CIVIL ENGINEERING
MASTER OF FINE ARTS
MASTER OF INTERIOR DESIGN
MASTER OF MUSIC
MASTER OF NUTRITIONAL SCIENCE
MASTER OF PUBLIC ADMINISTRATION
MASTER OF REHABILITATION COUNSELING
MASTER OF SCIENCE
MASTER OF SCIENCE IN ACCOUNTING
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN CHEMICAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN CLINICAL NUTRITION
MASTER OF SCIENCE IN DENTISTRY
MASTER OF SCIENCE IN EDUCATION
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN ENGINEERING MECHANICS
MASTER OF SCIENCE IN FAMILY STUDIES
MASTER OF SCIENCE IN FORESTRY
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MATERIALS SCIENCE AND ENGINEERING
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN MINING ENGINEERING
MASTER OF SCIENCE IN NURSING
MASTER OF SCIENCE IN OPERATIONS RESEARCH
MASTER OF SCIENCE IN PUBLIC HEALTH
MASTER OF SCIENCE IN RADIOLOGICAL HEALTH
MASTER OF SCIENCE IN RADIOLOGICAL MEDICAL PHYSICS
MASTER OF SOCIAL WORK
SPECIALIST IN EDUCATION

The degree of Doctor of Philosophy is offered with major work in the following fields: agricultural economics, agricultural engineering, anatomy, animal science, anthropology, biochemistry, biology, biomedical engineering, chemical engineering, chemical physics, chemistry, civil engineering, communication, computer science, crop science, economics, educational psychology, electrical engineering, engineering mechanics, English, entomology, French, geography, geology, Germanic languages, higher education and social and philosophical studies in education (joint), history, materials science and engineering, mathematics, mechanical engineering, microbiology, mining engineering, music, nursing, pharmaceutical sciences, pharmacology, philosophy, physics and astronomy, physiology and biophysics, plant pathology, plant physiology, political science, psychology, public administration, sociology, soil science, Spanish, statistics, toxicology, and veterinary science. Minor work may be carried in any department offering graduate courses.

Interdisciplinary Graduate Programs

There are four interdisciplinary graduate programs administered in The Graduate School: Diplomacy and International Commerce, Public Administration, Rehabilitation Counseling, and Toxicology. Students interested in information on these programs should contact the program directors at the addresses listed below.

Dr. Vincent Davis, Director
The Patterson School of Diplomacy and International Commerce
455 Patterson Office Tower
University of Kentucky
Lexington, KY 40506-0027

Dr. Phillip Roeder, Director
James W. Martin School of Public Administration
419 Patterson Office Tower
University of Kentucky
Lexington, KY 40506-0027

Dr. Ralph Crystal, Director
Rehabilitation Counseling
124 Taylor Education Building
University of Kentucky
Lexington, KY 40506-0001

Dr. Wesley Birge, Director
Graduate Center for Toxicology
204 Funkhouser Building
University of Kentucky
Lexington, KY 40546-0054

ORGANIZATION OF THE GRADUATE SCHOOL

The Graduate Faculty consists of the Dean of The Graduate School and all persons appointed thereto by the President of the University. As the chief University agency for the promotion of the ideals of graduate study, it determines the policies of The Graduate School and makes recommendations to the University Senate on such matters as require the approval of that body. All rules affecting graduate work and the inauguration of new graduate programs must be approved by The Graduate Faculty.

The Dean and His Office. The Dean of The Graduate School is charged with the administration of the policies adopted by the Graduate Faculty and the University Senate relating to graduate studies.

The Graduate Council is composed of 18 members and the Dean of The Graduate School, who serves as chair. There are 16 faculty representatives and two student representatives. Associate deans serve in a nonvoting, ex officio capacity.

The Graduate Council approves or disapproves proposals concerning courses offered for graduate credit, and advises and lends assistance to the Dean of The Graduate School in his execution of policies and regulations determined by the Graduate Faculty.

Directors of Graduate Studies. A Director of Graduate Studies is appointed for each program of graduate study. Among other duties, each director serves as adviser to students majoring in his or her area.

ADMISSION

Students seeking admission to The Graduate School must hold a baccalaureate degree from a fully accredited institution of higher learning. An overall undergraduate grade-point average of 2.5 and 3.0 on all graduate work is required by The Graduate School. Individual departments may require higher grade-point averages.

All applicants for admission to degree programs in The Graduate School must submit official scores on the verbal and quantitative portions of the Graduate

Record Examination. The College of Business and Economics may substitute the Graduate Management Admission Test for M.B.A., D.B.A., and accounting students. Also, applicants for the Public Administration program may substitute the GMAT. The Medical College Admission Test or the Dental College Admission Test may be substituted with the approval of the Dean of The Graduate School.

New students applying for admission must have two official transcripts sent by each institution of higher learning previously attended. All transcripts must be sent to The Graduate School Office.

To be official, records must bear the registrar's signature and/or official seal of the issuing institution. A summary of credit transferred and recorded on the transcript issued by the institution granting the degree will not suffice.

Application forms can be obtained by writing:

The Graduate School
Room 351, Patterson Office Tower
University of Kentucky
Lexington, KY 40506-0027

Applications must be submitted no later than one month before the beginning of the term the applicant intends to begin graduate work. Students should refer to the *University Calendar* in the front section of this Bulletin.

Advanced Degrees for Faculty Members

Members of the faculty, excepting those in the Community College System, having a rank higher than that of instructor may not be considered as candidates for degrees in the discipline in which they are employed or as candidates for degrees above the master's degree in any discipline.

University Scholars Program (Combined Master's/Bachelor's Degree Program)

There are among students at the University of Kentucky some particularly gifted and highly motivated students whose well-defined academic and career plans include graduate and professional study. The University Scholars program offers these students the opportunity and the challenge of integrating their undergraduate and graduate or professional courses of study in a single continuous program culminating in both a baccalaureate and master's degree.

Requirements for this program are listed in the *Special Academic Programs* section of this Bulletin.

Graduating Seniors as Part-Time Graduate Students

A senior in the University of Kentucky lacking no more than six credit hours for graduation and having an undergraduate grade-point average of at least 2.5 on all work attempted may register in The Graduate School with the consent of his or her college dean and the Dean of The Graduate School. Approval of the appropriate Director of Graduate Studies is required if the student is to be an applicant for a degree. *The total load of such a student may not exceed 12 credit hours.* Graduate credit will be allowed for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. A student applying for admission to The Graduate School under these conditions must fill out in duplicate a petition form listing the course or courses to be taken in order to complete the undergraduate requirements. Petition forms are available in The Graduate School Office. The petition must be approved by both deans concerned.

Provisional Graduate Students

Students wishing to pursue a higher degree who are temporarily ineligible for regular graduate admission status may be recommended by the Director of Graduate Studies for provisional admission status. Students should refer to The Graduate School Bulletin for further information.

INDEPENDENT STUDY PROGRAMS
(Correspondence Courses)

No graduate credit is given for courses taken by correspondence.

REGISTRATION AND CLASSIFICATION

All students expecting graduate credit must be enrolled in The Graduate School. Graduate students will conform to the general registration schedule of the University and may not enter later than the last allowable date set by the University Registrar.

Before registering, a graduate student must obtain his or her adviser's approval of the proposed program.

FELLOWSHIPS AND ASSISTANTSHIPS

There are approximately 150 nonservice fellowships available in all areas of graduate work. Over 1,000 teaching or research assistantships are available from departments and other units of the University. Out-of-state tuition is remitted for full fellowship or assistantship holders and proportionate amounts are remitted for smaller awards.

Fellowship and assistantship decisions are generally made by the department or program in which the student seeks to enroll. Assistantships are awarded directly by the department. While fellowships are formally awarded by The Graduate School, the award is usually based upon the specific recommendation of a department.

Almost all fellowships and the greater majority of assistantships are awarded for the academic year. There are virtually no fellowships and only a small number of assistantships available which begin in the spring semester. Most departments make financial aid decisions for the next academic year in the period between February and April. All students interested in a fellowship or assistantship should make sure their applications are returned by that time. Later applicants will have a reduced chance of obtaining financial aid. All fellowships are awarded by early May. Most assistantships are also filled by that time, although students should check with the particular department for exact information.

There is a common application for financial assistance. Applicants interested in either fellowships or assistantships, but not both, may indicate their preference on the form.

After a department makes its financial aid decisions, students will be contacted. (If a student is interested in a fellowship **only**, notification will come from The Graduate School.) Any questions about the status of an application should be addressed to the Director of Graduate Studies in the department the student is seeking to enter.

POST-BACCALAUREATE GRADUATE STUDENTS

Students who hold a baccalaureate degree and who wish to pursue graduate study without a degree objective and students who do not fulfill the entrance requirements of The Graduate School may apply for admission as post-baccalaureate graduate students. Students should refer to The Graduate School Bulletin for further information.

HOME ECONOMICS

Peggy Meszaros, Ph.D., is Dean of the College of Home Economics. Suzanne Badenhop, Ph.D., is Associate Dean for Extension. Sarah T. Henry, Ed.D., is Assistant Dean for Public Relations and Alumni Affairs.

The mission of the College of Home Economics is to study the laws, conditions, principles and ideals which are concerned with the immediate physical environment (i.e., nutrition, food management, textiles, apparel, shelter, design, technology) and with one's nature as a social being (i.e., human development and relationships). Included in the mission is the study of the interactions between social beings and their physical environment.

Offering individualized attention, the college prepares students for professional roles through academic work, practicum or field experience, and research.

There are three departments in the College of Home Economics—Family Studies, Human Environment: Design and Textiles, and Nutrition and Food Science.

MAJORS OFFERED

The following undergraduate majors are available:

Family Resource Management and Consumer Studies
Food Science
(with options in Food Science and Human Nutrition)
Housing and Interior Design
Individual and Family Development
(with emphases in Individual Development, Family Development, and Applied Child Development)
Nutrition and Food Science
(with options in Dietetics and Restaurant Management)
Merchandising, Apparel and Textiles
Vocational Home Economics Education

Specialized degrees are offered for most majors (see departmental information).

All undergraduate programs are fully accredited by the American Home Economics Association. In addition, specialized accreditation and/or program approval is offered by the Foundation for Interior Design Education Research and the American Dietetics Association.

MINORS OFFERED

The following minors are available:

Family Studies
Merchandising, Apparel, and Textiles
Nutrition

GRADUATION REQUIREMENTS

All students in the College of Home Economics must satisfy the following requirements:

1. Complete University Studies requirements.
2. Complete the College requirements listed below.
3. Complete 128 credit hours with a minimum grade-point average of 2.0.
4. Complete the required curriculum in the major program of the student's choice.

College Requirements

HE 100 An Introduction to Home Economics Professions 1
HE 400 Concepts in Home Economics: Integration and Application 2
One course in Home Economics, outside the student's major prefix 3

FAMILY STUDIES

The Department of Family Studies is committed to the well-being of individuals and families. Its purpose is to prepare professionals in the field to work with individuals and families on an applied level through an interdisciplinary approach. The department offers two majors: 1) individual and family development; 2) family resourcement management and consumer studies. Students in these majors earn the Bachelor of Science in Family Studies. A minor in family studies encompassing all areas of the department is available.

In addition to fulfilling University Studies requirements and College requirements, each student must complete the following:

Individual and Family Development

Premajor Requirements **Hours**

NFS 101 Food and Nutrition for Man 3
COM 181 Basic Public Speaking 3
PSY 100 Introduction to Psychology 4
ENG 205 Advanced Composition **or**
ENG 305 Advanced Writing **or**
ENG 401 Workshop in Professional Writing 3
SOC 101 Introductory Sociology **or**
ANT 121 Introduction to Cultural Anthropology 3
ECO 201 Principles of Economics I **or**
ECO 202 Principles of Economics II 3
FAM 101 Introduction to Family Studies 3
FAM 252 The Individual, Marriage and Family 3

Major Requirements

FAM 250 Consumer Issues 3
FAM 255 Child Development 3
FAM 350 Programs for the Young Child 4
FAM 390 Introduction to Research in Family Studies 3
EDP 557 Educational Statistics 3
CS 101 Introduction to Computing I 3

Major Emphasis: Students complete a minimum of 21 hours in Individual Development or Family Development or a mixture of both **or** 24-26 hours in Applied Child Development.

Individual Development Emphasis

FAM 253 Human Sexuality: Development, Behavior and Attitudes 3
FAM 254 Developmental Psychology 3
FAM 354 The Family in Cross-Cultural Perspective 3
FAM 355 Human Sexuality in Cross-Cultural Perspective 3
FAM 357 Contemporary Adolescence 3
FAM 510 Socialization in the Family 3
FAM 550 Child Development and Family Life in Appalachia 3
FAM 551 Woman in Contemporary Society 3
FAM 553 The Child in His/Her Family 3
FAM 554 Working with Parents 3
FAM 555 Fostering Cognitive Development in Children 3
FAM 557 Infant Development 3
FAM 595 Special Problems in Individual and Family Development 1-3
FAM 599 Field Experiences 3

Family Development Emphasis

FAM 253 Human Sexuality: Development, Behavior and Attitudes 3
FAM 254 Developmental Psychology 3
FAM 353 Dynamics of Marriage and Family Development 3
FAM 354 The Family in Cross-Cultural Perspective 3
FAM 402 Family Economics and Management Issues 3
FAM 509 The U.S. Family in Historical Perspective 3
FAM 510 Socialization in the Family 3
FAM 550 Child Development and Family Life in Appalachia 3
FAM 551 Woman in Contemporary Society 3
FAM 553 The Child in His/Her Family 3
FAM 554 Working with Parents 3
FAM 557 Infant Development 3
FAM 563 Families, Legislation and Public Policy 3
FAM 573 Family Life Education 3
FAM 595 Special Problems in Individual and Family Development 1-3
FAM 599 Field Experiences 3

Applied Child Development Emphasis

FAM 256 Guidance Strategies for Working with Young Children 3
FAM 356 Middle Childhood 3
FAM 357 Contemporary Adolescence 3
FAM 410 Practicum in Applied Child Development 4-6
FAM 507 Assessment of Young Children 2
FAM 553 The Child in His/Her Family 3
FAM 557 Infant Development 3
FAM 558 Advanced Child Development 3
Plus a minimum of six hours selected with assistance of adviser.

Free Electives

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Family Resource Management and Consumer Studies

Premajor Requirements **Hours**

NFS 101 Food and Nutrition for Man.....3
COM 181 Basic Public Speaking.....3
PSY 100 Introduction to Psychology.....4
ENG 205 Advanced Composition **or**
ENG 305 Advanced Writing **or**
ENG 401 Workshop in Professional Writing.....3
SOC 101 Introductory Sociology **or**
ANT 121 Introduction to Cultural Anthropology....3
ECO 201 Principles of Economics I.....3
FAM 101 Introduction to Family Studies.....3
FAM 252 The Individual, Marriage and Family 3

Major Requirements

FAM 250 Consumer Issues.....3
FAM 251 Personal and Family Finance.....3
FAM 390 Introduction to Research in Family Studies.....3
FAM 402 Family Economics and Management Issues.....3
FAM 463 Concepts of Personal and Family Management.....3
FAM 563 Families, Legislation and Public Policy....3
CS 101 Introduction to Computing I (or equivalent).....3
ECO 202 Principles of Economics II.....3
MA 109 College Algebra (or equivalent).....3
EDP 557 Educational Statistics.....3
Students must choose a minimum of 12 additional hours in FAM courses.

Free Electives

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Minor in Family Studies

Any student interested in a minor in family studies should file an application with the department prior to entering the program.

Minor Prerequisite

Hours

FAM 101 Introduction to Family Studies.....3

Minor Requirements

FAM 250 Consumer Issues.....3
FAM 252 The Individual, Marriage and Family.....3
FAM 255 Child Development.....3

Minor Electives

Nine hours to be chosen from the following courses: FAM 251, 253, 350, 353, 357, 363, 402, 463, 464*, 503, 507, 509, 561, 562, 563, 573, 586, 596.

*Required for vocational education majors.

HUMAN ENVIRONMENT: DESIGN AND TEXTILES

The Department of Human Environment is concerned with the quality of life relevant to the near environment. The department consists of two divisions—Design and Textiles. The department offers the Bachelor of Arts in Housing and Interior Design. The Bachelor of Science in Home Economics is awarded to majors in Merchandising, Apparel and Textiles. More information on each division and the undergraduate programs is outlined below.

Housing and Interior Design

Professional interior designers work within areas requiring an understanding of systems, functions, scientific and technical processes, as well as human factors. They must also integrate aesthetic considerations into the spaces for which they design.

The dramatic evolution of the interior design profession over the last two decades is reflected in the interior design program at the University of Kentucky. The curriculum emphasizes the design, technical, problem-solving, and management skills needed to work with allied environmental design professions and to provide high quality environments for human use.

Graduates from the program accept entry-level professional positions in a variety of settings including interior design firms, departments of space planning or interior design in corporations, public institutions, or allied professions. Students also may choose to continue their education with specialized study in interior design or the allied design professions.

The program in Housing and Interior Design is fully accredited by the Foundation for Interior Design Education Research.

In addition to fulfilling University Studies and College requirements, students must complete the requirements listed below.

Major Specialization (78 hours)

The eight prescribed studio courses designated with an asterisk (*) must be taken in sequence to complete the professional requirements.

Premajor/Lower Division Requirements

HED 141 History and Theory of Design I.....3
HED 142 History and Theory of Design II.....3
HED 151 Creative Design Foundations*.....4
HED 152 Visual Fundamentals*.....2
HED 244 Theory of 20th Century Design.....3
HED 253 Interior Design Graphic Communication*.4
HED 254 Graphic Thinking and Color Presentation*.....3
HED 263 Structural Systems and Materials.....3
HED 264 Environmental Control Systems I.....3

Major/Upper Division Requirements

HED 355 Interior Design Studio 1*.....5
HED 356 Interior Design Studio 2*.....5
HED 365 Interior Design Finish Materials.....3
HED 366 Environmental Control Systems II.....3
HED 557 Interior Design Studio 3*.....5
HED 558 Interior Design Studio 4*.....5
HED 568 Interior Design Professional Practice.....3

Professional Support (12 hours)

With the academic adviser's approval, the student will choose professional support courses that include the following: one course in art history or history of landscape architecture, one course in marketing or management, one course in architecture, and one course in art studio.

Designated Design Support (6 hours)

The student will select six hours from the following list of courses:
HED 369 Color Theory.....3
HED 480 Merchandising and Design Study Tour.....1-3
HED 569 Computer-Aided Design.....3
HED 589 Res/Pres I: Introductory Concepts of Restoration and Preservation.....3
HED 590 Pro/Prac II: Professional Practice and Field Experience.....3
HET 325 Textile Design—Textile Science.....3
HET 338 Surface Graphics: Motif and Pattern Development.....3

Electives (9 hours)

Merchandising, Apparel and Textiles

In the Textiles division of the Department of Human Environment, students study the concepts and skills necessary for understanding the trends, needs, and uses of textiles and clothing products in a variety of commercial and home situations. Students gain awareness of the interrelationships of people, materials, fashion and technology in the dynamic physical, social, economic and aesthetic environment.

In addition to satisfying University Studies and College requirements, each student must complete the following:

Premajor Requirements **Hours**

Writing course (200 level or above).....3
Computer Science course.....3
FAM 250 Consumer Issues.....3
Sociology course*.....3
Psychology course*.....3
ECO 201 Principles of Economics I.....3
ECO 202 Principles of Economics II.....3

*These courses also may be used to fulfill University Studies requirements. Additionally, the department recommends logic and statistics for University Studies Requirement II, A.

Major Requirements

HET 101 Creativity, Design, and Environments.....3
HET 121 Textiles.....4
HET 237 Visual Design in Dress.....3
HET 306 Analysis of Apparel Quality.....3
HET 310 Fashion Industry.....3
HET 347 Interdisciplinary Approach to Dress.....3

Major Option

After completion of the third semester, students must select a major option (A or B).

Option A: Merchandising
HET 214 An Introduction to Fashion Merchandising.....3
HET 414 Merchandising Procedures.....3
HET 415 Applied Merchandising Planning and Control.....3
HET 510 Theory and Interpretation of Fashion.....3
HET 525 Economics of the Apparel and Textile Industry.....3
and
Additional 12 hours in HET from: 232, 289, 312, 325, 338, 385, 435G, 480, 522, 533, 545, 547, 592, 595, 597, 590. Only three credits from HET 590 can be applied to this requirement.

Option B: Apparel and Textiles
HET 510 Theory and Interpretation of Fashion.....3
HET 525 Economics of Apparel and Textile Industry.....3
HET 533 History of Costume **or**.....3
HET 522 History of Textiles.....3
HET 545 Clothing for Specific Needs.....3
HET 547 Sociological and Psychological Aspects of Apparel.....3
and
Additional 12 hours in HET from: 214, 232, 289, 312, 325, 338, 385, 435G, 480, 522 or 533, 592, 595, 597.

After completion of the sophomore year, the student must write a statement of educational goals which includes a rationale for course selections and a course list agreement for all professional support selections and senior requirements. This statement of course selections becomes a permanent part of the student file. It is to be signed by the student, the adviser, and the department chairperson. Changes in the agreement require advanced notification and appropriate petition forms.

Professional Support

Option A: Merchandising
Accounting course.....3
Marketing course.....3
Business course.....3
Selection.....6
An additional six hours in courses to be chosen by the student with approval of the academic adviser from from areas such as business, behavioral and social sciences, communication, computer science, and home economics.

Option B: Apparel and Textiles
Cultural Anthropology course.....3
Marketing course.....3
Behavioral/physical sciences course.....3
Selection.....6
An additional six hours in courses to be chosen with approval of the academic adviser from areas such as business, chemistry, communication, computer science, fine arts, history, home economics, and social sciences.

Electives (approximately 4 hours)

Minor in Merchandising, Apparel and Textiles

Students interested in this minor should file an application with the department and contact the Human Environment academic adviser in the chairperson's office.

Minor Requirements

	Hours
HET 101 Creativity, Design, and Environments	3
HET 120 Textiles for Consumers	3
HET 237 Visual Design in Dress	3
HET 310 Fashion Industry	3

Minor Electives

Students must select four additional HET courses. A minimum of 12 credit hours is required.

VOCATIONAL HOME ECONOMICS EDUCATION

The Vocational Home Economics Education program prepares students for careers in teaching, research, extension services, consumer education, adult education, and related activities which focus on teaching. Professional education courses in teaching methods and supervised teaching in home economics at the secondary level are included in the program. Students earn the Bachelor of Science in Home Economics degree.

All students must apply and be admitted to the professional Teacher Education Program in order to complete the program leading to teacher certification. Students should refer to the *College of Education* section of this Bulletin for information on criteria for the Teacher Education Program.

Students should note that some changes may be made in this program, due to the implementation of the new University Studies requirements. Students should work closely with their advisers.

General Education Component	Hours
Communication and Humanities:	
ENG 101 Writing I	3
ENG 102 Writing II	3
ENG 261 Survey of Western Literature from the Greeks through the Renaissance **or**	
ENG 262 Survey of Western Literature from 1660 to the Present	3
A-H 105 Ancient through Medieval Art **or**	
A-H 106 Renaissance through Modern Art	3
ENG 203 Business Writing **or**	
ENG 205 Advanced Composition	3
COM 181 Basic Public Speaking	3
Natural Sciences:	
Chemistry course	3
Biology course (other than BIO 102 or 110)	3
Natural science electives	6
Social and Behavioral Sciences:	
SOC 101 Introductory Sociology **or**	
SOC 152 Modern Social Problems **or**	
SOC 220 The Community	3
ECO 201 Principles of Economics I **or**	
ECO 202 Principles of Economics II	3
Social Science electives	6
Special Studies:	
PSY 100 Introduction to Psychology	4

Specialization Component

HE 100 An Introduction to Home Economics Professions	1
HE 400 Concepts in Home Economics: Integration and Application	2
HET 120 Textiles for Consumers	3
HET 232 Apparel Production Studio	3
FAM 101 Introduction to Family Studies	3
FAM 255 Child Development	3
FAM 350 Programs for the Young Child	4
FAM 463 Concepts of Personal and Family Management	3
FAM 464 Application of Personal and Family Management	3
NFS 101 Food and Nutrition for Man	3
NFS 204 Principles of Food Preparation **or**	
NFS 206 Meal Management	3
HED 101 Creativity, Design, and Environments	3
HED elective	3
Home Economics electives	12

Professional Education Component

EDP 202 Human Development and Learning	3
EDP 203 Teaching Exceptional Learners in Regular Classrooms	3
EPE 301 Education in American Culture	3
EDA 401 The Professional Teacher: Legal Perspectives	1
EDC 317 Introduction to Instructional Media	1
EDV 362 Field Experiences in Secondary Education	1
EDV 365 Student Teaching in Home Economics	12
EDV 586 Teaching Home Economics in the Secondary School	3
EDV 588 Adult Education in Home Economics	3

In addition to the requirements listed above, candidates for teacher certification must complete 1,000 hours of work experience, under guidance, that will help develop homemaking skills and insight into the problems of homemakers as wage earners. The 1,000 hours must be planned with the adviser prior to the experiences.

Free Electives

Students will choose a minimum of 4 elective hours to complete the 128 hours required for graduation.

NUTRITION AND FOOD SCIENCE

The Department of Nutrition and Food Science provides sound undergraduate and graduate programs in foods and nutrition, and is concerned with research and extension services.

The majors offered are Nutrition and Food Science (with options in Dietetics and Restaurant Management) and Food Science (with options in Food Science and Human Nutrition).

A minor in nutrition is also available.

Dietetics

Students interested in dietetics may choose either Program Option A or B. Both lead to the Bachelor of Science in Dietetics and fulfill the course requirements established by the American Dietetic Association (ADA). Program Option A offers students the traditional four-year academic curriculum for general, clinical, community, or management dietetics. Option A must be followed by an approved internship before the graduate is eligible to take the ADA registry examination. Program Option B (Coordinated Undergraduate Program) not only prepares students for careers in general dietetics but also includes the required clinical experiences in the curriculum. Therefore, graduates of the Coordinated Undergraduate Program are immediately eligible for the ADA registry examination.

Students who choose Option B must make application to the program and be accepted after having completed required preprofessional courses.

In addition to fulfilling University Studies and College requirements, students must complete the following requirements.

Premajor Requirements

	Hours
BIO 104 Animal Biology	3
BIO 108 Principles of Microbiology	3
CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
CHE 236 Organic Chemistry **or**	
CHE 230/231 Organic Chemistry and Laboratory	4
PGY 206 Elementary Physiology	3
PSY 100 Introduction to Psychology	4
ECO 201 Principles of Economics I	3
SOC 101 Introductory Sociology	3
COM 181 Basic Public Speaking	3
CS 101 Introduction to Computing I	3
MA 162 Finite Mathematics and Its Applications **or** equivalent	3

Major Requirements

	Hours
EDP 548 Educational Psychology	3
NFS 204 Principles of Food Preparation	3

NFS 212 Introductory Nutrition.....3
NFS 301 Professional Dietetics I: Orientation.....3
NFS 311 Nutritional Biochemistry.....3
NFS 315 Nutritional Biochemistry Laboratory.....1
NFS 312 Applied Nutrition*.....4
NFS 346 Basic Management Principles of Food Service* **or**
MGT 301 Business Management.....3

*These courses are taken as NFS 803 and 813 by CUP students.

Major Specializations

Option A

In addition to completing University Studies, College, premajor, and major requirements, the student in Option A must complete the requirements for **one** of the following specializations:

General Dietetics **Hours**

BIO 109 Introductory Microbiology Laboratory.....2
ANT 121 Introduction to Cultural Anthropology **or**.....3
SOC 152 Modern Social Problems.....3
NFS 304 Experimental Foods.....3
NFS 340 Institutional Purchasing.....3
NFS 342 Quantity Food Production.....5
NFS 344 Food Service Accounting **or**.....3
ACC 201 Principles of Accounting.....3
NFS 508 Seminar in Nutrition.....1
NFS 510 Advanced Nutrition.....3
NFS 511 Therapeutic Nutrition.....3
NFS 546 Institution Organization and Management.....3

Clinical Dietetics **Hours**

BIO 109 Introductory Microbiology Laboratory.....2
ANT 121 Introduction to Cultural Anthropology **or**.....3
SOC 152 Modern Social Problems.....3
ANA 206 Elementary Anatomy.....3
PGY 412G Principles of Human Physiology Lectures **or**.....4
BIO 404G Principles of Genetics.....3
STA 291 Statistical Method.....3
NFS 342 Quantity Food Production.....5
NFS 508 Seminar in Nutrition.....1
NFS 510 Advanced Nutrition.....3
NFS 511 Therapeutic Nutrition.....3
NFS 591 Special Problems in Food and Nutrition.....1-3

Community Dietetics **Hours**

BIO 109 Introductory Microbiology Laboratory.....2
ANT 121 Introduction to Cultural Anthropology.....3
SOC 220 The Community **or**.....3
SOC 152 Modern Social Problems.....3
STA 291 Statistical Method.....3
NFS 340 Institutional Purchasing.....3
NFS 342 Quantity Food Production.....5
NFS 503 Community Nutrition.....3
NFS 508 Seminar in Nutrition.....1
NFS 511 Therapeutic Nutrition.....3
NFS 516 Maternal and Child Nutrition.....3
NFS 546 Institution Organization and Management.....3
PSY 444G Social Psychology.....3

Management Dietetics **Hours**

BIO 109 Introductory Microbiology Laboratory.....2
ECO 202 Principles of Economics II.....3
ECO 477G Labor Economics.....3
NFS 304 Experimental Foods.....3
NFS 340 Institutional Purchasing.....3
NFS 342 Quantity Food Production.....5
NFS 344 Food Service Accounting.....3
NFS 542 Food Service Equipment and Layout.....3
NFS 546 Institution Organization and Management.....3
PSY 503 Psychology of Industrial Personnel Procedure.....3
ACC 201 Principles of Accounting.....3

Electives

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Option B
Coordinated Undergraduate Program in General Dietetics

Admission to the University of Kentucky does not guarantee admission to the Coordinated Undergraduate Program (CUP). A limited number of students who have completed the required preprofessional courses will be admitted on the basis of cumulative collegiate grade-point average and other criteria indicating potential for becoming successful dietitians.

Application to CUP should be made by February 15 prior to potential fall admission. Applicants will be notified of provisional acceptance before UK's advance registration dates for the ensuing fall semester. Final acceptance depends on acceptable completion of the work in progress at the time of application. Transfer students are urged to contact the Director of CUP for a preliminary evaluation of credits well in advance of the application date.

Prior to acceptance, the student must complete the University and College requirements along with the premajor and major requirements outlined previously.

Program Requirements

Hours

NFS 304 Experimental Foods.....3
NFS 344 Food Service Accounting.....3
NFS 508 Seminar in Nutrition.....1
NFS 510 Advanced Nutrition.....3
NFS 803 Nutrition and the Life Cycle.....4
NFS 804 Food Service System I: Marketing, Production and Service.....7
NFS 806 Nutrition Education in the Community.....5
NFS 811 Applied Therapeutic Nutrition.....6
NFS 813 Food Service Systems II.....6
NFS 814 Food Service Systems III.....4
NFS 816 Professional Dietetics II: Clinical Experiences.....4
NFS 818 Professional Dietetics III: Evaluation.....2
NFS 820 Advanced Therapeutic Nutrition.....2

Electives

Electives should be selected by the student to lead to the 128-hour minimum requirement for graduation.

Requests for applications or further information may be directed to:

Director
Coordinated Undergraduate Program
Department of Nutrition and Food Science
212 Funkhouser Building
University of Kentucky
Lexington, KY 40506-0054

Food Science

The Bachelor of Science in Food Science program in the Department of Nutrition and Food Science includes two options: Food Science and Human Nutrition.

The Food Science option focuses on the fundamentals of food chemistry, food microbiology, food processing, food engineering, nutrition and statistics. The curriculum is administered by the Department of Nutrition and Food Science, College of Home Economics, and the Department of Animal Sciences, College of Agriculture.

The Human Nutrition option offers appropriate preparation for further study in nutritional sciences and health-related sciences, particularly public health and preventive medicine.

The outlook for employment in most food-related industries is very bright. There is a continuing and increasing demand for graduates by the various state, federal and municipal agencies.

A Food Science curriculum is also available in the College of Agriculture.

In addition to University Studies and College requirements, each student must complete the following:

Premajor Requirements

Hours

PSY 100 Introduction to Psychology.....4
ECO 201 Principles of Economics I **or**
ECO 202 Principles of Economics II.....3
SOC 101 Introductory Sociology **or**
ANT 121 Introduction to Cultural Anthropology.....3
CS 101 Introduction to Computing I.....3
MA 113 Calculus I or equivalent.....4
CHE 105 General College Chemistry I.....3
CHE 107 General College Chemistry II.....3
CHE 115 General Chemistry Laboratory.....3
CHE 236 Organic Chemistry **or**.....4
CHE 230 Organic Chemistry **and**.....3
CHE 231 Laboratory for CHE 230.....2
STA 291 Statistical Method **or**.....3
STA 370 Introduction to Statistics.....4
PHY 211 General Elementary Physics.....5
BIO 104 Animal Biology.....3
BIO 108 Principles of Microbiology.....3
BIO 109 Introductory Microbiology Laboratory.....2

Premajor Specialization
Option A Food Science

Hours

COM 181 Basic Public Speaking.....3
ENG 203 Business Writing.....3

Option B Human Nutrition

Hours

PHY 213 General Elementary Physics.....5
BIO 105 Animal Biology Laboratory.....1
ANA 206 Elementary Anatomy.....3
CHE 226 Analytical Chemistry.....5

Major Requirements

Hours

NFS 212 Introductory Nutrition.....3
NFS 311 Nutritional Biochemistry.....3
NFS 315 Nutritional Biochemistry Laboratory.....1
NFS 312 Applied Nutrition.....4
FSC 530 Food Microbiology.....5
FSC 534 Food Chemistry.....4

Major Specialization
Option A Food Science

Hours

NFS 204 Principles of Food Preparation.....3
NFS 504 Food Science Research.....3

NFS 514 Food Preservation.....3
NFS 560 Food and the Consumer.....3
AEN 340 Principles of Food Engineering.....4
FSC 335 Chemical Analysis of Food.....4
FSC 430G Sensory Evaluation of Foods.....3
FSC 536 Food Processing.....4

Option B Human Nutrition

	Hours
NFS 508 Seminar in Nutrition	1
NFS 510 Advanced Nutrition	3
NFS 511 Therapeutic Nutrition	3
NFS 516 Maternal and Child Nutrition	3
PGY 412G Principles of Human Physiology Lectures	4
or	
BIO 404G Principles of Genetics	3
and 8 additional hours from other courses such as:	
BCH 401G Fundamentals of Biochemistry	3
BIO 350 Animal Physiology	4
BIO 404G Principles of Genetics*	3
BSC 331 Behavioral Factors in Health and Disease	3
NFS 591 Special Problems in Foods and Nutrition*	3-6
PGY 412G Principles of Human Physiology Lectures*	4
and/or other courses as approved by the faculty	

*If not already taken in this option.

Electives

Electives should be selected by the student to complete the minimum total of 128 hours required for graduation.

Restaurant Management

In the Restaurant Management program option in Nutrition and Food Science, which leads to the B.S. in Home Economics, students acquire the specialized knowledge needed for careers in the hospitality industry. They also receive training in the basic functions, objectives, and techniques of management. The student is prepared for managerial positions in commercial food service, as well as positions as purchasing agents, food service equipment specialists, food service planning specialists, and other careers.

In addition to fulfilling University Studies and College requirements, each student must complete the following:

Premajor Requirements

	Hours
BIO 104 Animal Biology	3
BIO 108 Principles of Microbiology	3
PSY 100 Introduction to Psychology	4
ECO 201 Principles of Economics I **or**	
ECO 202 Principles of Economics II	3
SOC 101 Introductory Sociology **or**	
ANT 121 Introduction to Cultural Anthropology	3
COM 181 Basic Public Speaking	3
Advanced writing course (200 level or above)	3

Major Requirements

	Hours
MA 109 College Algebra	3
Chemistry (CHE 101, 103 or CHE 105, 107 or CHE 104, 106)	6
BIO 109 Introductory Microbiology Laboratory	2
ECO 202 Principles of Economics II	3
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
CS 101 Introduction to Computing I	3
NFS 101 Food and Nutrition for Man	3
NFS 204 Principles of Food Preparation	3
NFS 206 Meal Management	3
NFS 340 Institutional Purchasing	3
NFS 342 Quantity Food Production	5
NFS 344 Food Service Accounting	3
NFS 542 Food Service Equipment and Layout	3
NFS 546 Institution Organization and Management	3
NFS 548 Institution Administration (repeated once)	6
NFS 594 Special Problems in Institution Management	1-3
ECO 477G Labor Economics	3
MKT 300 Marketing Management	3
MKT 310 Behavioral Systems in Marketing	3
MGT 301 Business Management	3
MGT 320 Survey of Personnel and Industrial Relations	3

Electives

Electives should be selected by the student to lead to the minimum total of 128 hours required for graduation.

Minor in Nutrition

Any student wishing to minor in nutrition should file an application with and be interviewed by the chairperson of the Department of Nutrition and Food Science prior to entering the program. After the interview, the student should provide his or her college dean with a copy of the minor program requirement sheet.

Preminor Requirements

	Hours
BIO 104 Animal Biology	3
CHE 105 General College Chemistry I	3
CHE 107 General College Chemistry II	3
NFS 310 Introduction to the Biochemistry of Foods **or**	2
CHE 236 Organic Chemistry	4
PGY 206 Elementary Physiology (or equivalent)	3

Minor Requirements

NFS 212 Introductory Nutrition.....3
NFS 312 Applied Nutrition.....4
NFS 311 Nutritional Biochemistry.....3
NFS 315 Nutritional Biochemistry Laboratory.....1
NFS 510 Advanced Nutrition.....3

Minor Electives

A minimum of three hours to be chosen from:
NFS 511 Therapeutic Nutrition.....3
NFS 516 Maternal and Child Nutrition.....3
NFS 503 Community Nutrition.....3
NFS 508 Seminar in Nutrition*.....1

*May be repeated to a maximum of 3 hours.



HONORS PROGRAM

Raymond F. Betts, Ph.D., is Director of the Honors program.

The Honors program at the University of Kentucky serves an important function in the University's commitment to excellence in undergraduate education. Through its special curriculum and related academic activities, the program provides a special course of instruction for very able and well-motivated students.

Purpose

The Honors program provides an intense, interdisciplinary educational experience that is designed to assure the participating student a superior and challenging undergraduate education. Moreover, the basic courses satisfy general University requirements as well as those established by the program.

Selection of Honors Students

Qualified entering freshmen are identified by test scores, high school records, and recommendations. No one is automatically assigned to the Honors program. Students choose to participate and, accordingly, make a commitment to academic excellence. To be admitted to the Honors program, entering freshmen generally should have a high school grade-point average of 3.5 or better and an ACT composite score of 27 or better.

Opportunities are also provided for upperclassmen to enter the program. Each semester, students who have made an excellent record at the University are invited to discuss their possible participation; transfer students are invited to enter the program through the middle of the junior year. Students entering the program after the freshman year must have a cumulative University grade-point average of 3.0 or better.

Any student in the University may apply for consideration by the selection committee.

The Honors Curriculum

The Honors curriculum is primarily designed to acquaint the student with the major ideas and intellectual issues which have helped form our culture. The basic colloquia cover the historical range of thought from the ancient Greeks to the modern global age. Each entering student is required to take four basic colloquia for a letter grade. In addition, each student must undertake a research project during the junior or senior year. Students who enter the Honors program after the freshman year must take at least three colloquia and complete a research project.

Special Opportunities

Students in the Honors program have many opportunities, both in and out of the classroom, to develop academic excellence. The basic colloquia are arranged to be small in student size, informal in method of instruction, and open to individual discussion. Moreover, informal conferences and seminars allow for intellectual appreciation of a number of topics and issues generally not considered within University departmental offerings. Outside of the program, individual departments offer special honors sections of basic courses.

Lower division students in the program may elect housing in separate sections of the University's residence halls. However, no student is required to live in these sections. A suite of study rooms in Miller Hall is available for use by honors students.

Benefits

The greatest benefits honors students can obtain are intensified intellectual development and a heightened personal awareness of the individual's place in his or her culture. The honors colloquia satisfy the University's Writing requirement and the General Studies Area V requirement. Furthermore, the program brings together dedicated and able students whose scholarly attainments in the University are notable. A high percentage of graduates in the Honors program enter professional or graduate schools, with most of these students receiving some financial support.

The Center for Undergraduate Studies in the Humanities

As part of the Honors program of the University of Kentucky, the Center for Undergraduate Studies in the Humanities enriches the upper levels of undergraduate study. The academic program is varied, designed to encourage participation by a large segment of the University population. Conferences and lectures, informal seminars and discussions are open to anyone interested. Even though the center's principal purpose is to enhance an appreciation of the humanities, its programs are arranged to stimulate inquiry about the relationship of the humanities to other broad areas of investigation, such as the sciences and the arts.

The John R. and Joan B. Gaines Fellowships in the Humanities

A major feature of the Center for Undergraduate Studies in the Humanities is the Gaines Fellowhip program. The Gaines Fellowships are given in recognition of outstanding academic performance, demonstrated independent study, an interest in public issues, and a desire to enhance understanding of the human condition.

The fellowships are awarded in the student's sophomore year for tenure in the junior and senior years. Renewal in the senior year is contingent upon satisfactory academic performance.

All Gaines Fellows are required to take a specially-designed, three-credit hour seminar in the humanities during both semesters of the junior year; and each Fellow completes a major independent study project (of three to fifteen credit hours) in the senior year.

Gaines Fellows are invited to participate in all activities of the Center for Undergraduate Studies in the Humanities.

Eligibility: Although the Gaines Fellowships are administered by the Honors program, any student at the University of Kentucky, including the UK Community College System, is eligible for consideration. (The student's particular discipline or intended profession is of no consideration.)

Program Requirements

Students in the Honors program are required to maintain a good academic standing. A cumulative grade-point average of 3.0 or better is normally required for continued participation in the program. In circumstances when the academic performance drops below this level, the Director of the Honors program will consult with the student to determine whether and by what means the student may restore performance to an acceptable level. In any case, a cumulative grade-point average of 3.0 will be required for graduation in the Honors program.

How to Apply

Students interested in the Honors approach to education are invited to write to:

Director, Honors Program
1153 Patterson Office Tower
University of Kentucky
Lexington, KY 40506-0027

LAW

Rutheford B Campbell, Jr., LL.M., is Dean of the College of Law; Paul C. Van Booven, J.D., Todd B. Eberle, J.D., and Drusilla W. Vansant, J.D., are Associate Deans.

Since its establishment in 1908, the College of Law has provided programs of legal instruction, research, and service to the state and to the bar. The College of Law program is designed so that graduates of the college can practice their profession on a local, regional, or national level. The college is accredited by all agencies which establish standards for law schools, including the Association of American Law Schools, the American Bar Association and the bar admission authorities in all states.

The instructional program consists of a three-year general law curriculum designed to be completed in six consecutive 16-week semesters or in five semesters and two summer sessions. The program is arranged to assist each student in acquiring the skills required for the solution of modern legal problems; to make certain that he or she has an appreciation for and understanding of the legal, social, and political institutions on which the administration of justice rests; and to prepare him or her for the policy and ethical decisions that must be made in practicing law.

The Faculty

The program of the college is conducted by a full-time faculty and staff composed of 24 professors and 25 library and secretarial personnel. They are assisted by some part-time professors and research associates.

The Library

The college maintains a carefully selected law library collection of 270,000 volumes, one of the larger law libraries in the South. It is housed in the Law Building and includes a comprehensive collection of Anglo-American case and statutory materials. It contains more than 30,000 treatises and textbooks, all major legal reference works, and over 1,200 legal periodicals received annually, as well as special collections in jurisprudence and international law. The law library is growing at a rate of about 7,000 volumes per year.

The Law Building

The College of Law occupies a handsome building of contemporary design constructed in 1965. Located on the central campus on South Limestone Street just south of Memorial Hall, the building was planned to provide all of the special physical facilities required for a modern program of legal education. These facilities include a model court room-auditorium; the Law Library; eight classrooms; faculty and staff offices; and offices for the Mineral Law Center, the *Kentucky Law Journal*, the Moot Court Board, the Student Bar Association, and visiting attorneys and others who come to the College of Law for research and study.

Other Facilities and Information

Since 1912 the college has published the *Kentucky Law Journal*, a quarterly periodical and the tenth oldest American law review. This journal is published by a student staff, and election to the staff is based on high academic achievement and proven ability to write and conduct research. Articles, notes, and comments written by legal scholars, attorneys, and students are published. The *Kentucky Law Journal* is subscribed to by members of the bar as well as all leading domestic and foreign libraries.

The Mineral Law Center was established in 1983 to serve as an objective and nonpartisan research center for coal-related legal issues and to further the teaching and service missions of the college. Since its founding, the center has expanded the college's curricular offerings in mineral and coal law, secured research grants, and conducted seminars and continuing legal education programs in all areas of mineral and energy law. The center currently publishes the *Journal of Mineral Law and Policy*.

Practical training in trial and appellate advocacy is provided in litigation skills, the Clinic program, and the Moot Court program. Teams representing the college compete annually in the National Moot Court Competition.

Instruction in legal research and writing is available to all students, not only in required courses designed for this purpose, but also in a program of seminars, drafting projects and opportunities for independent study. The college operates a clinical program to provide students with a variety of clinical learning experiences, including the representation of indigent clients in court by advanced students who qualify as legal aid interns under a rule of the Kentucky Supreme Court.

REQUIREMENTS FOR ADMISSION

In addition to the general requirements for admission to the University, an applicant for admission to the College of Law must meet the following requirements:

1. The applicant must have received a bachelor's degree from an accredited institution.
2. The applicant, unless blind, must have taken the Law School Admission Test.
3. The applicant must have registered with the Law School Data Assembly Service and furnished the necessary transcripts which such registration requires.

Admissions Committee Consideration

The College of Law Admissions Committee considers and makes recommendations to the Dean of the College of Law on an applicant's undergraduate grade record, the Law School Admission Test Score, the writing ability score, and other factors indicative of the applicant's aptitude for law study. The committee examines with particular care the grade average for the most recent semesters of undergraduate study, recommendations of faculty, the nature and difficulty of course work attempted in prelaw study, undergraduate extracurricular activities, and work experience. The committee also considers post-baccalaureate experiences where such experiences, in the committee's determination, indicate a development of aptitude for the study of law. The committee reviews the file of an applicant to determine whether personal, academic, professional, or intellectual circumstances tend to discount low academic or LSAT scores and give evidence of both the capability and motivation to do successful law school work. The committee may also consider factors which bear on the provision of adequate legal services to all segments of Kentucky.

Admission of Transfer Students

Applicants for transfer from a law school should present a 2.7 average on at least 25 hours of law school work at a school accredited by the American Bar Association or the Association of American Law Schools. The Admissions Committee will consider and recommend to the dean the

applicant's law school record as well as all factors the committee considers in an application for the entering class.

Procedure for Application

Application for admission is initiated by submitting to the University Admissions Office a completed UK law application form, which may be obtained from that office or the Office of the Dean, College of Law, and an LSDAS Application Matching Form.

The Law School Admissions Test (LSAT), administered by the Law School Admission Services (LSAS), is given each year at testing centers throughout the country according to a schedule of dates and places published by the LSAS.

In addition to administering the LSAT, LSAS provides a transcript analysis and report for applicants, known as the Law School Data Assembly Service (LSDAS). All applicants are required to register directly with LSAS for this service, which is done at the time one applies to take the LSAT. Transcripts of prelaw work should be sent to LSAS rather than the University Admissions Office. Applicants still enrolled for undergraduate study who desire to have their academic records for the senior year considered should send an official transcript of seventh semester grades as soon as available to the University Admissions Office for attention of the Chairperson, Law School Admissions Committee.

The LSAT application and the LSDAS registration form are available from LSAS, the University Admissions Office and the Dean's Office, College of Law.

Submission Dates and Deadlines

Because the Admissions Committee considers applications as they are completed, all students are urged to apply as early as possible. Applications should be received by January 1 and files should be completed by January 15. February 15 of the year in which an applicant expects to enter law school for the fall semester is the **deadline** for receipt of the application form. March 31 is the **deadline** for receipt of all supplementary materials, including LSAT scores and the LSDAS report. Applicants are urged to take the LSAT in October or December. The LSAT given in late February or early March is the last examination which will be accepted by the Admissions Committee. Applicants are urged to send transcripts to LSDAS no later than December 20. If transcripts are not on file with LSDAS by February 1, there is a substantial possibility that an LSDAS report will not arrive at the Admissions Office before the March 31 deadline for receipt for materials.

PRELEGAL STUDY

While a broad, liberal arts education is generally considered to be an excellent preparation for law school, there is no fixed, comprehensive prelaw curriculum prescribed by this or any other American law school.

This fact is very important, and its implications should not be misunderstood. American legal education is not a graduate program of advanced work in a specialized course of study beginning in college; it is not a technical or scientific training that builds upon a specific preparation in basic techniques and knowledge acquired in undergraduate school. Legal education is a professional education which requires that each student develop three fundamental capacities (described below) in the prelegal experience. These accomplishments may be obtained in a variety of learning ways and academic disciplines.

First, because the basic working tools of lawyers are written and spoken words, the beginning law student must have thorough preparation in the use of the language. The importance of this requirement cannot be overstated. A fundamental knowledge of grammar and syntax, a good vocabulary, an ability to read rapidly with insight and understanding, and a facility for expressing ideas with clarity and order are all essential to success in the study and practice of law. Any prelaw student who is deficient in these abilities should immediately take additional courses in English literature and composition, seek specialized remedial assistance, and exert all efforts towards language mastery.

Second, because the primary working arenas of lawyers are social, economic, and political communities, the beginning law student must obtain a comprehensive, exploratory undergraduate experience. The law student should have a good knowledge of history (especially English and American traditions), of governmental and political processes, of social and cultural patterns and the interactions that create them, and of the ethical and spiritual credos by which men and women live.

Third, because the fundamental techniques of legally trained persons are careful ordering of facts and events, conceptual analysis and synthesis, and effective advocacy, the prelaw student should pursue a degree program in which he or she will learn to think clearly, will form sound study habits, and will have the opportunity to master the methodology and knowledge of a particular field under the guidance of experienced instructors. Generally, any undergraduate program can satisfy this requirement and help meet the other two needs outlined above. Prelaw students with definite career objectives in mind may wish to prepare for those objectives by majoring in appropriate subjects, for example: business or economics, government or political science, English literature, engineering, or the natural sciences.

Experience indicates that the poorest preparation for legal study lies in inadequate development of language skills, lack of historical and social awareness and appreciation, and failure to achieve the mastery of any academic discipline that overcomes the shallowness of vague generalization. Therefore, the prescription from this law school to the prelaw student is that he or she should invest in the broadest, deepest undergraduate education open to him or her rather than in some predetermined curriculum.

For additional information, students should obtain the *Prelaw Handbook*, published and prepared by the Law School Admission Council and the Association of American Law Schools. This publication contains material on the law and lawyers, prelaw preparation, applying to law schools, and the study of law, together with information on most American law schools.

THE DEGREE OF JURIS DOCTOR

Students admitted to the College of Law are eligible for the degree of Juris Doctor (J.D.) upon completion of a minimum of three academic years (six full-time semesters or equivalent) of residence and 88 semester hours of courses in the College of Law with a grade-point average of at least 2.0.

All courses in the first year of law study are required as is a course in professional responsibility and an upper division writing course.

Because the study of law at the University of Kentucky is a full-time pursuit, all law students are expected to carry a full academic program (15 semester hours) and to devote their full time to the study of law.

For specific information about the courses and policies of the College of Law, students should refer to the College of Law admission booklet, or contact the Associate Dean's Office, College of Law.

LIBRARY AND INFORMATION SCIENCE

Paul A. Willis, M.L.S., is Acting Dean of the College of Library and Information Science.

The present College of Library and Information Science began in 1933 as the Department of Library Science. Some courses in library science were offered as early as 1918. On July 1, 1968, the department was reorganized into the School of Library Science, and on July 1, 1970, the school became the College of Library Science for purposes of University-wide uniformity. Renamed the College of Library and Information Science on April 6, 1982, it is one of 67 library and information science programs in the United States and Canada accredited by the American Library Association.

The College of Library and Information Science provides students with the basic knowledge and skills required to function effectively in beginning professional positions in various types of libraries and information-providing agencies. It contributes to the advancement of both the theory and practice of librarianship through systematic and continuing research and publication and provides continuing public service to individuals, libraries, professional organizations and related institutions to the end of promoting effective and efficient information services.

The College of Library and Information Science maintains flexibility and openness to change through the participation of faculty, students, and administration in the decision-making process. The student body, numbering about 65 graduate students, each year elects a student committee to represent them in all deliberations of the College of Library and Information Science. Students sit on committees and share significantly in the development of the college. The student committee participates in orientation programs, publishes a newsletter, and sponsors social activities throughout the year. The diversity of the students, in terms of geography and interests and backgrounds, helps to create an atmosphere in which change and improvement in the program can take place.

The libraries of the University, M. I. King and the branch libraries, constitute the major "laboratory" facility for library and information science students. They are supplemented by other libraries in the area including those at the Lexington Theological Seminary, the Veterans Administration Medical Center, the Lexington Public Library, several nearby public regional libraries and the State Department for Libraries and Archives in Frankfort.

ADMISSION REQUIREMENTS AND PROCEDURES FOR GRADUATE STUDY

The College of Library and Information Science offers graduate degrees only. For complete information on the M.A. and the M.S.L.S. degree programs and admissions procedures, students should consult The Graduate School Bulletin and the College of Library and Information Science Bulletin.

Admission

The admissions philosophy of the college is to admit students who are capable of satisfactory academic performance and who show promise of being able to function as competent and effective librarians and information managers. A basic requirement for admission is an undergraduate degree in any discipline (from an accredited institution) with a grade-point average of at least 2.75 on a 4.00 scale. In addition the applicant should present Graduate Record Examination scores on the aptitude sections (verbal and quantitative) with a combined total of 900.

While these admission standards are important, the college does try to remain flexible to account for individual developmental differences and strengths.

There are no specific library science prerequisites for admission into the College of Library and Information Science. Students are urged not to take a minor in library science as undergraduates but to concentrate on other subject area majors and minors and obtain a broad liberal arts background. Electives in computer science are often very helpful. Those students with many undergraduate library science courses do not repeat similar courses in the graduate program and are usually asked to take graduate courses in non-library science areas to strengthen backgrounds in subject areas. Such courses are, however, counted as part of the 36-hour minimum requirement for graduation.

Application must be made both to the College of Library and Information Science and The Graduate School. Forms for both the college and The Graduate School may be obtained from the Assistant Dean, College of Library and Information Science. The College of Library and Information Science form should be returned directly to the college. The Graduate School application and two copies of all official transcripts must be returned to The Graduate School no later than 30 days prior to the opening of the term in which the student wishes to enroll. Early application is, however, encouraged to allow for any delays. Students may enter the program in the summer and fall terms only.

Previous students must apply for readmission if they were not enrolled during the semester prior to that for which admittance is sought.

University of Kentucky Undergraduates

The College of Library and Information Science does not offer any formal program of study on the undergraduate level. Students who are registered as undergraduates (juniors or seniors) at the University of Kentucky may take courses at the 500 level as a general minor or as meeting the requirements for certification in Kentucky as a school librarian. Those students who are not working toward certification are encouraged not to take more than six credit hours of the 500-level core courses in library and information science if they plan to enter the College of Library and Information Science.

MEDICINE

Emery A. Wilson, M.D., is Interim Dean of the College of Medicine.

The College of Medicine offers a four-year curriculum leading to a degree of Doctor of Medicine (M.D.) and training for postdoctoral and research fellows. The University Hospital offers accredited postdoctoral training for interns and residents.

A curriculum in medicine has been a part of the University of Kentucky since 1960 when the first class was enrolled. The College of Medicine is responsible for providing its students with training in related basic sciences and with clinical experience under supervision in the University Hospital and other affiliated facilities.

As part of the Medical Center—which also includes the University Hospital, the Colleges of Dentistry, Nursing, Pharmacy, and a College of Allied Health Professions—the College of Medicine strives for programs of the highest possible quality. This means acquiring and keeping talented and outstanding faculty and administrative staffs, selecting the best possible student body, and creating an environment which fosters learning, investigation, and clinical excellence.

ACADEMIC PREPARATION FOR THE STUDY OF MEDICINE

Medical science and practice involve complex relationships between physical, biological, psychological, cultural, and environmental aspects of humanistic behavior. In preparing for medical school, fundamental undergraduate college training in physics, chemistry, biology, and English is essential. Minimal requirements are satisfied with the equivalent of two semesters of studies in physics; two semesters in the biological sciences; four semesters in chemistry, including organic chemistry; and at least one year of English with emphasis on communication skills such as reading, writing, and speaking.

Courses in each of the science areas must include laboratory work. Students are encouraged to follow special interests which they may have in philosophy, psychology, literature, social sciences or the fine arts.

Students are strongly urged to demonstrate a capacity for advanced work through concentrated study of at least one subject in a major area by completing courses beyond the introductory level.

REQUIREMENTS FOR ADMISSION

Applicants for admission to the College of Medicine, in addition to meeting general University requirements, must meet the requirements of the College of Medicine and be accepted by the Medical College Admissions Committee. Applicants normally will be required to have taken the Medical College Admission Test (MCAT) and to have completed a degree program at an accredited college or university.

SELECTION CRITERIA

In admitting students to the College of Medicine, the University endeavors to select those students who show promise of making the best possible future physicians. Applicants are judged on the basis of their total qualifications and in comparison with other applicants.

As a state-supported school, the College of Medicine gives preference to qualified residents of Kentucky. Well-qualified nonresident candidates may apply, since some nonresidents are admitted.

Selection from among applicants who meet the general premedical educational requirements of the College of Medicine is based on a number of criteria.

A high level of academic performance at the undergraduate level is extremely important. It is recognized, however, that a meaningful evaluation of student performance must consider many factors in addition to the grades which a student has received. For example, experience in a health care system is usually considered to be an asset.

Scholastic aptitude as measured by the Medical College Admissions Test also is considered.

Since the practice of medicine involves the physician in continual relationships with people—with patients, and with other members of the health team—applicants are also judged according to premedical evaluations, the degree of their participation in campus and community activities and organizations, and the personal characteristics which they demonstrate. Friendliness, warmth, compassion, and integrity are all essential traits in the physician.

Often the physician's ability to communicate effectively will determine the degree of success in the diagnosis and management of a patient's health problem and in other professional activities. Thus, consideration is given to the communication skills demonstrated by each applicant. Communication is a two-way process and involves the ability to listen perceptively, as well as to speak and write clearly.

Because the practice of medicine and the life of the medical student require a great investment of effort and are demanding of both time and energy, it is essential that a prospective medical student be in good health and that the motivation to study medicine be sufficiently strong to sustain him or her in the face of difficulties.

STUDENT PROGRESS

The Student Progress and Promotion Committee is charged with the monitoring of student progress through the curriculum. The committee regularly reviews each student's performance and makes recommendations on such actions as graduation, promotion, remediation, dismissal and leaves of absence. Final authority on all matters of student progress and promotion is vested in the Dean of the College of Medicine.

Students are responsible for conforming to all rules and regulations specified by the *Behavioral Standards in Patient Care, Health Science Student Professional Behavior Code*, the "Technical Standards related to Applicant Admission and Student Performance" detailed in the College of Medicine Bulletin, the academic standards established in the Student Promotion rules, and the Code of Student Rights and Responsibilities for all University of Kentucky students.

COURSE DESCRIPTIONS

Course listings for the College of Medicine may be found under the college according to departmental and area headings.

For specific information about programs in the College of Medicine, students should refer to The Graduate School Bulletin or the College of Medicine Bulletin.

COMBINED MEDICAL AND GRADUATE STUDIES

A medical student who wishes to work toward a combined medical and graduate degree (master's or doctoral) may do so by enrolling both as a graduate student and as a medical student. Details of the combined degrees are available from basic science department chairpersons or the Office of Education, College of Medicine.

NURSING

Carolyn A. Williams, Ph.D., is Dean of the College of Nursing; Margaret Grier, Ph.D., Associate Dean for Graduate Studies and Research; Irma Bolte, M.S.N., Assistant Dean for Continuing Education; Kay Robinson, M.S.N., Assistant Dean for Undergraduate Education.

ACCREDITATION

The baccalaureate degree curriculum offered by the College of Nursing is accredited by the National League for Nursing and approved by the Kentucky Board of Nursing.

ADMISSION REQUIREMENTS

The College of Nursing enrollment is composed of four-year students, associate degree nursing graduates, and diploma nursing school graduates. Admission to the University does not guarantee admission to the College of Nursing. Preference is given to Kentucky residents.

Progression to the junior year is regulated so that the total number of full-time equivalents does not exceed 140.

Admissions criteria for four types of students are as follows:

1. **A freshman student** who wishes to enter the College of Nursing will be considered for admission if his or her ACT composite score is at the 50th percentile on national norms, and if he or she has a high school grade-point average of 2.5 on a 4.0 scale.

2. **A non-R.N. transfer student** may transfer credit according to University policy but must meet all College of Nursing requirements. To be considered for admission:

a. the transfer student with less than 24 hours of college credit must meet the criteria for entering freshmen and, in addition, have a grade-point average of 2.5 on all college work attempted (as computed by the Undergraduate Admissions Office).

b. the transfer student with more than 24 hours of college credit must have a 2.5 grade-point average on all college work attempted (as computed by the Undergraduate Admissions Office).

c. All students admitted to the program prior to licensure must follow the full four-year track. Nursing courses taken in an associate degree or diploma program are considered lower division courses and are not equivalent to upper division courses offered in this program.

3. **A student who is a registered nurse** who wishes to be considered for admission to the upper division curriculum of the College of Nursing must meet the following requirements:

a. The student must be a registered nurse licensed to practice in Kentucky.

b. The student must have earned an associate degree in nursing from a college accredited by one of the six regional academic accrediting associations. The registered nurse who is a graduate of a diploma program will be considered for admission after earning a minimum of 60 college credits* which meet the following requirements:

English—6 semester credits
Natural sciences—10 semester credits
Behavioral sciences—6 semester credits
Nursing—28 semester credits
Electives—10 semester credits

c. The student must have a grade-point average of 2.5 on a 4.0 scale in all course work attempted (as computed by the Undergraduate Admissions Office).

d. Applicants must be in a good state of health which enables them to carry out the functions of the professional nurse. After acceptance for admission, the applicant will be required to obtain a physical examination, update immunizations, and obtain a tuberculin test or X-ray as appropriate.

4. **A student who is eligible to take the registered nurse licensing examination at the time of admission** and who wishes to be considered for admission to the upper division curriculum of the College of Nursing must meet the following requirements:

a. The student must be a graduate of or enrolled in the final semester of an associate degree in nursing program in a college accredited by one of the six regional academic accrediting associations.

or

The student must be a graduate of or enrolled in the final semester of a diploma program and have earned a minimum of 60 college credits* which meet the following requirements:

English—6 semester credits
Natural sciences—10 semester credits
Behavioral sciences—6 semester credits
Nursing—28 semester credits
Electives—10 semester credits

b. The student must have a grade-point average of 2.5 on a 4.0 scale in all course work attempted (as computed by the Undergraduate Admissions Office).

c. Applicants must be in a good state of health which enables them to carry out the functions of the professional nurse. After acceptance for admission, the applicant will be required to obtain a physical examination, update immunizations, and obtain a tuberculin test or X-ray as appropriate.

d. Students admitted in this category must hold a valid Kentucky license to practice nursing as a registered nurse prior to beginning the first clinical nursing course.

*These credits may be earned from a regionally accredited college by taking the courses or by examination, i.e., challenge, equivalency, such as ACT-PEP (Proficiency Examination Program). Applicants should contact the College of Nursing for information regarding approved Nursing ACT-PEP credits.

Application for Admission

All applications and transcripts for admission must be submitted to the Undergraduate Admissions Office no later than March 1. Applicants are considered for fall admission only. Those accepted for admission must notify the college within 30 days, in writing, of their intent to enroll. Late applicants will be considered for admission on a space-available basis.

Part-Time Study

Students who are working toward the completion of the B.S.N. degree on a part-time basis must plan a course of study with the appropriate College of Nursing personnel or committee and may not alter that plan without prior approval from the College of Nursing.

Candidates for the degree who do not complete all requirements within a seven-year period (five years for R.N. students) after admission will have their records reevaluated and may be required to repeat or take selected courses.

DEGREE REQUIREMENTS

To obtain a Bachelor of Science in Nursing, students must satisfy the University requirements for graduation, including University Studies, and obtain a 2.0 grade-point average in nursing in the courses listed below. A grade of C or better must be attained in the major clinical courses in order to proceed to the next clinical course or to graduate.

Sample Curriculum
Baccalaureate Program
(Four-year Students)

Freshman Year

	Hours
First Semester	
ENG 101 Writing I	3
CHE 104 Elements of College Chemistry I	3
PSY 100 Introduction to Psychology	4
SOC 101 Introductory Sociology	3
Elective	3
Second Semester	
ENG 102 Writing II	3
CHE 106 Elements of College Chemistry II	3
BIO 108 Principles of Microbiology	3
BIO 109 Introductory Microbiology Laboratory	2
PSY 223 Developmental Psychology	3
NUR 001 Orientation to Professional Nursing	0
Elective	3

Sophomore Year

First Semester	
ANA 206 Elementary Anatomy	3
NFS 212 Introductory Nutrition	3
NUR 814 Philosophy and Concepts of Professional Nursing Practice	3
NUR 815 Psychomotor Skills Laboratory	2
Electives	6
Second Semester	
PGY 206 Elementary Physiology	3
NUR 851 Nursing Assessment and Diagnosis	6
Elective	3

Junior Year

First Semester	
NUR 820 Nursing Care of the Adult	10
EDC 500 Clinical and Laboratory Teaching	3
STA 200 Statistics: A Force in Human Judgment	3
Second Semester	
NUR 822 Nursing Care of the Childbearing and Child Rearing Families	10
NUR 866 Implications of Drug Therapy for Nurses	3
BSC 331 Behavioral Factors in Health and Disease	3

Senior Year

First Semester	
NUR 857 Psychosocial Nursing	8
NUR 864 Management of Nursing Care	3
NUR 878 Introduction to Nursing Research	3
Second Semester	
NUR 867 Nursing in Community Health	10
NUR 876 Issues in Nursing	3
Elective	3

Sample Curriculum
Baccalaureate Program
(Registered Nurses)

Junior Year

	Hours
First Semester	
NUR 814 Philosophy and Concepts of Professional Nursing Practice	3
NUR 851 Nursing Assessment and Diagnosis	6
BSC 331 Behavioral Factors in Health and Disease	3
EDC 500 Clinical and Laboratory Teaching	3
Elective	3
Second Semester	
NUR 853 Concepts in Professional Nursing: The Childbearing and Child Rearing Family	3
NUR 854 Concepts of Professional Nursing: Advances in Psychiatry and Mental Health	3
NUR 855 Concepts of Professional Nursing: The Adult Client	3
NUR 866 Implications of Drug Therapy for Nurses	3
STA 200 Statistics: A Force in Human Judgment	3

Senior Year

First Semester	
NUR 867 Nursing in Community Health	10
NUR 878 Introduction to Nursing Research	3
Second Semester	
NUR 864 Management of Nursing Care	3
NUR 877 Clinical Practicum	6
NUR 876 Issues in Nursing	3
Elective	3

Curriculum Policies

Students are expected to be familiar with the requirements for the degree of Bachelor of Science in Nursing and to confer with advisers in the College of Nursing when selecting courses.

Since the health needs of the nation are constantly changing, an effective curriculum requires continuous review and evaluation, which may necessitate frequent revision of courses and requirements. Thus, there can be no guarantee that course content will be identical in each subsequent academic year. Furthermore, to continue to meet the changing emphasis in nursing education, some courses will require a period of training off-campus in community facilities outside of Lexington.

Characteristics of Graduates

Graduates of this program will be able to:

1. Use a scientific methodology—i.e., the nursing process—in assessing, planning, implementing, and evaluating nursing care.
2. Demonstrate skill in nursing assessment.
3. Demonstrate nursing competency with patients/clients having diverse health problems.
4. Demonstrate nursing competency in more than one health care setting.
5. Incorporate current research findings into nursing practice.
6. Accept accountability and responsibility for all professional nursing decisions made.
7. Assume the role of patient/client advocate.
8. Utilize principles of teaching and learning in nursing practice.
9. Utilize principles of leadership in the management of patient care and in coordinating the efforts of health care workers.
10. Evaluate the influence of other systems on the development and practice of nursing.
11. Take an active role in promoting health and in planning for health services in a changing society.
12. Take an active role in professional nursing organizations.
13. Articulate a personal philosophy of nursing.
14. Take responsibility for acquiring knowledge and skills to improve nursing practice.
15. Function collaboratively with other members of the health care system.
16. Provide for continuity of care through planning, referral and follow-up.

Graduate Study

The College of Nursing offers programs leading to the Master of Science in Nursing and the Doctor of Philosophy in Nursing. Students may obtain information on this program by referring to The Graduate School Bulletin or contacting the Director of Student Services, College of Nursing, 315 CON/HSLC, University of Kentucky, Lexington, KY 40536-0232, (606) 233-5108.

PHARMACY

Jordan Cohen, Ph.D., is Dean of the College of Pharmacy.

The dynamic changes affecting pharmacy demand a curriculum that will produce effective practitioners who have a thorough understanding of drugs and disease. Education and training of pharmacists should assure that they can communicate effectively with other health practitioners and with patients now, and in the future, as they assume new and expanding roles in health care.

History of the College

The University of Kentucky College of Pharmacy was established August 16, 1870, as the Louisville College of Pharmacy. It was incorporated by an Act of Legislature, February 6, 1873. Organized as an outgrowth of the preceptorial system, it was operated as a nonprofit organization from its inception. It was admitted to membership in the American Association of Colleges of Pharmacy in 1900. On July 1, 1947, the college became one of the divisions of the University of Kentucky. In 1957, the college moved into a new facility on the campus and on January 1, 1966, became a part, administratively, of the Chandler Medical Center. Since the fall of 1985, the college has been housed in a spacious new Pharmacy building located in the heart of the Medical Center.

The objective of the College of Pharmacy is to prepare its graduates to assume, with dignity and honor, the intellectual, legal, civic, and moral responsibilities of the profession of pharmacy. Every motivation and every act of the pharmacist must be in the interest of the public. The ethical relationship with the physician and other health care practitioners, the capacity as a consultant to the public, the constant availability for dispensing of important drugs in time of emergency, and the charitable services to the needy are but a few examples of the pharmacist's dedication to the health, welfare, and safety of the public. Such dedication is not acquired through accident; it is the result of the emphasis placed on the highest ethical and moral standards by the entire curriculum of the College of Pharmacy.

Degrees

The College of Pharmacy offers two degree programs: a five-year curriculum leading to the professional degree, Bachelor of Science in Pharmacy, and a program leading to the Doctor of Pharmacy (Pharm.D.) degree. Both programs are accredited by the American Council on Pharmaceutical Education and both meet the requirements for licensure. The College of Pharmacy recommends that students opt for the Pharm.D. degree. The number of Pharm.D. graduates throughout the country has been increasing each year.

Graduate Programs

The College of Pharmacy also offers M.S. and Ph.D. programs in pharmaceutical sciences, with areas of concentration in either pharmaceutics (physical pharmacy and biopharmaceutics) or pharmaceutical chemistry (medicinal chemistry and pharmaceutical analysis). Admission to the graduate program is through The Graduate School Admissions Office.

The pharmacy graduate, with the selection of proper electives, can meet the course requirements for admission to the Master of Business Administration degree program at the University.

ADMISSION TO THE COLLEGE

Admission to the University does not guarantee admission to the College of Pharmacy. The number of students admitted to these programs each year depends upon the availability of resources—faculty, clinical facilities, space—for implementation of a quality educational program. Consideration for admission will be based on the applicant's previous academic record; potential for academic achievement; and an assessment of the applicant's communicative skills, integrity, commitment, dedication, motivation, character, maturity and emotional stability. It is required that each applicant have the physical, mental and emotional ability to learn and accomplish those competencies required of a pharmacy practitioner, and the character necessary to make professional judgments that benefit the patient.

Any student may be denied admission or permission to continue enrollment in the College of Pharmacy if, in the opinion of the faculty, the moral or ethical character of the student casts grave doubts upon his or her potential capabilities as a pharmacist. Any type of involvement in the illegal use of drugs, or other illegal or unethical acts relating to the practice of pharmacy are examples of incidents which would provide cause for considering dismissal of a student from the College of Pharmacy.

All admissions to the college are made through the University's Undergraduate Admissions Office. New students, readmitted students and transfer students must file applications and transcripts of all previous college work with that office. Those who take prepharmacy courses in other institutions must furnish an additional transcript of all previous college work to the Office of Academic Affairs, College of Pharmacy.

Admission to the B.S. in Pharmacy Program

In addition to meeting the general requirements for admission to the University, the applicant must have achieved a grade-point average of at least 2.5 in at least 66 credit hours of specified study areas and electives. These 66 credit hours must include the prepharmacy course requirements and electives needed to complete the University Studies requirements of the University of Kentucky.

A prospective applicant should take the Pharmacy College Admission Test (PCAT) in May following completion of the first prepharmacy year or in November of the second prepharmacy year. Requests for application materials to the College of Pharmacy may be made after September 1 of the prospective applicant's second prepharmacy year. Application must be made after the fall semester or quarter has been completed because fall semester (quarter) courses and grades must appear on the transcript.

All application materials, including results of the PCAT, must be received by the College of Pharmacy by February 1 of the same year the applicant intends to enter the college. It is not essential that final grades for courses taken during the spring term accompany the application. However, in order that final evaluation may proceed so selections can be made for the entering class, these grades should follow the application at the earliest date possible following completion of the spring term.

Applications are reviewed and evaluated by the College of Pharmacy's Admissions Committee on a comparative and competitive basis. Criteria used by the committee in judging the applicant's qualifications for admission are the applicant's PCAT score and the grade-point average of the applicant's required prepharmacy course work. Also considered are letters of recommendations and the applicant's formal motivation letter. This letter must include the applicant's reasons for selecting pharmacy as a career as well as the applicant's tentative professional goals. Applicants

receiving the highest ratings by the committee are invited to the Lexington campus for a personal interview.

The applicant must demonstrate character traits which are requisites of a good pharmacist. Characteristics such as communicative skills, integrity, commitment, dedication, motivation, character, maturity and emotional stability are conveyed to the Admissions Committee by the personal interview and by letters of recommendation.

Priority for admission will be awarded to those applicants who complete all prepharmacy requisites by the end of the preceding spring semester or quarter. Priority for the admission of nonresidents will be given to those who have completed their prepharmacy course work on the Lexington campus and/or to those who have exceptional qualifications of academic excellence.

The Admissions Committee cannot consider applications for transfer from other colleges of pharmacy when the applicant has previously been denied admission to this college's B.S. program or when the maximum number of students is already enrolled in the program.

Each applicant is made aware that he or she must abide by the college's Academic Honor Code upon admission to the college.

Admission to the Pharm.D. Program

Admission to the Pharm.D. degree program is available to qualified individuals holding a Bachelor of Science in Pharmacy degree from a college of pharmacy accredited by the American Council of Pharmaceutical Education, or to qualified students who are currently enrolled in the UK College of Pharmacy and have completed the fourth year of the B.S. in Pharmacy curriculum.

The number of B.S. in Pharmacy graduates admitted to the Pharm.D. degree program is limited, and depends upon the availability of adequate college resources.

Applications for admission to the Pharm.D. degree program are reviewed and evaluated by the College of Pharmacy Admissions Committee on a comparative and competitive basis. The committee ordinarily denies admission if the cumulative pharmacy grade-point average of the applicant is less than 3.0. Applicants who are judged by the committee to be the most qualified are invited for personal interviews after which final selections are made. Criteria used by the committee in judging the applicant's qualifications for admission are: the applicant's demonstrated academic and professional achievements; and an assessment of the applicant's communicative skills, integrity, commitment, dedication, motivation, character, maturity and emotional stability as determined by letters of recommendation, the applicant's formal letter of application, and personal interviews.

All application materials must be received by January 15 to ensure consideration for admission in the fall of the same year.

BACHELOR OF SCIENCE IN PHARMACY

The degree of Bachelor of Science in Pharmacy is awarded on completion of a minimum of 169 semester hours of credit with a pharmacy standing of 2.0 out of a possible 4.0.

The satisfactory completion of the prepharmacy program of 66 semester hours of credit, followed by the three years of professional training with 103 semester hours of credit as shown, constitutes the college's course requirements for graduation. Additionally, the general requirements of the University for all graduates must be met; among these are such requirements as those relating to work in residence, University Studies, and grade-point average.



Preprofessional Requirements

The preprofessional course requirements for admission to the College of Pharmacy are as follows:

One semester of mathematics (Calculus I)
One semester of microbiology or bacteriology (with laboratory)
One semester of principles of economics
Two semesters of biology (with laboratory)
Two semesters of physics (with laboratory)
Two semesters of general chemistry (with laboratory) including qualitative analysis
Two semesters of organic chemistry (with laboratory)
Two semesters of English (writing courses) and additional courses as needed to complete University Studies requirements.

The curriculum, particularly the prepharmacy component, is undergoing modification to meet the requirements of the new University Studies program. Before finalizing a specific course plan, students may want to contact the Office of Student Affairs, College of Pharmacy, for the most current requirements.

The prepharmacy course work may be taken at any accredited college or university.

Professional Program

The core curriculum for the three-year professional program leading to the B.S. in Pharmacy consists of the courses listed below. These courses comprise 87 of the 103 credit hours required for the total professional program.

	Hours
BSC 331 Behavioral Factors in Health and Disease	3
PHR 336 Physiologic Basis for Therapeutics I	4
PHR 337 Physiologic Basis for Therapeutics II	3
PHR 340 Principles of Medicinal Chemistry	4
PHR 400 Biochemistry	4
PHR 801 Pharmaceutical Analysis	4
PHR 802 Pharmaceutics	5
PHR 825 Physical Pharmacy	2
PHR 830 Basic Pharmacy Management	3
PHR 835 Pharmaceutical Law	2
PHR 846 Pharmacy Practice I	4
PHR 847 Pharmacy Practice II	3
PHR 848 Pharmacy Practice III	3
PHR 849 Pharmacy Practice IV	4
PHR 851 Pharmacotherapeutics: Nervous Systems	5
PHR 852 Pharmacotherapeutics: Cardiopulmonary and Renal Systems	5
PHR 853 Pharmacotherapeutics: Endocrine Systems	4
PHR 854 Pharmacotherapeutics: Nutritional and Dermatologic Systems	4
PHR 855 Pharmacotherapeutics: Immune Systems	4
PHR 856 Chemotherapeutics	3
PHR 870 Clinical Orientation Clerkship	6
PHR 881 Pharmacy Practice Externship	8
Total	87

Electives

A student must select a minimum of 16 hours to supplement the core curriculum; at least six hours must be chosen from courses designated as Selectives A (listed below).

DOCTOR OF PHARMACY

The Pharm.D. degree is awarded on completion of a minimum of 204 semester credit hours with a pharmacy standing of 2.0 out of a possible 4.0, and upon approval of the faculty.

Curriculum Requirements

Students who pursue the Pharm.D. degree must complete the same preprofessional and professional program requirements as listed for the B.S. in Pharmacy (excluding PHR 870). Further core curriculum requirements include:

	Hours
STA 570 Basic Statistical Analysis	4
PHR 874 Drug Literature Evaluation	3
PHR 875 Clinical Pharmacokinetics	4
PHR 882 Pharmacy Practice Clerkship: Medicine	6
PHR 866 Applied Therapeutics I	5
PHR 868 Applied Therapeutics II	5
PHR 881 Pharmacy Practice Externship (All or a portion of PHR 828, Nuclear Pharmacy Externship, may be substituted for PHR 881.)	8
Electives	6

The Pharm.D. curriculum for students admitted to the Pharm.D. program with a B.S. in Pharmacy degree from an accredited college of pharmacy may be different from the preceding curriculum. Such individuals will have their transcripts reviewed to determine equivalency to the University of Kentucky B.S. in Pharmacy curriculum.

These students will be required to make up any deficiencies in their previous academic programs as compared to the B.S. in Pharmacy curriculum at the University of Kentucky in effect at the time of their admission to the Pharm.D. program. Likewise, courses which they have had in their previous academic programs may be transferred and omitted from the Pharm.D. curriculum.

Pharmacy Options

Upon admission to the Pharm.D. program, each student must select one of the following pharmacy options: 1) Institutional Practice option; 2) General Practice option; or 3) Industrial and Graduate Studies option. Requirements for each option are as follows:

Additional Required Courses for the Institutional Practice Option

	Hours
PHR 865 Disease Processes I	5
PHR 867 Disease Processes II	4
PHR 883 Pharmacy Practice Clerkship: Clinics	6
PHR 884 Pharmacy Practice Clerkship: Specialty Areas	6
PHR 880 Introduction to Institutional Practice	3

Additional Required Courses for the General Practice Option

PHR 870 Clinical Orientation Clerkship	6
PHR 872 Non-Prescription Pharmaceuticals and Supplies	4
Selectives A (selected from the following list)	14

Selectives A

PHR 303 History and Ethics of Pharmacy
PHR 475 Independent Problems in Pharmacognosy
PHR 476 Independent Problems in Pharmacology
PHR 520 Special Topics in Pharmacy Law
PHR 540 Industrial Pharmaceutical Technology
PHR 545 Sterile Parenterals and Devices
PHR 680 Research Methods in Social and Administrative Pharmacy
PHR 811 Computer Applications in Pharmacy
PHR 812 Communication Skills for Pharmacists
PHR 813 Geriatric Pharmacy
PHR 826 Introduction to Nuclear Pharmacy
PHR 827 Practice of Nuclear Pharmacy
PHR 828 Nuclear Pharmacy Externship
PHR 838 Community Pharmacy Management
PHR 860 Animal Health Products
PHR 872 Non-prescription Pharmaceuticals and Supplies
PHR 873 Pharmacy Services in Long-Term Care Facilities
PHR 880 Introduction to Institutional Practice
PHR 892 Clinical Drug Communications
PHR 895 Independent Problems in Clinical Pharmacy
PHR 896 Independent Problems in Pharmacy
PHR 595 Independent Problems in Pharmacy Administration
PHR 881 Pharmacy Practice Externship
ACC 201 Principles of Accounting
BSC 527 Society and Health
MKT 300 Marketing Management
MKT 320 Retail and Distribution Management
MGT 341 Business Law I
FIN 300 Corporation Finance
ECO 201 Principles of Economics I

Additional Required Courses for the Industrial and Graduate Studies Option

PHR 870 Clinical Orientation Clerkship	6
Selectives B (courses approved by Director of Graduate Studies)	18

Students interested in the Industrial and Graduate Studies Option must choose electives appropriate to their area of interest. This must be done through discussion with and approval from the Director of Graduate Studies. Since not all courses are offered each semester, it is especially important to begin planning a course sequence as early in the student's program as possible.

Electives and Selectives

The various curricula require a specified number of electives and selectives or professional electives. When electives are specified, it is recommended that the student select nonprofessional upper division courses in behavioral, social, and humanistic areas of knowledge. When selectives are specified in the General Practice Option of the Pharm.D. program or when professional electives are specified in the B.S. program, the electives chosen must be appropriate to the professional growth and development of the student. Selectives must be approved by the Assistant Dean for Academic Affairs through discussion with the Curriculum Committee of the college. Examples of currently approved courses are previously listed. Students wishing to take other courses must petition the Office of Academic Affairs.

Off-Campus Course Requirements

In all probability, the student will be required to take externships and clerkships in practice sites away from Lexington. The student should be prepared to incur additional expenses during the semesters he or she is assigned to these courses.

SOCIAL WORK

S. Zafar Hasan, D.S.W., is Dean of the College of Social Work.

Social work is one of the major social professions concerned with man's well-being. The help provided may be the prevention of social problems by making changes in the institutions and the environment of those circumstances which have been harmful or hindering to substantial numbers of individuals in their efforts to become fully participating and contributing members of the society. On the other hand, the most appropriate help may be making needed resources available to those who would otherwise not have the means to maintain life and health.

In attempting to achieve these goals, the tasks of personnel in social work are to help communities provide maximum equality of opportunity for all; to help vulnerable individuals learn to cope more effectively with their problems and needs; and to seek continually to strengthen and improve the institutional systems which are responsible for education, justice, health, business, labor, and welfare, so that all people are better served. Such actions will reduce the number of social casualties needing individual help in a complex and ever-changing society.

Program Accreditation

Both the Bachelor of Arts in Social Work and the Master of Social Work degree programs are fully accredited by the Council on Social Work Education.

THE UNDERGRADUATE PROGRAM OF EDUCATION FOR SOCIAL WORK

The undergraduate program in social work was inaugurated in 1944. Effective July 1, 1969, its administration was transferred from the College of Arts and Sciences to the newly established College of Social Professions, which is now the College of Social Work. Freshmen and transfer students who elect social work as a major should arrange to register in the College of Social Work. Each student will be assigned a member of the faculty of the college as an adviser who will assist in the selection of appropriate courses and ensure that the requirements for the B.A. degree are met. Students who wish special information or a personal interview prior to registration may make an appointment through the Office of the Assistant Dean for Student Affairs of the College of Social Work.

The principal objective of the undergraduate program is to prepare students for beginning social work practice. Additionally, it prepares students for graduate professional education.

All social work majors have actual experience in the field under faculty direction. These experiences are provided in teaching-learning centers in a variety of agencies located in or adjacent to Lexington.

Courses in social work contribute to the liberal education of all students and help prepare them to be more effective citizens in a complex society in which welfare issues and programs are of increasing importance to everyone.

These courses may serve one or more of the following purposes:

1. To enrich and broaden the knowledge of social problems and social issues.
2. To help develop effective interpersonal relations.
3. To provide basic knowledge of social services to students who are preparing for careers in other helping professions (i.e., special education, rehabilitation, nursing, law, medicine).

Degree Requirements

The College of Social Work requires students to earn a minimum of 120 hours for the B.A. in Social Work with a minimum grade-point average of 2.0. Students may take additional hours in accordance with stated University policy.

In addition to fulfilling University Studies requirements, students must complete the program requirements listed below.

Premajor Requirements

Anthropology—Three hours, normally chosen from the following: ANT 121, ANT 201, ANT 232

Biology—Three hours, BIO 110 or equivalent

Economics—Three hours, normally ECO 101

Political Science—Three hours, normally chosen from the following: PS 101, PS 240, PS 245, PS 255, PS 271, PS 280

Psychology—Three or four hours, normally chosen from the following: PSY 100, PSY 223

Sociology—Three hours, normally chosen from the following: SOC 101, SOC 151, SOC 152, SOC 220

Statistics—Three hours, normally all the following: STA 292, STA 293, STA 294

Preprofessional Requirements

	Hours
SW 124 Introduction to Social Services	3
SW 222 Development of Social Welfare	3
SW 322 The Social Work Profession and Social Welfare (for junior transfers only; substitutes for SW 124, SW 222)	4

Professional Requirements

SW 300 Skills in Social Work	4
SW 444 Educational Practicum I	8
SW 445 Educational Practicum II	8
SW 400 Interventive Methods in Social Work	4
SW 420G Perspectives on Human Behavior and the Social Environment	3
SW 430G Social Welfare Policy: Theory and Implementation	3
SW 450 Social Work Research	3
SW 470 Senior Seminar	3

Social and Behavioral Sciences and Social Work Electives

Students must complete 15 hours of upper-division courses from any of the following: anthropology, economics, political science, psychology, social work, sociology.

Electives

Students must complete at least six hours of upper-division free elective courses.

COURSES FOR NONMAJORS

Students from other departments are eligible to take certain social work courses offered to enrich the content of their basic major and/or to increase their knowledge and understanding of the society of which they are a part. SW 123, The American Welfare System, and SW 477, Field Experience for Nonmajors, are geared specifically to students from other disciplines, while a number of lower- and upper-division courses are also available to them.

GRADUATE PROGRAM

The College of Social Work offers a graduate curriculum of two academic years of full-time study, leading to the Master of Social Work degree. Advanced standing in the M.S.W. program may be granted to students with the bachelor's degree in social work. For further information, students should see The Graduate School Bulletin or the College of Social Work Bulletin.

UNIVERSITY EXTENSION

University Extension is responsible for the provision of certain academic programs and services to individuals and organizations throughout Kentucky. In performing this function, University Extension provides services and assistance to campus academic units as well as direct programming.

University Extension includes Off-Campus programs; Extension Librarian; the Evening-Weekend College; the Community Education program; the Independent Study program; the Academic Support Services division, which includes Academic Advising and Continuing Education for Women; Conferences and Institutes; Media Education; the Office of Instructional Resources; the Experiential Education program; the Office of Summer Programs; and the University of Kentucky Center at Fort Knox.

Additional information on any of University Extension's programs and services may be obtained by writing or calling:

University Extension
Frazee Hall
University of Kentucky
Lexington, KY 40506-0031
Toll-Free Number 1-800-432-0963

The toll-free number is for residents of Kentucky who live outside of Lexington. The local numbers for each program and division of University Extension are listed in the sections which follow.

EXTENSION LIBRARIAN

The University of Kentucky Extension Librarian is available to help Extension faculty and students obtain books and journal articles; assist with reference questions; instruct in how to use library resources, including dial access to the new online library catalog; and provide computer literature searches. Evening and weekend hours can be arranged.

For more information, students should contact the Extension Librarian at 257-6312 or 257-8397.

OFF-CAMPUS PROGRAMS

Off-Campus Programs, in cooperation with academic departments and colleges, is committed to extending educational opportunities beyond the Lexington campus. Various undergraduate and graduate courses and programs are available at selected sites across the state as well as regionally, nationally, and internationally. Programming includes nontraditional formats such as videotaped courses, distribution by satellite "up-link," and involvement in educational consortia.

Courses and programs address the specific needs of learners who want to continue their personal and professional development, yet find it impossible or impractical to come to UK's main campus. Off-Campus Program's scope of learners include traditional students, returning adult students, employees of business and industry, government agency personnel, teachers and administrators, students pursuing international education, and community college faculty.

Taught by UK faculty, the courses provide students with an opportunity to earn regular University credit in a familiar, convenient environment.

For more information on Off-Campus Programs, students should contact the office at 257-3377.

EVENING-WEEKEND COLLEGE

The University's Evening-Weekend College provides an opportunity for continuing education in the Central Kentucky area. This program includes credit classes and degree programs in many academic areas.

Students may enroll in the Evening-Weekend College as nondegree students or as degree candidates. Nondegree students may apply for admission as degree candidates at a later date, at which time they must meet regular admission requirements as given in this Bulletin. Credit earned as a nondegree student may be counted toward a University degree provided the student would have been eligible for admission to the University and for the course at the time of enrollment. Specific University policy concerning nondegree student status is outlined in the *Undergraduate Admission* section of this Bulletin.

All Evening-Weekend College students are subject to the University's academic policies and regulations outlined in the *Academic Requirements* section of this Bulletin.

Students who have been suspended by the University of Kentucky may not enroll for credit in the Evening-Weekend College until they have been reinstated.

Students from other institutions desiring to enroll for credit must meet all University requirements for admission. Students who plan to transfer credit to another institution must be eligible in all respects for admission to the University of Kentucky. It is the responsibility of the student to ascertain whether or not the work will be accepted by another institution.

Additional information on evening-weekend courses may be obtained by contacting the Evening-Weekend College Office at 257-3159.

Withdrawal and Refund Policy for Off-Campus and Evening-Weekend Students

Students enrolled in the Evening-Weekend College or in an off-campus course who officially withdraw from the University or from a course are entitled to a full refund of all fees paid if they withdraw before the end of the second week of the course. If withdrawal occurs after the first two weeks of the class but before the midterm date, students will receive a 50 percent refund. Tuition is not refunded to students who withdraw after the midterm. Requests for refunds should be made at the appropriate office in University Extension.

The request to withdraw must be made in person or in writing. The Evening-Weekend College Office will be open 8:00 a.m.-8:30 p.m., Monday through Thursday, for those who want to withdraw in person. If a request for withdrawal is made in writing, the date on which the letter or card is postmarked will be used as the official withdrawal date.

COMMUNITY EDUCATION PROGRAM

The Community Education program offers noncredit alternatives to the traditional University curriculum. Developed to serve the needs and the interests of the Lexington community, Community Education programs vary greatly in content and style. Flexible scheduling and varied locations are characteristics of Community Education programs. Current information may be obtained by contacting Community Education at 257-1525.

Noncredit Programs

Noncredit Community Education programs provide enjoyable and practical learning experiences to individuals of all ages. Classes in computers, travel agent training, and career development allow students to develop job advancement skills; classes in liberal arts and humanities allow

students to enhance their education; and classes such as art, dance and music provide lifelong leisure activities. Classes are offered for both adults and children. For more information, students may contact Noncredit Programs at 257-3294.

Training Programs for Business, Industry and Government

In response to requests from the business community, the University of Kentucky Training Programs for Business, Industry and Government offers individualized in-house training and development programs. Program formats range from seminars and workshops to long-term classroom programs. For more information, students should call 257-1524.

COLLEGE CONNECTION University Credit for High School Students

College Connection—a concurrent enrollment program—enables eligible Kentucky high school seniors to earn college credit. University instructors and their high school counterparts develop a curriculum which is designed to meet both university and high school academic requirements. Courses may be used to fulfill high school graduation requirements and are recorded on both high school and university transcripts. Credits are transferable to most other colleges and universities. For additional information, students should contact the College Connection Program Office at 257-1593.

INDEPENDENT STUDY PROGRAM

The Independent Study program offers a wide variety of regular University courses by correspondence for University credit. Also offered are 40 courses at the high school level in the areas of English, social studies, mathematics, business education, health, and foreign languages.

Students must meet the enrollment requirements for a course, including any prerequisites specified for a particular course. An official transcript is not required.

Students who are pursuing University degrees should be aware of the following University regulations concerning independent study (correspondence) courses:

1. No more than 30 credit hours of the total required for an undergraduate degree may be earned through independent study courses. No more than one-third of the requirements for a major may be earned through independent study courses.

2. Students may enroll for an independent study course any time during the calendar year and have one year from the date of enrollment in which to finish an independent study course. In some situations, students may obtain a four-month extension.

3. Students in residence at the University of Kentucky must have the permission of their dean to register for an independent study course.

4. Hours earned by independent study will be credited in the term in which the course is completed.

5. Graduate or professional credit is not granted by the University of Kentucky for work taken by independent study. Graduate students, however, may do independent study work, and the credit earned can be applied toward undergraduate major and/or minor fields for certification purposes.

University courses offered by independent study are listed by number only. Descriptions may be found in the *Course Descriptions* section of this Bulletin.

Accounting		
ACC 201	ACC 202	
Agriculture		
GEN 101	GEN 104	GEN 106
Agronomy		
AGR 366	AGR 386	
Animal Science		
ASC 380		
Biology		
BIO 103	BIO 108	BIO 465G
BIO 104	BIO 110	BIO 508
BIO 106	BIO 404G	
Business and Office Technology		
BUS 112	BUS 117	
BUS 116	BUS 445	
Classical Languages and Literatures		
CLA 101	CLA 131	
CLA 102	CLA 151	
Community Health		
CH 241		
Economics		
ECO 201	ECO 391	ECO 485G
ECO 202		
Education		
EDP 548		
Engineering		
ME 105		
English		
ENG 101	ENG 221	ENG 271
ENG 102	ENG 222	ENG 375
ENG 201	ENG 261	ENG 425G
ENG 203	ENG 262	ENG 451G
ENG 204	ENG 270	ENG 452G
Finance		
FIN 300	FIN 350	
Forestry		
FOR 100		
French Language and Literature		
FR 101	FR 201	
FR 102	FR 202	
Geography		
GEO 152	GEO 251	GEO 322
GEO 210	GEO 252	
Germanic Languages and Literatures		
GER 111	GER 201	
GER 112	GER 202	
History		
HIS 104	HIS 203	HIS 464
HIS 105	HIS 240	HIS 466
HIS 108	HIS 260	HIS 578
HIS 109	HIS 261	HIS 579
HIS 202		
Home Economics		
HE 100	HET 120	
FAM 251	HET 237	
FAM 252	NFS 101	
Journalism		
JOU 201	JOU 203	
Management		
MGT 301	MGT 340	MGT 410
MGT 320	MGT 341	MGT 441
Marketing		
MKT 300		
Mathematics		
MA 108R	MA 113	MA 162
MA 109	MA 114	MA 201
MA 112	MA 123	MA 202
Music		
MUS 100		
Philosophy		
PHI 100	PHI 130	
PHI 120	PHI 343	
Physics and Astronomy		
AST 191	AST 192	
Political Science		
PS 101	PS 452G	
PS 255	PS 470G	
Psychology		
PSY 100	PSY 502	PSY 533
PSY 223	PSY 503	
Social Work		
SW 222	SW 322	
Sociology		
SOC 101	SOC 409	SOC 438G
SOC 152	SOC 436	SOC 528
SOC 220	SOC 437	SOC 542
Spanish and Italian Languages and Literatures		
SPI 141	SPI 241	SPI 242
SPI 142		
Statistics		
STA 292	STA 293	STA 294

For complete course descriptions, a list of required textbooks for courses offered by independent study, and the cost of enrolling, the student should request a copy of the Independent Study Catalog, available from the Independent Study Program Office, 257-3467.

ACADEMIC SUPPORT SERVICES FOR ADULTS

Many adults are returning to college after several years, or are entering the University for the first time. The Academic Support Services division of University Extension offers many programs to help students make the adjustment to college easier.

Each spring and fall a **Back-to-School Workshop** is conducted to meet informa-

tional needs of adults who are considering enrolling in college courses. The seminar informs prospective students of services available and problems that may be encountered.

Each semester noncredit short courses and workshops are held to assist the adult student. **Study Skills courses** are offered to improve reading speed and comprehension, note-taking and test-taking abilities, and term paper writing. A **writing course** is offered to introduce students to basic forms of writing for college classes, including themes, essay examinations, and research papers. **Algebra and mathematics refresher** courses also are offered for those students who need to review or strengthen these skills. In addition, a workshop on communicating more effectively is held each semester.

Test-taking and term paper research workshops are offered on Saturday mornings during each semester. Library tours designed for new and returning adult students are sponsored jointly with the King Library for both graduate and undergraduate students.

Evening child care at a reasonable cost is available for students from 5:30 to 9:30 p.m., Monday-Thursday, in the Early Childhood Laboratory in Erikson Hall. A day care directory is available in 106 Frazee Hall.

Some scholarship assistance is available for adult students through the Academic Support Services for Adults Division.

Academic Advising Services

An Academic Advising Office is maintained in the Academic Support Services Division of University Extension to provide assistance and information for current and prospective adult students. This office is open from 9 a.m. to 9 p.m., Monday through Thursday, 9 a.m. to 4:30 p.m. on Friday, and 9 a.m. to 1 p.m. on Saturday, to serve the needs of adults.

Continuing Education for Women Project Ahead

Approximately 2,000 women, 25 years or older, are now completing their academic programs at UK. The Office of Continuing Education for Women provides special assistance in the transition from home and work to school. Printed resources such as a day care directory and monthly newsletters are made available as are special interest short courses and workshops.

Project Ahead is an internship program at the University of Kentucky designed primarily for women returning to college. Project Ahead's objective is to help women 25 years and older make the transition from education to work. Working with the Office for Experiential Education, Project Ahead provides internships for undergraduate women. With an increase in confidence and competence from an internship experience, Project Ahead interns should be able to enter employment upon graduation at higher levels of responsibility, at increased salary levels and with more opportunities for advancement.

For more information about these and other programs for adult students, individuals should contact the Academic Support Services for Adults Office at 257-3383 or 257-3295.

SPECIAL PROGRAMS

The Special Programs Office organizes conferences, seminars and other continuing education programs which extend educational opportunities beyond the campus. Special Programs initiates its own activities and assists academic colleges, University administrative units, and professional associations with conferences and institutes. The meeting, housing, food service and other facilities and services of the Lexington campus can be made available for visiting groups participating in these programs. Hotel and other off-campus sites can also be arranged. Conference support services available include program planning, preregistration, printing, local arrangements, publicity and on-site assistance. Additional information may be obtained by contacting the Special Programs Office at 257-3939.

CARNAHAN CONFERENCE CENTER

Carnahan Conference Center is the University's off-campus conference center. Located in Kentucky's rolling farm country, the center provides an ideal setting for University-sponsored continuing education programs. Tradition and elegance are combined to offer a facility that is spacious and conducive to relaxation as well as learning. The center has meeting rooms to accommodate up to 100 persons. Additional information may be obtained by contacting the Carnahan Conference Center at 257-3290.

MEDIA EDUCATION

Media Education cooperates with other divisions of University Extension, academic departments and colleges, and the Office of Instructional Resources to promote the use of television courses, videoconferencing, and audioconferencing.

Television courses are scheduled through the Evening-Weekend College and Off-Campus Programs. These courses are a combination of television programs, related textbooks, study guides and examinations, and six to eight class meetings with University instructors. Undergraduate credit may also be earned through independent study/correspondence courses, which also include television programs.

Media Education also cooperates with the continuing education units of the colleges to explore the use of television to meet the continuing education needs of professionals in Kentucky. National audioconferences and videoconferences are delivered to campus and corporate locations.

Additional information may be obtained by contacting the Media Education Office at 257-3330.

EXPERIENTIAL EDUCATION

Students may become involved in elective internships through the Office of Experiential Education. Students earn academic credit by working in businesses, agencies, or other settings pertinent to their academic majors or career goals. Full-time or part-time internships may be arranged for students in Lexington or other areas.

Students choose to earn credit through experiential education for many reasons. Some wish to explore career alternatives and gain valuable work experience. Others participate in order to test theories they have learned in the classroom. Many students desire to gain self-confidence and develop communication and problem-solving skills through internship experiences.

The Office for Experiential Education also operates a Shadowing program. This noncredit program gives University of Kentucky students the opportunity to follow a working professional for a brief period. Information gained from this experience can be most helpful to students making career decisions.

Additional information may be obtained by scheduling an orientation session with:

Office for Experiential Education
201 Mathews Building
University of Kentucky
Lexington, KY 40506-0047
Telephone (606) 257-3632

OFFICE OF INSTRUCTIONAL RESOURCES

The Office of Instructional Resources (OIR) provides direct assistance to the instructional program of the University through television, film, and audio-visual production, and through its media library and audio-visual equipment complement. OIR supports the public service programs of the University by providing access to its media library to off-campus users, operating the University's two cable television

channels available to subscribers in the Lexington-Fayette County area, and distributing programs to broadcasters and cable systems throughout the Commonwealth.

The television production studio in the Taylor Education Building is equipped with broadcast quality equipment and staffed by professionals. Several programs and program series produced by the Office of Instructional Resources are now in national distribution. Other production facilities operated by OIR include: the ITV Classroom, a facility in which courseware is recorded and distributed on videotape throughout the state and nation; the TV Laboratory, designed to provide media support to classroom instruction in television production, speech, social work, and other academic areas; the Arts and Graphics Department; and a multi-image facility, which produces slide/tape presentations for a variety of University instructional and informational needs.

The Audio-Visual Services component, located in the Scott Street Building, houses a library of 5,000 films available for use in support of on-campus classroom instruction. These films are also made available to off-campus users such as community colleges, elementary and secondary schools, other institutions of higher education, and civic organizations.

UKTV comprises two channels on the local cable system. Programming on these channels is available to students in their residence halls and to Lexington-Fayette County residents in their homes. The program schedule consists primarily of courses offered for credit under the aegis of the Media Education and the Evening-Weekend College divisions of University Extension. Students enrolled in these courses may elect to view or review the videotapes at individual stations in the Learning Center located in the Scott Street Building.

Additional information may be obtained by contacting the Office of Instructional Resources at 257-5831.

SUMMER SCHOOL

There are two summer sessions offered at the University of Kentucky between the spring and fall semesters. The first is a four-week intersession and the second is an eight-week summer session. Courses offered in these summer sessions give continuing students the opportunity to accelerate in existing academic programs. Summer offerings provide educational enrichment for all students. Information regarding admission procedures and summer school calendar dates may be found in the front portion of this Bulletin.

Lexington residents who would like to have a copy of summer school course offerings mailed to them should contact the Office of Summer School at 257-3382. Kentucky residents who live outside of Lexington may call toll-free: 1-800-432-0963, extension 257-3382.

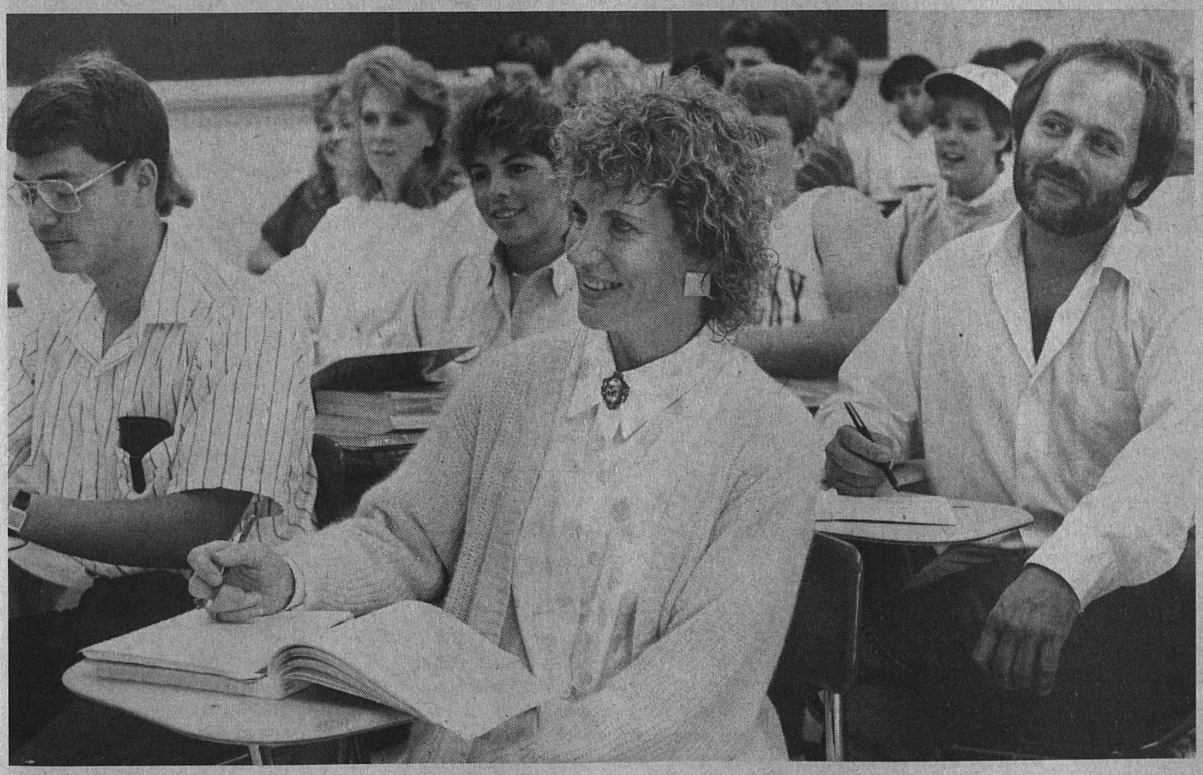
THE UNIVERSITY OF KENTUCKY CENTER AT FORT KNOX

The University of Kentucky Center at Fort Knox provides undergraduate instruction for programs in political science, psychology, and certain topical majors for the benefit of military personnel and others. General studies courses, post-associate degree work in nursing, and some graduate level studies are also offered.

Work taken at the UK Center at Fort Knox is considered residence credit and is viewed as identical to work completed on the Lexington campus. Similarly, Fort Knox students follow the same procedures and regulations as Lexington campus students.

The UK Center at Fort Knox is located in the Army Education Center, Building 1174, Seventh and Dixie Streets, Fort Knox, Kentucky. For more information, students should call (502) 942-8596, or write to:

University of Kentucky
Center at Fort Knox
Post Office Box 969
Fort Knox, KY 40121



COMMUNITY COLLEGES

Charles T. Wethington, Jr., Ph.D., is Chancellor, Community College System; Ben W. Carr, Ed.D., is Vice Chancellor for Academic Affairs; Jack B. Jordan, D.B.A., is Vice Chancellor for Business Affairs.

The University of Kentucky Community College System is a unique organization designed to realize the advantages of University membership on the one hand, and community orientation on the other. Each college, through its local advisory board and other ties, relates itself to the needs of the community.

Until the early 1960s University Centers in Kentucky served some of the functions generally attributed to community colleges, but their programs were closely joined to the parent institution. The Community College Act was passed by the Kentucky General Assembly in 1962. On the recommendation of President John W. Oswald, and with the approval of the Board of Trustees, the University of Kentucky Community College System was formed in 1964.

Today the system comprises 14 colleges located at Ashland, Cumberland, Elizabethtown, Hazard, Henderson, Hopkinsville, Lexington, Louisville, Madisonville, Maysville, Owensboro, Paducah, Prestonsburg, and Somerset.

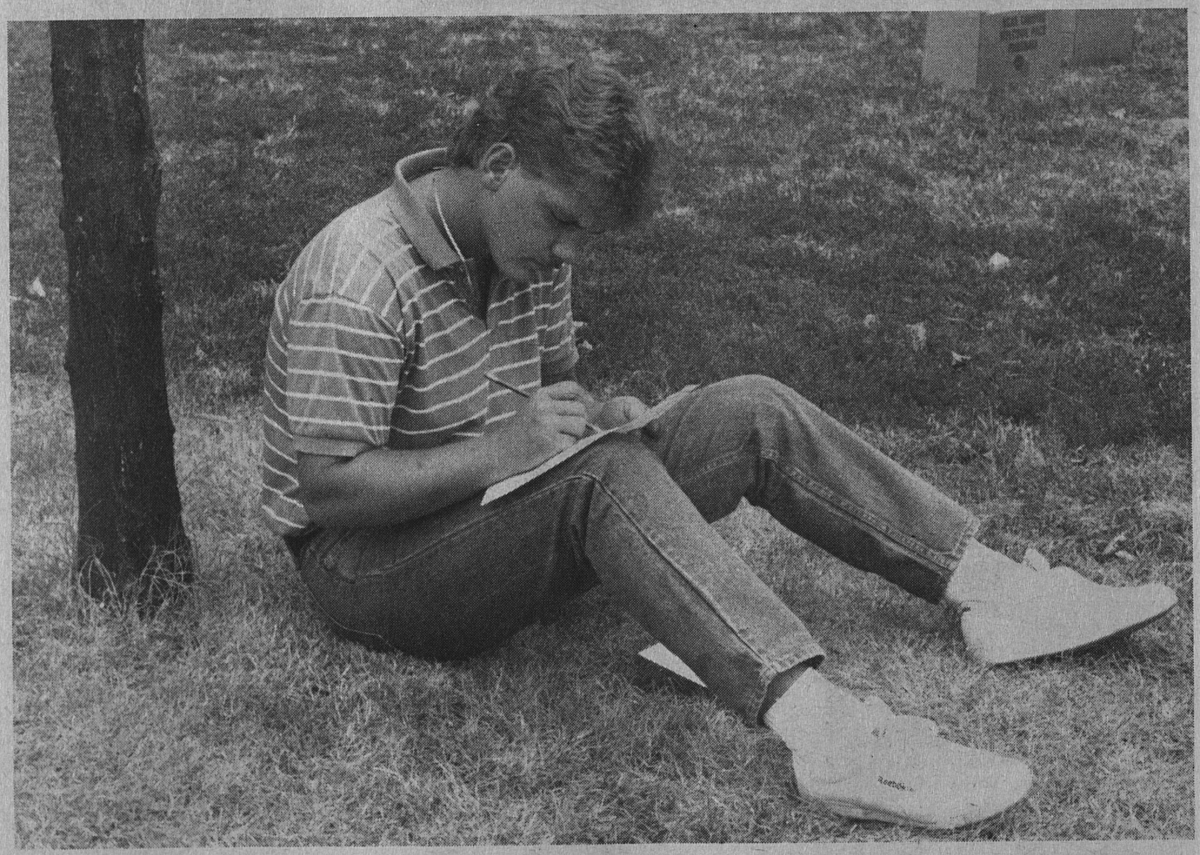
The community colleges have been charged with three functions:

1. To offer curricula for the first two years of a baccalaureate program. Courses parallel University offerings and are transferable to the Lexington campus or to another four-year institution. At the conclusion of the prescribed Community College curriculum, the Associate in Arts degree or Associate in Science degree may be awarded.

2. To offer career-oriented programs designed to prepare students for immediate employment. These programs are composed of general education courses and technical education courses. The Associate in Applied Science degree is awarded upon completion of a career program.

3. To provide general educational opportunities of a professional, vocational, or cultural nature to citizens within the geographical areas served by the community colleges. These include evening classes, workshops, seminars, short courses, concert series, exhibits, lectures, dramatic presentations and festivals to meet in-service, re-education and avocational needs of the community. These programs may or may not lead to an associate degree.

Complete information on the various programs may be obtained from the Community College Bulletin, available from the Community College System Office, 112 Breckinridge Hall, University of Kentucky, Lexington, KY 40506-0056, or from any community college.



COURSE NUMBERING SYSTEM

001 to 099—Noncredit and/or nondegree courses
100 to 199—Open to freshmen; undergraduate credit only
200 to 299—Sophomore classification or consent of instructor required; undergraduate credit only
300 to 399—Junior classification required; undergraduate credit only
400 to 499—Junior classification required; undergraduate credit; graduate credit for nonmajors only if letter G appears after number
500 to 599—Junior classification required; undergraduate and graduate credit
600 to 799—Graduate classification required
800 to 999—Open only to students in professional colleges and to students in other colleges offering professional degrees

Courses may be approved for variable credits, e.g., (1-3), (2-6), etc. In no case, however, may the total credits exceed the maximum number authorized for the course.

Repeated registration in a course may be allowed if the course description carries the statement: "May be repeated to maximum of . . . credits." However, a student may enroll only one time in a specific course during a given semester. Courses with the same number are not considered to be the same course if different identifying titles are an integral part of the record.

Unless indicated in the course description, the number of credits for a course indicates the number of lecture or discussion or class hours.

Exceptions to the requirements for admission to courses may be made as follows:

a. Freshmen and sophomores may be admitted to courses numbered between 300 and 499, upon approval of the instructor and the dean of the student's college. Such approval is limited to students who have demonstrated superior ability or preparation.

b. Seniors with superior ability or preparation may be admitted to courses numbered between 600 and 799, upon approval of the instructor, the dean of the student's college and the Dean of The Graduate School.

c. Courses elected on a pass-fail basis.



ABBREVIATIONS

The University of Kentucky has established the following set of standardized abbreviations for its academic departments and areas of study. These abbreviations should be used in making out class schedule cards and at other times when referring to specific course offerings.

ACC—Accounting
A-E—Art Education
AEC—Agricultural Economics
AEN—Agricultural Engineering
AGR—Agronomy
A-H—Art History
AHE—Allied Health Education and Research
AHP—Allied Health Professions
ANA—Anatomy and Neurobiology
ANS—Anesthesiology
ANT—Anthropology
APP—Appalachian Studies
ARC—Architecture
ART—Art
A&S—Arts and Sciences
A-S—Art Studio
AS—Aerospace Studies
ASC—Animal Sciences
AST—Astronomy
BA—Business Administration
BCH—Biochemistry
BIO—Biological Sciences
BLK—Black Studies
BME—Biomedical Engineering
BOT—Botany
BSC—Behavioral Sciences
BUS—Business and Office Technology
CDE—Community Dentistry
CDS—Conjoint Dental Science
CE—Civil Engineering
CEP—Cooperative Education
CEX—Cooperative Extension
CH—Community Health
CHE—Chemistry
CJT—Communication (Graduate)
CLA—Classical Languages and Literatures
CLT—Comparative Literature
CME—Chemical Engineering
CNU—Clinical Nutrition
COM—Communication
CON—Conjoint—Medicine
CPC—Clinical Pastoral Counseling
CS—Computer Science
DIP—Diplomacy and International Commerce
DIS—Decision Science and Information Systems
DR—Diagnostic Radiology
ECO—Economics
EDA—Administration and Supervision
EDC—Curriculum and Instruction
EDP—Educational and Counseling, Psychology
EDS—Special Education
EDU—Education
EDV—Vocational Education
EE—Electrical Engineering
EGR—Engineering
EM—Engineering Mechanics
END—Endodontics
ENG—English
ENT—Entomology
EPE—Educational Policy Studies and Evaluation
ER—Emergency Medicine
EXP—Experiential Education
FA—Fine Arts
FAM—Family Studies
FIN—Finance
FOR—Forestry
FP—Family Practice
FR—French Language and Literature
FSC—Food Science
GEN—General Agriculture
GEO—Geography
GER—Germanic Languages and Literatures
GLY—Geological Sciences
GRN—Gerontology
GS—The Graduate School
HE—Home Economics
HED—Human Environment: Design
HET—Human Environment: Textiles
HIS—History
HON—Honors
HOR—Horticulture
HPR—Health, Physical Education and Recreation
HRS—Health Radiation Sciences
IND—Industrial Education
ISP—International Studies Program
JOU—Journalism
LA—Landscape Architecture
LAS—Latin American Studies
LAW—Law
LIN—Linguistics
LIS—Library and Information Science
MA—Mathematics
MB—Microbiology
MD—Medicine (Special Topics)
ME—Mechanical Engineering
MED—Medicine
MGT—Management
MI—Microbiology and Immunology
MKT—Marketing
MNG—Mining Engineering
MS—Military Science
MSE—Materials Science and Engineeering
MT—Medical Technology
MUC—Class Instruction in Music
MUP—Music Performance
MUS—Music
NEU—Neurology
NFS—Nutrition and Food Science
NUR—Nursing
OBG—Obstetrics and Gynecology
OBI—Oral Biology
ODM—Oral Diagnosis and Oral Medicine
OPH—Opthalmology
OPT—Oral Pathology
OR—Operations Research
ORT—Orthodontics
OSG—Oral and Maxillofacial Surgery
PA—Public Administration
PAS—Physician Assistant Studies
PAT—Pathology
PDO—Pediatric Dentistry
PED—Pediatrics
PER—Periodontics
PGY—Physiology and Biophysics
PHA—Pharmacology
PHI—Philosophy
PHR—Pharmacy
PHY—Physics
PM—Preventive Medicine and Environmental Health
PPA—Plant Pathology
PRO—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PT—Physical Therapy
RAE—Russian and Eastern Studies
RBM—Rehabilitation Medicine
RC—Rehabilitation Counseling
RM—Radiation Medicine
RS—Religious Studies
RSD—Restorative Dentistry
SOC—Sociology
SPI—Spanish and Italian Languages and Literatures
STA—Statistics
SUR—Surgery
SW—Social Work
TA—Theatre
TEL—Telecommunications
TOX—Toxicology
UK—University Wide
VS—Veterinary Science
WS—Women's Studies
ZOO—Zoology

COURSE DESCRIPTIONS

ACCOUNTING

ACC 099 THE ACCOUNTING PROFESSION. (0)
To instill in students a professional attitude. No specific outline will be followed; however, outside speakers will make presentations on professional growth, conduct and ethics. Also the course will include activities of student branches of various professional societies. May be repeated indefinitely. Prereq: Junior standing.

ACC 201 PRINCIPLES OF ACCOUNTING. (3)
An introduction to accounting concepts and principles involved in the preparation of financial reports for internal and external use. Prereq: Sophomore standing.

ACC 202 PRINCIPLES OF ACCOUNTING. (3)
An introduction to the analysis and interpretation of accounting data and its use in management planning and control. Prereq: ACC 201.

ACC 301 INTERMEDIATE ACCOUNTING I. (3)
An in-depth study of valuation theory for balance sheet accounts and the related effect on income determination: Income statement, balance sheet, interest, cash, temporary investment, short-term receivables, inventory, current liabilities, plant assets, depreciation and depletion, stockholder's equity. Prereq: ACC 202.

ACC 302 INTERMEDIATE ACCOUNTING II. (3)
Continuation of ACC 301. Subjects covered include intangible assets, long-term liabilities, earnings per share, investments, revenue recognition, accounting for income taxes, pensions, leases, funds statements, ratios, disclosure, price level and current value accounting. Prereq: ACC 301 and ACC 324.

ACC 324 ACCOUNTING INFORMATION SYSTEMS. (3)
Fundamentals of data processing for business organizations, including manual and automated applications, with emphasis on unit records, flow charts, and control procedures, in relation to both financial and nonfinancial data. Prereq: Six hours of accounting and ECO 391.

ACC 395 INDIVIDUAL WORK IN ACCOUNTING. (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

ACC 401G ACCOUNTING THEORY. (3)
An investigation into earlier attempts to develop a coordinated statement of accounting theory; a critical examination of selected current accounting practices; and discussion of recent developments in accounting research. Prereq: ACC 301.

ACC 403G AUDITING. (3)
The attest function of accounting with internal, independent and governmental application. Emphasis is placed on the standards and objectives of auditing and management's responsibilities in implementing internal control. Prereq: Senior standing.

ACC 408G COST ACCOUNTING. (3)
Concepts of cost in developing information for management use in the determination of income, the selections of activities (or projects) and the measurement of performance. Prereq: ACC 202 and ACC 324 or consent of instructor.

ACC 410G NOT-FOR-PROFIT ACCOUNTING. (3)
The requirements of adequate accounting systems for various governmental units, including the recording of usual transactions and the form and content of reports. Prereq: ACC 301.

ACC 416G ACCOUNTING FOR BUSINESS COMBINATIONS. (3)
Accounting records for consolidations and mergers, preparation of consolidated statements. Insolvency and receivership records and statements. Accounting for estates and trusts. Prereq: ACC 301.

ACC 417G INCOME TAXATION. (3)
A comprehensive study of the federal income tax structure with emphasis upon the taxation of individuals. Consideration will also be given to basic corporate taxation as well as to administrative procedures and research. Prereq: ACC 301 or consent of instructor.

ACC 419 INTERNSHIP IN ACCOUNTING. (3)
Students are placed with cooperating firms for on-the-job training in accounting. Written reports to be submitted by the firm and the student to the instructor. Prereq: ACC 301 and consent of instructor.

ACC 503 ADVANCED AUDITING. (3)
A case-oriented study of current practices in public accounting including applications of statistical sampling, computer-assisted auditing and official promulgations issued by the AICPA. This course also examines professional, ethical standards, professional liability and SEC reporting requirements. Students are expected to analyze actual case data; prepare written reports; and orally present and defend those reports. Prereq: ACC 403G.

ACC 517 CORPORATE TAXATION. (2)
A detailed study of the more complicated aspects of corporate taxation. The emphasis will be on planning opportunities and pitfalls. Prereq: ACC 417G or consent of instructor.

ACC 518 CONTROLLERSHIP. (3)
A comprehensive study of the controller's objectives, responsibilities, functions, organizational roles, etc. Prereq: ACC 408G and at least senior standing, or consent of instructor.

ACC 524 ADVANCED ACCOUNTING INFORMATION SYSTEMS. (3)
The course covers the design of accounting systems and subsystems to implement effective planning and control for a variety of business decision-making problems. Case analysis and class projects are used to accomplish the course objectives. The microcomputer is integrated in the course through a vigorous overview of existing hardware and software technology. Widely used microcomputer applications software, including database management, spreadsheet, statistical analysis, and others, is introduced and used to accomplish course objectives. Prereq: ACC 302, 324, and 403G.

ACC 527 TAXATION OF PARTNERSHIP AND SUBCHAPTER S CORPORATIONS. (2)
A study of the income tax problem of partnerships and Subchapter S corporations. Prereq: ACC 417G or consent of instructor.

ACC 537 ESTATE AND GIFT TAXATION. (2)
In-depth coverage of the taxation of estates, trusts, and gifts. In addition, a review of the major pre- and post-mortem estate planning devices will be covered. Prereq: ACC 417G or permission of instructor.

ACC 577 TAXATION OF ENTITIES. (3)
A survey and analysis of the taxation of corporations, partnerships, estates and trusts. Students who have taken any other 500-level ACC tax course may not receive credit for this course. Prereq: ACC 417G or equivalent and consent of instructor.

ACC 601 RESEARCH IN ACCOUNTING THEORY. (3)
Critical examination of accounting concepts and standards. Study of current problems and contemporary developments reflected in accounting literature and reports. Prereq: Consent of instructor.

ACC 603 ATTEST FUNCTION. (3)
A critical examination of contemporary professional attestation theory and practice including a comprehensive review of AICPA audit case studies, statements on audit procedure, and their application in simulated business situations. Prereq: ACC 403G or consent of instructor.

ACC 608 ADVANCED MANAGERIAL ACCOUNTING. (3)
Accounting procedures for the evaluation of performance in business, including the analysis of revenues and costs by projects and responsibilities and the use of budget cost studies and rates of return. Prereq: ACC 408G.

ACC 610 NOT-FOR-PROFIT AND REGULATORY ACCOUNTING. (3)
A study of the contemporary issues in the area of not-for-profit and regulatory accounting. Prereq: ACC 410G or consent of instructor.

ACC 611 PROFESSIONAL ISSUES IN ACCOUNTING. (3)
The course involves a study of issues currently impacting the accounting profession, such as regulatory agencies, standard-setting organizations, and the legal framework within which the profession functions. Prereq: 24 hours of accounting.

ACC 615 ADVANCED PROFESSIONAL PROBLEMS. (3)
The application of generally accepted principles to advanced problems of a professional level, including an analysis and study in depth of problems from professional examinations. Prereq: Consent of instructor.

ACC 617 INCOME TAX DEVELOPMENT. (3)
A theoretical and historical approach to the study of federal income taxation with emphasis upon the public finance, legal, and accounting aspects of its development. Consideration will be given to tax research and planning as well as to the critical appraisal of the current law and proposals for its revision. Prereq: ACC 417G or consent of instructor.

ACC 619 INDEPENDENT STUDY IN ACCOUNTING. (1-3)
Designed for students undertaking special studies to be conducted in regular consultation with the instructor. Prereq: Consent of instructor.

ACC 624 ACCOUNTAMETRICS. (3)
A study of the techniques and methods available to measure and evaluate the response of sub-systems to stimuli within the total systems concept. Both the analytical and computer simulation approaches are used to displace uncertainty associated with typical business problems in which the data are generated by the accounting system. A knowledge of FORTRAN is advisable. Prereq: Six hours of accounting and ECO 391 or equivalent.

ACC 628 FINANCIAL/MANAGERIAL ACCOUNTING. (3)
A study of the application of accounting information and services in the recognition or solution of management problems in business. Prereq: Graduate standing, ACC 202 or its equivalent, MA 123 or its equivalent.

ACC 701 SEMINAR IN ACCOUNTING. (3)
A study of accounting history and contemporary problems. Prereq: Consent of instructor.

ACC 707 TOPICAL SEMINAR IN TAXATION. (1)
A study of current legislative, regulatory, and judicial developments in the area of federal taxation. Consideration will also be given to proposals for federal tax reform. Prereq: Consent of instructor.

ACC 708 SEMINAR IN MANAGEMENT ACCOUNTING. (3)
A study of contemporary literature in the field of management accounting, with emphasis on the need for additional research into uses of techniques and concepts. Prereq: Consent of instructor.

ACC 795 INDEPENDENT STUDY IN ACCOUNTING. (1-6)
Designed for students undertaking special studies to be conducted in regular consultation with instructor. Class hours by appointment. Prereq: Consent of instructor.

AEROSPACE STUDIES

AS 111 AEROSPACE STUDIES I, AFROTC. (1)
A course designed to provide the student with a basic understanding of the nature and principles of war, national power, and the Department of Defense role in the organization of national security. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership.

AS 112 AEROSPACE STUDIES I, AFROTC. (1)
A course designed to provide the student with a basic understanding of the contribution of aerospace power to the total U.S. strategic offensive and defensive military posture. The student also develops leadership abilities by participating in a military organization, the cadet corps, which offers a wide variety of situations demanding effective leadership.

AS 113 LEADERSHIP SEMINAR. (1)
A course designed for development of basic skills required to be a manager, including communications, human relations, and administration of equal opportunity. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 111.

AS 114 LEADERSHIP SEMINAR. (1)
A continuation of AS 113. A course designed to develop managerial skills including superior/subordinate relationships, communications, customs and courtesies, basic drill movements and career progression requirements. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 112.

AS 211 AEROSPACE STUDIES II, AFROTC. (1)
Introduces the study of air power from a historical perspective; focuses on the development of air power into a primary element of national security. Leadership experience is continued through active participation in the cadet corps. Lecture, one hour; leadership laboratory, one hour. Prereq: AS 111, 112 or PAS approval.

AS 212 AEROSPACE STUDIES II, AFROTC. (1)
Provides a foundation for understanding how air power has been employed in military and non-military operations to support national objectives. Examines the changing mission of the defense establishment, with particular emphasis on the United States Air Force. Leadership experience is continued through participation in the cadet corps. Lecture, one hour; leadership laboratory, one hour per week. Prereq: AS 111, 112 or PAS approval.

AS 213 LEADERSHIP SEMINAR. (1)
A course designed for development of advanced skills required to be a manager/leader, including leadership styles, public speaking, group dynamics, motivation and preparation for field training. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 211.

AS 214 LEADERSHIP SEMINAR. (1)
A continuation of AS 213. A course designed to develop supervisory management skills to include communications, techniques of critique, social actions, personnel evaluation procedures, problem solving, role playing and field training preparation. Credit will not be granted toward the hours requirements for the degree. Pass/fail only. Prereq: Enrollment in AS 212.

AS 331 AEROSPACE STUDIES III, AFROTC. (3)
A study of management functions with emphasis on the individual as a manager in an Air Force environment. Individual motivational and behavioral process, communication, and group dynamics are included to provide a foundation for the development of professional skills as an Air Force Officer. Students refine their leadership and managerial abilities by organizing and managing a quasi-military unit. Prereq: Acceptance into POC or approval of PAS.

AS 332 AEROSPACE STUDIES III, AFROTC. (3)
A study of leadership with specific emphasis on the Air Force leader. Includes theoretical, professional and communicative aspects. In addition, military justice and administrative law are discussed within the context of the military organization. Students continue to develop and refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331 or approval of PAS.

AS 333 LEADERSHIP LABORATORY. (0)
Laboratory to accompany AS 331 or AS 332. Pass/fail only.

AS 341 AEROSPACE STUDIES IV, AFROTC. (3)
A study of the military profession, civil-military interaction, communicative skills, framework of defense policy, and formulation of defense strategy. Students refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331, 332 or approval of PAS.

AS 342 AEROSPACE STUDIES IV, AFROTC. (3)
Continues the study of strategy and the management of conflict, formulation and implementation of U.S. defense policy, defense organization, and case studies in defense policy making. Students also refine their leadership abilities by organizing and managing a military unit, the cadet corps, which offers a wide variety of situations requiring effective leadership. Prereq: AS 331, 332, or approval of PAS.

AS 343 LEADERSHIP LABORATORY. (0)
Laboratory to accompany AS 341 or AS 342. Pass/fail only.

AS 395 INDEPENDENT WORK. (2-6)
A study of an advanced problem on subject area in aeronautical science under the guidance of a departmental staff member. One discussion per week; term paper required. Prereq: Senior standing in AFROTC Program; major and 3.0 standing in aerospace studies.

AGRICULTURAL ECONOMICS

AEC 301 PRINCIPLES OF AGRICULTURAL MARKETING. (3)
Principles and methods of marketing farm products and inputs with attention to marketing systems and functions extending from farms to consumers. Prereq: GEN 101, ECO 201.

AEC 302 FARM MANAGEMENT DECISION MAKING. (3)
Examination of the basic components of a farm organization and the types of decisions made by a manager in acquiring, organizing, and operating the resources of a farm business. Prereq: GEN 101, ECO 201.

AEC 303 ECONOMICS OF AGRICULTURAL PRODUCTION. (3)
Emphasis on the development of theoretical models of production economics and application of these models to problems. The importance of concepts of marginality to farm managers is emphasized. Role of risk and uncertainty in resource allocation is outlined. Prereq: GEN 101, ECO 201, MA 123 or 113.

AEC 309 INTERNATIONAL AGRICULTURE, WORLD FOOD NEEDS AND U.S. TRADE IN AGRICULTURAL PRODUCTS. (3)
Present and projected world food/population balance by geographic regions; food production and world trade in agricultural products with an emphasis upon the implications for U.S. agriculture; and introduction to agricultural development problems of the less developed nations of Latin America, Africa, and Asia. Prereq: GEN 101 or equivalent.

AEC 311 LIVESTOCK AND MEAT MARKETING. (1)
Provides students with a comprehensive look at the unique characteristics of the marketing system for livestock. Problems in both the feeder animal sector and the fed animal sector will be considered. Lecture, three hours per week for one-third of the semester. Prereq: AEC 301.

AEC 312 DAIRY MARKETING. (1)
A comprehensive analysis of the unique characteristics of the marketing system for milk and milk products with emphasis on pricing at the farm level, the role of producer cooperatives and government policy and regulations. Lecture, three hours per week for one-third of the semester. Prereq: AEC 301.

AEC 313 TOBACCO MARKETING. (1)
Analysis of the structure of the production and marketing system for tobacco including institutions and public regulation. Application of marketing methods and principles to tobacco. Lecture, three hours per week for one-third of the semester. Prereq: AEC 301.

AEC 314 GRAIN MARKETING. (1)
Study of production and utilization of grain by areas of the world, the marketing systems for grain, and the application of economic and marketing principles to the pricing and movement of grain. Prereq: AEC 301.

AEC 315 FARM SUPPLY MARKETING. (1)
A comprehensive analysis of the unique characteristics of the marketing system for farm supplies. Special attention is given to the structure of national and local markets, competitive behavior and pricing strategies, product quality and labeling, and logistics characteristics of various product lines. Prereq: AEC 301.

AEC 321 AGRICULTURAL FUTURES MARKETS. (3)
The mechanics, theory, and practical application of hedging as related to agricultural commodities. The historical development of futures markets, functions of the futures markets, and the role of the speculator will also be explored. Prereq: AEC 301.

AEC 322 AGRIBUSINESS MANAGEMENT. (3)
An introduction to the basic management principles used by agribusiness firms. Management problems are identified, and tools for providing solutions to problems are examined. Prereq: AEC 301.

AEC 324 AGRICULTURAL LAW. (3)
A study of legislation, administrative regulations, constitutions and court cases that have economic ramifications on agricultural and rural life. Prereq: GEN 101.

AEC 341 AGRICULTURAL CREDIT INSTITUTIONS. (1)
Designed to teach applications of key segments of macro agricultural finance. The course primarily examines credit needs in agriculture and the institutions that are capable of supplying agricultural credit. Various credit instruments are identified and examined. Prereq: GEN 101.

AEC 399 EXPERIENTIAL LEARNING IN AGRICULTURAL ECONOMICS. (1-6)
A field or community-based experience in the application of economics to agricultural and rural problems. May be repeated; a maximum of six credits allowed. Pass-fail only. Prereq: GEN 101, nine hours in agricultural economics or economics, and permission of instructor, department chairperson, and completion of learning agreement prior to registration.

AEC 408 FARM ACCOUNTING AND BUSINESS ANALYSIS. (3)
Concentrates on designing a farm business financial record system and recording data pertinent to both internal and external users of financial information. Asset valuation and income determination are stressed and related to economic concepts of farm management. Prereq: AEC 302 or AEC 322; ACC 201.

AEC 411 FARM LABOR MANAGEMENT. (1)
Topics considered are: principles of labor use in a farm operation; ways to develop the competency of hired workers; ways to improve operator's ability to direct labor; incentive arrangements; laws and regulations. Three hours lecture per week (one-third semester). Not open to graduate students. Prereq: AEC 302 or 322.

AEC 441G AGRICULTURAL FINANCIAL MANAGEMENT. (3)
Applies micro agricultural finance to farm and other agricultural business firms. Reviews elementary mathematics of finance and the objectives of financial management. Uses financial statements, cash flow analysis, financial leverage and other elements in applying the theory of capital investment for making management decisions. Prereq: ACC 201; ECO 201.

AEC 445G INTRODUCTION TO RESOURCE AND ENVIRONMENTAL ECONOMICS. (3)
Economic analysis of the problems of assuring resource availability and environmental quality. Theoretical concepts and empirical tools for evaluating resource and environmental policy. Prereq: ECO 201, or consent of instructor.

AEC 470 FOOD RETAILING, MARKETING, AND MANAGEMENT. (4)
To describe, analyze and experience the principles underlying food merchandising and management practices in the United States. This study will examine the modification of basic merchandising and marketing principles necessary to the efficient operations of food retailing firms, especially supermarkets. Hands-on experience in the form of customer surveys, advertising analyses and in-store merchandising experiments will be provided. Lecture, two hours; laboratory, four hours per week. Prereq: AEC 301, MKT 320 and AEC 322 or consent of instructor.

AEC 480 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. (1-3)
Directed independent study for students who have the necessary training and ability to conduct minor research on a selected problem. Prereq: Approval of instructor and department chairperson prior to registration.

AEC 501 AGRICULTURAL MARKET ORGANIZATION AND PERFORMANCE. (3)
Analysis of the effects of the changing structure and organization of agribusiness industries on competitive behavior of firms and performance of the marketing system. Public regulation of agribusiness industries will be discussed and the effect on the market system analyzed. Prereq: AEC 301.

AEC 502 ADVANCED FARM MANAGEMENT. (3)
Integration of production and business management principles through planning and analysis for application in the management of commercial farms. The case farm approach is utilized for the application of management techniques. Prereq: AEC 302.

AEC 503 ECONOMICS OF AGRICULTURAL PRODUCTION AND RESOURCE ALLOCATION. (3)
Economic analysis of agricultural production. A theoretical treatment of resource allocation decisions with application of programming techniques. Prereq: AEC 303.

AEC 516 RURAL REAL ESTATE APPRAISAL. (3)
The theory, principles and procedures that a professional appraiser uses in appraising the fair market value of rural real estate. Field trips are included to apply procedures and techniques. As three to four field trips are taken, no courses should be scheduled after this one on Tuesday and Thursday. Prereq: AEC 302 or consent of instructor.

AEC 522 COOPERATIVES IN AGRIBUSINESS. (3)
An analysis of the major types of management problems faced by the agribusiness cooperative firms. Emphasis is given to alternative solutions influencing business policy decisions. Exposure to actual management problems is provided. Prereq: AEC 301; AEC 322 or MGT 301.

AEC 531 AGRICULTURAL PRICE ANALYSIS. (3)
Price behavior of agricultural products and inputs including factors affecting supply and demand for individual products, supply-price relationships and the relationship of agricultural prices to the general price level. Prereq: AEC 301 and STA 291.

AEC 532 AGRICULTURAL POLICY. (3)
Historical development of principles underlying agricultural policy; objectives of agricultural policy; appraisal of current and proposed agricultural programs. Prereq: AEC 301.

AEC 533 DISTRIBUTION MANAGEMENT IN AGRIBUSINESS. (3)
Examines agribusiness distribution including warehousing, transportation, order processing, scheduling, firm location, and management information. Retail and wholesale distribution channels will be analyzed. Prereq: AEC 301; AEC 322 or equivalent; MA 113 or 123.

AEC 545 NATURAL RESOURCE AND ENVIRONMENTAL ECONOMICS. (3)
Economic analysis of technological, institutional and ecological factors affecting development, conservation, and efficient utilization of soil, water, mineral and environmental resources. Introduction to relevant concepts and techniques for evaluation of public policies and individual projects relating thereto. Prereq: ECO 202 or equivalent.

AEC 580 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. (1-3)
Directed independent study of a selected problem. Prereq: Consent of instructor and chairperson of department.

AEC 590 INTRODUCTION TO QUANTITATIVE ECONOMICS I. (3)
An introduction to mathematical approaches to economic theory. Emphasis on linear models, constrained optimization, and techniques used in comparative statics. Prereq: ECO 488G; MA 113; or consent of instructor. (Same as ECO 590.)

AEC 606 ADVANCED AGRICULTURAL MARKETING. (3)
A critical examination of objectives and results of various types of research in marketing organization, marketing functions, market management, and price analysis. Prereq: Consent of instructor.

AEC 610 INTERNATIONAL TRADE IN AGRICULTURAL PRODUCTS. (3)
This course analytically examines current empirical research in the area of agricultural trade. Lecture, five hours per week. Prereq: ECO 660, STA 671 and ECO 671.

AEC 620 ADVANCED PRODUCTION ECONOMICS I. (3)
An advanced treatment of production economics with emphasis on flexible product and factor price situations, factor demand functions, multiple product production, and poly-periodic production theory. Prereq: AEC 503 or ECO 660.

AEC 621 ADVANCED PRODUCTION ECONOMICS II. (3)
A continuation of AEC 620 with emphasis on production function estimation, aggregate production and supply relations, factor distribution theories and implications for agricultural policies and programs. Prereq: AEC 620.

AEC 624 ADVANCED QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS. (3)
This course deals with the use of economics and statistics to estimate structures of large scale agricultural systems. Subjects covered include: structure of agricultural systems, variation in data measures of significance in agricultural economics, specification of agricultural systems, pretest estimation, dummy variables, autocorrelation, and techniques of estimation. Prereq: STA 671 and three semesters of graduate study in agricultural economics.

AEC 626 AGRICULTURE AND ECONOMIC DEVELOPMENT. (3)
Analytical consideration of the role of agriculture in economic development in relation to overall development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 473G or consent of instructor. (Same as ECO 674.)

AEC 640 ADVANCED AGRICULTURAL POLICY. (3)
Influences of policies upon economic progress, efficiency in resource use, distribution of income, and welfare in agriculture. Prereq: Consent of instructor.

AEC 645 NATURAL RESOURCE ECONOMICS. (3)
Economic analysis of resource utilization and development with emphasis on natural resources. Discussion of criteria for public investment, welfare economics, benefit-cost analysis and cost-effectiveness as applied to natural resources. Prereq: ECO 361 and MA 113 or ECO 590.

AEC 646 INTERTEMPORAL ALLOCATION OF NATURAL RESOURCES. (3)
This course teaches the application of economic theory to the analysis of solutions for current and prospective natural resource problems. Such understanding will be geared toward fashioning, selecting and implementing planning associated with land, water, air, biological and other natural resources and conservation of the natural environment in serving the needs or desires of citizens. Topics covered will include: physical constraints in natural resource use; resource conservation; investment; technological change; taxation; income flows and rent. Prereq: ECO 488G and MA 113 or ECO 590.

AEC 650 ADVANCED AGRICULTURAL PRICES. (3)
Advanced study of agricultural price behavior by the application of economic theory and statistical analysis. Prereq: Consent of instructor.

AEC 660 RESEARCH METHODS IN AGRICULTURAL ECONOMICS. (3)
An analytical examination of research methods and techniques used in agricultural economics. Prereq: Consent of instructor.

AEC 661 PROGRAMMING MODELS IN AGRICULTURAL ECONOMICS. (3)
A study of some programming models useful in agricultural economics; includes an examination of the structure of the models themselves, economic interpretation of their components and their use in research in agricultural economics. Prereq: MA 416G and either AEC 620 or ECO 660.

AEC 662 QUANTITATIVE METHODS IN RENEWABLE RESOURCE MANAGEMENT. (3)
Design and analysis of optimizaiton models in renewable resource management. Includes survey of applications in mathematical programming. CPM-PERT, Markov processes, and Game theory. Case examples are used to demonstrate applicability and problem formulation in management of industrial and public forests. Prereq: MA 113 and MA 162 or equivalent, and AEC 445G or equivalent. (Same as FOR 662.)

AEC 670 AGRIBUSINESS MASTER'S SEMINAR. (3)
Students will study a wide range of current issues in Agribusiness Marketing and Management through discussions with faculty and industry representatives as well as study, design, and participate in firm specific project analyses. Prereq: Consent of instructor.

AEC 699 EXPERIENTIAL LEARNING IN AGRICULTURAL ECONOMICS. (1-6)
A field experience in the application of economics to agribusiness management problems. May be repeated to a maximum of six credits. Prereq: AEC 670 and consent of instructor.

AEC 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours. Prereq: Consent of adviser and chairperson of department.

AEC 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely. Prereq: Consent of adviser and chairperson of department.

AEC 770 AGRICULTURAL ECONOMIC SEMINARS. (0)
Analysis of economic problems which affect agriculture. May be repeated three times.

AEC 780 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. (1-3)
Open to graduate students who have the necessary training and ability to conduct research on a selected problem. May be repeated three times for a total of nine credits. Prereq: Consent of instructor and departmental chairperson.

AGRICULTURAL EDUCATION

(For course offerings see Vocational Education.)

AGRICULTURAL ENGINEERING

AEN 007 THE ENGINEERING PROFESSION (Senior). (0)
Lectures on professional growth, conduct, and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

AEN 100 INTRODUCTION TO SURVEYING. (1)
General use of surveying equipment, development of topographic maps and layout of engineering systems. Laboratory, three hours per week. Prereq: Trigonometry.

AEN 102 AGRICULTURAL ENGINEERING PROBLEMS. (1)
An introduction to agricultural engineering and the professional method of solving engineering problems encountered in agriculture.

AEN 103 BASIC PRINCIPLES OF SURVEYING. (2)
General use of surveying equipment, development of topographic maps, layout of engineering systems, earthwork computations, and introduction to boundary surveys for Agriculture students. This course is not available for credit to persons who have received credit in another introductory surveying course. Lecture, one hour; laboratory, three hours. Prereq: A course in trigonometry, enrollment in the College of Agriculture and/or consent of instructor.

AEN 215 OPERATION AND MANAGEMENT OF FARM MACHINERY. (3)
The course will discuss the past, present and future importance of field machinery to agriculture. The operational principles of major agricultural machines will be presented. Analytical concepts and methods aimed at appropriate selection and management of farm machinery will be presented. Lecture, two hours per week; laboratory, two hours per week.

AEN 220 FARM TRACTORS AND ENGINES. (3)
Principles of selection and application of farm tractors and engines. Operating principles of internal combustion engines including carburetion, fuel injection, ignition, and lubrication. Power transmission application and efficiency are considered. Lecture, two hours per week; laboratory, two hours per week.

AEN 252 FARM SHOP. (3)
Wood and metal work, including blueprint reading, oxyacetylene and arc welding, power woodworking tools, soldering and pipe work. Lecture, one hour; laboratory, four hours. Prereq: Major in agricultural education or consent of instructor.

AEN 301 MICROELECTRONIC APPLICATIONS IN AGRICULTURAL ENGINEERING. (3)
An introduction to the use of digital electronics and integrated circuits in solving agricultural engineering problems. Digital circuits, microprocessor concepts, computer interfacing, transducers, signal conditioning and control applications are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: Junior standing; prereq or concur: EE 305.

AEN 302 ANALYTICAL AND NUMERICAL METHODS IN AGRICULTURAL ENGINEERING. (3)
An introduction to engineering problems encountered in agricultural and biological engineering systems including animal and crop production, environmental control, energy, and biomechanics. Emphasis is on the solution of case studies using computer simulation and analysis, statistical methods, and numerical techniques. Lecture, two hours; laboratory, two hours per week. Prereq: Junior standing, CS 221; prereq or concur: MA 214.

AEN 320 AGRICULTURAL STRUCTURES. (3)
The study of physical environment, construction and planning of agricultural production buildings and the farm residence with emphasis on: environmental requirements for livestock; wood and masonry construction; energy conservation and energy sources; farmstead and building planning for efficient production. Prereq: Junior standing or consent of instructor.

AEN 340 PRINCIPLES OF FOOD ENGINEERING. (4)
The functional requirements and principles of operation of systems for the handling and processing of food and agricultural products. Prereq: Junior standing and completion of mathematics requirement in Food Science curriculum.

AEN 345 CROP DRYING AND PROCESSING. (3)
Principles of crop drying and storage; planning grain handling, storage, drying and processing facilities; materials handling and feed processing equipment; electrical considerations in farmstead planning; selection and application of electric motors and controls for the farmstead. Prereq: Junior standing or consent of instructor.

AEN 406G PHYSICS OF PLANT AND ANIMAL ENVIRONMENT. (3)
A study of the thermal, moisture, light and gaseous components of plant and animal environment with emphasis on interactions between these biological systems and their environment. Lecture, two hours; laboratory, two hours. Prereq: ME 325, engineering upper division status or consent of instructor.

AEN 417G INTRODUCTION TO DESIGN OF AGRICULTURAL MACHINERY. (3)
A study of the operational characteristics and design features associated with the major categories of agricultural field machines and an introduction to conceptualization, analysis and design of machine components. Lecture, two hours; laboratory, two hours per week. Prereq: EM 313, ME 330, engineering upper division status or consent of instructor.

AEN 427G DESIGN OF AGRICULTURAL STRUCTURES. (3)
Psychrometrics, physical environment for plant and animal life, design of environmental and structural systems. Lecture, two hours; laboratory, two hours. Prereq: EM 302, engineering upper division status or consent of instructor; prereq or concur: ME 325.

AEN 430 FARM WATER MANAGEMENT. (3)
Elementary surveying, mapping, and determination of land area; consideration of precipitation, runoff and soil erosion relationships; planning terraces, waterways, drainage systems, farm reservoirs, pond water treatment and irrigation systems. Lecture, two hours; laboratory, two hours.

AEN 437G SOIL AND WATER CONSERVATION ENGINEERING. (3)
Application of engineering principles to the management of surface and soil water in agricultural and urban areas. Design of facilities for runoff and erosion control, water storage, drainage, and irrigation. Prereq: ME 330 and engineering upper division status or consent of instructor.

AEN 447G PROCESSING AND FOOD ENGINEERING. (3)
Design principles and equipment selection for food and feed preservation and manufacturing; to include a consideration of drying, refrigeration, size reduction, cleaning and sorting, materials handling and storage processes. Prereq: ME 330, EM 313, engineering upper division status or consent of instructor.

AEN 450 SPECIAL PROBLEMS. (1-3)
An intensive study of some phases of agricultural engineering in which the student is particularly interested. Approval of the instructor is required. May be repeated to a maximum of six credits.

AEN 480G THERMAL ENVIRONMENTAL ENGINEERING. (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. Principles and applications of building energy requirements and thermal comfort criteria. Prereq: ME 325 and engineering upper division status or consent of instructor. (Same as ME 480G.)

AEN 503 ANIMAL WASTE MANAGEMENT. (3)
A study of animal waste characteristics, treatment, and utilization principles and the analysis and design of management systems. Lecture, two hours; laboratory, two hours. Prereq: MA 214 and engineering upper division status.

AEN 505 ENGINEERING ANALYSIS. (3)
A study of the professional method of dealing with engineering problems and the application of this method to problems encountered in the agricultural industry. Lecture, two hours; laboratory, two hours. Prereq: Engineering upper division status or consent of instructor.

AEN 519 PLANT, SOIL AND MACHINERY RELATIONSHIPS. (3)
Advanced concepts in the use of biological and soil parameters in the design of machinery for agriculture and agriculturally related industries. Lecture, two hours; laboratory, two hours. Prereq: Engineering upper division status.

AEN 525 DESIGN OF STRUCTURES FOR BIOLOGICAL SYSTEMS. (3)
Structural and environmental design of structures for grain, feed and food storage; animal housing; greenhouses and human housing. Complete design problems will be stressed with emphasis on designing from basic concepts. Lecture, two hours; laboratory, two hours. Prereq: AEN 427G, engineering upper division status or consent of instructor.

AEN 536 FLUVIAL HYDRAULICS. (3)
Rainfall physics, principles of erosion on upland areas and construction sites, stable channel design in alluvial material, mechanics of sediment transport, river mechanics, reservoir sedimentation. Prereq: AEN 437G or CE 553 and engineering upper division status.

AEN 537 IRRIGATION AND DRAINAGE ENGINEERING. (3)
Plant-water relationships, principles of soil water movement and ground water supply, sprinkler irrigation design, surface irrigation hydraulics, subsurface drainage principles. Prereq: ME 330; and AGR 575 or CE 425G.

AEN 548 ADVANCED AGRICULTURAL PROCESSING. (3)
Analytical study of engineering problems dealing with the handling and processing of agricultural products, such as grading, sorting, drying, and curing, and the preparation of plans for these operations. Prereq: AEN 447G and engineering upper division status.

AEN 550 ANALYSIS AND SIMULATION OF AGRICULTURAL, BIOLOGICAL AND INDUSTRIAL SYSTEMS. (3)
Systems are analyzed through an interdisciplinary approach to problem solving using systems literature, Club of Rome world models, the Systems Dynamics approach to modeling, individual and class projects, and case studies of example situations. Emphasis is placed on the modeling of continuous systems using the DYNAMO II and GASP IV simulation languages. Prereq: CS 221, STA 370 or 381, or equivalent as determined by the department.

AEN 568 SOLAR ENERGY SYSTEMS. (3)
Solar radiation availability, materials and properties for collectors and thermal energy storage, heat transfer in collectors and storage systems. Design of solar-thermal components and systems. Prereq: ME 325, ME 330 and engineering upper division status. (Same as ME 568.)

AEN 618 ADVANCED PLANT, SOIL AND MACHINERY RELATIONSHIPS. (3)
A consideration of fundamental concepts of energy and materials in the identification and mensuration of parameters needed in the development of new machines for agriculture. Lecture, two hours; laboratory, two hours. Prereq: AEN 417G and 505.

AEN 648 ENERGY AND MASS TRANSFER IN AGRICULTURAL PROCESSING. (3)
A comprehensive and in-depth study of the principles of energy and mass transfer as they apply to the processing of agricultural and biological materials. Prereq: AEN 548 or consent of instructor.

AEN 658 METHODOLOGY AND INSTRUMENTATION FOR RESEARCH. (3)
Research philosophy and methodology, principles and applications of measuring instruments, and data acquisition and analysis. Prereq: Consent of instructor.

AEN 660 SIMILITUDE IN ENGINEERING. (3)
An advanced approach to engineering problems through the theory of similitude and its application to models. The use of geometrically similar, distorted and dissimilar models will be discussed. Prereq: Graduate standing.

AEN 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

AEN 750 SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING. (1-3)
Independent work on selected research problems in one of the various fields of agricultural engineering. Consultation and laboratory by appointment. Prereq: Approval of chairperson of department.

AEN 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

AEN 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

AEN 775 SEMINAR. (0)
Weekly meetings with members of the staff for reports and discussions on research and current trends and practices in agricultural engineering. May be repeated twice. One class hour.

AEN 795 THESIS. (0)
May be repeated twice.

AGRICULTURE—GENERAL

GEN 101 THE ECONOMICS OF FOOD AND AGRICULTURE. (3)
An introduction to the field of agricultural economics and some of the basic tools and concepts of decision making. Concepts are illustrated in terms of selected current social and economic issues including the role of agriculture in both a national and international dimension.

GEN 102 THE DYNAMICS OF RURAL SOCIAL LIFE. (3)
Introduces major concepts of sociology by exploring social, political and cultural issues confronting rural society and American agriculture, such as: population change, industrialization, energy developments, agricultural change. Student may not receive credit for both this course and SOC 101.

GEN 103 AGRICULTURE PEST AND DISEASE MANAGEMENT. (3)
An interdisciplinary study of the importance to agriculture of weeds, plant pathogens, insects, and animal pathogens; methods for managing pests and diseases, including economic and environmental considerations.

GEN 104 PLANTS AND MAN — A WORLD VIEW. (3)
A survey of important world grain, oil, fiber, forage, fruit, vegetable and specialty crop plants. Principles of plant, soil and climatic factors governing adaptation and production of these plants are discussed and applied. Intended to provide substantial plant science background for students not majoring in the plant sciences, but is open and should appeal to beginning plant science majors as well.

GEN 105 ENGINEERING APPLICATIONS IN AGRICULTURE. (3)
This course is a comprehensive overview of basic engineering principles and technology which have applications in agricultural production and resource management. It is designed for freshman and sophomore students in the College of Agriculture.

GEN 106 AGRICULTURAL ANIMAL SCIENCE. (3)
Relationships of food production and consumption to income of humans throughout the world; major livestock (beef and dairy cattle, sheep, swine, poultry and horses) production areas of the world; relationships between live animal merit and yield of retail cuts of meat; identification of skeletal components; identification and functions of reproductive and digestive tract components; characteristics of breeds of beef and dairy cattle, sheep, swine, poultry and horses. Lecture, two hours per week; laboratory, two hours per week.

GEN 107 FOOD IN A CHANGING WORLD. (3)
A general basic food science course that deals with world food needs and available food supplies, types of food and nutritive values and use, food processing technology and distribution methods.

GEN 300 SPECIAL COURSE. (1-3)
Interdisciplinary, topical or experimental courses to be approved by the Dean of the College of Agriculture. A particular course may be offered at most twice under the GEN 300 number, and no GEN 300 course may be given for more than three credits per semester. Open to all University students, subject to such limits or prerequisites as set by the instructor. Hours are variable with each special course. Prereq: As specified by the instructor.

GEN 301 AN INTRODUCTION TO CHINESE CULTURE THROUGH AGRICULTURE. (3)
This course is designed to introduce students to basic culture in China. Students will learn about Chinese agriculture, languages, customs, history, the political and educational system, geography and the economy. The culmination of the course is a three-week trip to China. Only students committed to go on trip to China will be enrolled in the course. First priority for the trip is given to College of Agriculture students.

AGRONOMY

AGR 360 GENETICS. (4)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, biochemical-molecular, physiological, and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Lecture, three hours per week; laboratory, two hours per week. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as ASC 360.)

AGR 366 FUNDAMENTALS OF SOIL SCIENCE. (3)
Development of concepts and understanding of the properties and processes that are basic to the use and management of soils. Prereq: CHE 105, or consent of instructor.

AGR 367 LABORATORY IN SOIL SCIENCE. (2)
Laboratory experiences for the purpose of increasing understanding of fundamental properties and processes of soil. Laboratory four hours. Prereq: AGR 366 or concurrent, or approval of instructor.

AGR 386 PRINCIPLES OF FIELD CROP PRODUCTION. (3)
A course in scientific fundamentals underlying the production of cereal, fiber, forage and tobacco crops. Lecture and discussion, two hours; laboratory, two hours. Prereq: AGR 366 or consent of instructor.

AGR 395 SPECIAL PROBLEMS IN AGRONOMY. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of appropriate instructor before registration.

AGR 399 EXPERIENTIAL LEARNING IN AGRONOMY. (1-6)
A field-based learning experience in agronomy under the supervision of a faculty member. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration.

AGR 404 INTEGRATED WEED MANAGEMENT. (3)
A study of weed management concepts based on the integration of weed biology and ecology data with cultural, biological, and herbicidal control. Lecture, three hours; laboratory, two hours. Prereq: AGR 386.

AGR 406 PLANT BREEDING. (3)
The application of genetic principles to the improvement of crop plants. Methods and techniques used in breeding self- and cross-pollinated species. Release, distribution and the maintenance of genetic purity of improved varieties. Prereq: AGR 386 and AGR 360, or consent of instructor.

AGR 408 TOBACCO. (3)
History, botany, pathology, entomology, breeding, and culture of tobacco with special emphasis on burley. Prereq: AGR 386 or consent of instructor.

AGR 412 GRAIN CROPS. (3)
A study of the grain crops of the world in respect to adaptation, culture and uses. Lecture and recitation, two hours; laboratory, two hours. Prereq: AGR 386 or consent of instructor.

AGR 468G SOIL USE AND MANAGEMENT. (3)
The application of principles related to soils and their management in planning the utilization of land and associated resources. Lecture and discussion. Prereq: AGR 366 or consent of instructor.

AGR 470G FERTILIZERS AND SOIL FERTILITY. (3)
Sources and manufacture of fertilizer materials; soil reaction of elements essential for plant growth; effective use of fertilizers for various soil situations. Prereq: AGR 366 and AGR 386 or consent of instructor.

AGR 501 RECLAMATION OF DISTURBED LAND. (3)
Development of concepts, principles and understanding of problems associated with reclaiming land disturbed in the process of mining coal in order to return this land to agricultural production. A limited discussion of reclamation of other types of disturbed lands. Two all-day field trips required. Prereq: AGR 386 or equivalent, or consent of instructor.

AGR 502 ECOLOGY OF ECONOMIC PLANTS. (3)
Critical study of the response of economic plants to natural and man-modified environments. Prereq: AGR 386 or consent of instructor.

AGR 510 ECOLOGY AND UTILIZATION OF GRASSLANDS. (4)
Critical study of grassland plants and the biological and physical factors operative in utilization of natural and cultivated grasslands by domestic animals. Lecture, three hours; laboratory, two hours. Prereq: AGR 386, or consent of instructor.

AGR 515 TURF MANAGEMENT. (3)
A study of the selection, culture, and management of certain turf species used for home lawns, golf courses, athletic fields, and highway slopes. Lecture, two hours; laboratory, two hours. Prereq: One botany and one soils course. (Same as HOR 515.)

AGR 556 SEED TECHNOLOGY. (3)
Changes occurring during reproductive development, seed germination and seed deterioration; principles of seed production for forage and grain crops; technical aspects of conditioning, testing, storage and marketing of genetically pure crop seed. Lecture, two hours; laboratory, four hours for 12 weeks. Prereq: AGR 386 or consent of instructor.

AGR 557 SEED BIOLOGY. (2)
Advanced study of the morphological and physiological changes occurring during seed formation, development, maturation, germination, establishment and longevity. Lecture, two hours; discussion, one hour per week. Prereq: AGR 360, BIO 530 or consent of instructor.

AGR 560 SOIL-PLANT RELATIONSHIPS. (3)
The soil-plant system with emphasis on the soil as an environment for plant roots; nutrient requirements of plants; and nutrient behavior in soils. Prereq: AGR 470G or equivalent, or consent of instructor.

AGR 562 ADVANCED GENETICS. (3)
Discussion of current concepts in genetics with special emphasis upon the processes of replication, recombination, and regulation of the genetic material and upon introducing students to current literature in genetics. Prereq: ASC/AGR 360 or equivalent. (Same as ASC 562.)

AGR 564 FOREST SOILS. (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Three class hours per week with occasional extended field trips. Prereq: AGR 366 and 367 and consent of instructor. (Same as FOR 564.)

AGR 566 SOIL MICROBIOLOGY. (3)
The nature and biochemical activities of soil microflora; their significance in soil genesis and structure and their role in soil fertility. Prereq: AGR 366 or an introductory microbiology course or consent of instructor.

AGR 573 SOIL MORPHOLOGY AND CLASSIFICATION. (3)
Study of concepts of soil horizons, soil profiles and soilscapes; morphological, physical, chemical and mineralogical parameters useful in their characterization. Soil forming factors and processes. Basic principles of soil classification. Characterization of selected Kentucky soils and their placement in the modern system; practical field problems in soil identification, characterization and classification. Lecture, two hours; laboratory, three hours per week. Prereq: AGR 366 and 367 or consent of instructor.

AGR 575 SOIL PHYSICS. (2)
Physical properties of soils and their relationship to chemical, mineralogical, and biological soil properties and to plant growth. Prereq: AGR 366 and 367 and consent of instructor.

AGR 576 LABORATORY IN SOIL PHYSICS. (1)
Laboratory experiences for the purpose of increasing an understanding of the principles of soil physical measurements and their relationships to chemical, mineralogical and the biological soil properties. Laboratory, two hours. Prereq: AGR 575 or concurrent.

AGR 581 CHEMICAL ANALYSIS OF SOILS AND PLANTS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative chemical analysis of soil and plant materials and relation of these analyses to physical, chemical and biological systems. Lecture, by auto-tutorial, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 366 or equivalent, or consent of instructor.

AGR 597 SPECIAL TOPICS IN AGRONOMY (Subtitle required). (1-3)
Special topical or experimental courses in crop science, soil science or related areas of agronomy for graduate and advanced undergraduate students. Special subtitle required and must be approved by the chairperson of the Department of Agronomy. A particular subtitle may be offered twice under AGR 597. Students may not repeat under the same subtitle. Prereq: Permission of instructor.

AGR 599 SPECIAL PROBLEMS IN AGRONOMY. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

AGR 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as BCH/BIO/MI/PPA 601.)

AGR 619 CYTOGENETICS. (4)
Classical, biochemical and molecular studies of the structure and function of eukaryotic chromosomes. Emphasis is placed on the effects of variation in chromosome type, structure and number on Mendelian genetics and in plant and animal breeding. Lecture, three hours; laboratory, two hours. Prereq: ASC/AGR 360 or BIO 404G. (Same as BIO 619.)

AGR 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constituents by centrifugation, chromotagraphy, spectroscopy and electrometry. Discussion of methods and design to culture, sample and prepare plant material for use in physiological experiments. Class, two hours per week; laboratory, three hours. Prereq: BIO 530, CHE 232 and 233, or consent of instructor. (Same as BIO 630.)

AGR 654 CROP PHYSIOLOGY. (3)
Discussion of physiological aspects associated with crop growth and production with emphasis on plant growth and maturation, dry matter production, and components of yield and yield quality. Prereq: AGR 386 and BIO 530.

AGR 658 ADVANCED WEED SCIENCE. (4)
Taxonomical, ecological, physiological, chemical and biochemical aspects of cultural and chemical weed control, and herbicide toxicity and selectivity. Prereq: AGR 404 or equivalent, one plant physiology course, one biochemistry course or consent of instructor.

AGR 660 ADVANCED SOIL BIOLOGY. (2)
A critical evaluation of the current research status in selected aspects of soil biology. Prereq: AGR 566 or consent of instructor.

AGR 664 PLANT BREEDING I. (3)
The application of advanced genetic principles to plant improvement. An in-depth study of existing plant breeding procedures and their applications and consideration of new techniques that can be applied to plant breeding and crop improvement. Prereq: STA 570 or consent of instructor; ASC 562 recommended.

AGR 666 ADVANCED PLANT BREEDING. (3)
Advanced study of gene action in commonly used plant breeding procedures, expansions and modifications of existing plant breeding procedures and new approaches to solution of plant breeding problems. Prereq: AGR 406G, STA 570 and ASC 662, or consent of instructor.

AGR 671 SOIL CHEMISTRY. (4)
A study of the chemical characteristics of the soil and of the more important chemical processes in the soil. Lecture and discussion, three hours; laboratory, two hours. Prereq: AGR 470G, 581; CHE 442G, or consent of instructor.

AGR 675 ADVANCED SOIL PHYSICS. (3)
Relation of physical properties of soil to transfer of water, air, plant nutrient ions, and heat in soil and factors affecting such movement. Prereq: AGR 575, MA 214 and consent of instructor.

AGR 676 QUANTITATIVE INHERITANCE IN PLANT POPULATIONS. (3)
After a brief review of population genetics theory, the course is divided into two sections which cover methods of estimating genetic variances and selection methods in population improvement. The course will focus on handling and interpretation of actual data sets through data analysis and discussion of current literature. Prereq: STA 570, STA 671, STA 672, and ASC 662. (Same as STA 676.)

AEN 320 AGRICULTURAL STRUCTURES. (3)
The study of physical environment, construction and planning of agricultural production buildings and the farm residence with emphasis on: environmental requirements for livestock; wood and masonry construction; energy conservation and energy sources; farmstead and building planning for efficient production. Prereq: Junior standing or consent of instructor.

AEN 340 PRINCIPLES OF FOOD ENGINEERING. (4)
The functional requirements and principles of operation of systems for the handling and processing of food and agricultural products. Prereq: Junior standing and completion of mathematics requirement in Food Science curriculum.

AEN 345 CROP DRYING AND PROCESSING. (3)
Principles of crop drying and storage; planning grain handling, storage, drying and processing facilities; materials handling and feed processing equipment; electrical considerations in farmstead planning; selection and application of electric motors and controls for the farmstead. Prereq: Junior standing or consent of instructor.

AEN 406G PHYSICS OF PLANT AND ANIMAL ENVIRONMENT. (3)
A study of the thermal, moisture, light and gaseous components of plant and animal environment with emphasis on interactions between these biological systems and their environment. Lecture, two hours; laboratory, two hours. Prereq: ME 325, engineering upper division status or consent of instructor.

AEN 417G INTRODUCTION TO DESIGN OF AGRICULTURAL MACHINERY. (3)
A study of the operational characteristics and design features associated with the major categories of agricultural field machines and an introduction to conceptualization, analysis and design of machine components. Lecture, two hours; laboratory, two hours per week. Prereq: EM 313, ME 330, engineering upper division status or consent of instructor.

AEN 427G DESIGN OF AGRICULTURAL STRUCTURES. (3)
Psychrometrics, physical environment for plant and animal life, design of environmental and structural systems. Lecture, two hours; laboratory, two hours. Prereq: EM 302, engineering upper division status or consent of instructor; prereq or concur: ME 325.

AEN 430 FARM WATER MANAGEMENT. (3)
Elementary surveying, mapping, and determination of land area; consideration of precipitation, runoff and soil erosion relationships; planning terraces, waterways, drainage systems, farm reservoirs, pond water treatment and irrigation systems. Lecture, two hours; laboratory, two hours.

AEN 437G SOIL AND WATER CONSERVATION ENGINEERING. (3)
Application of engineering principles to the management of surface and soil water in agricultural and urban areas. Design of facilities for runoff and erosion control, water storage, drainage, and irrigation. Prereq: ME 330 and engineering upper division status or consent of instructor.

AEN 447G PROCESSING AND FOOD ENGINEERING. (3)
Design principles and equipment selection for food and feed preservation and manufacturing; to include a consideration of drying, refrigeration, size reduction, cleaning and sorting, materials handling and storage processes. Prereq: ME 330, EM 313, engineering upper division status or consent of instructor.

AEN 450 SPECIAL PROBLEMS. (1-3)
An intensive study of some phases of agricultural engineering in which the student is particularly interested. Approval of the instructor is required. May be repeated to a maximum of six credits.

AEN 480G THERMAL ENVIRONMENTAL ENGINEERING. (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. Principles and applications of building energy requirements and thermal comfort criteria. Prereq: ME 325 and engineering upper division status or consent of instructor. (Same as ME 480G.)

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AGR 408 TOBACCO. (3)
History, botany, pathology, entomology, breeding, and culture of tobacco with special emphasis on burley. Prereq: AGR 386 or consent of instructor.

AGR 412 GRAIN CROPS. (3)
A study of the grain crops of the world in respect to adaptation, culture and uses. Lecture and recitation, two hours; laboratory, two hours. Prereq: AGR 386 or consent of instructor.

AGR 468G SOIL USE AND MANAGEMENT. (3)
The application of principles related to soils and their management in planning the utilization of land and associated resources. Lecture and discussion. Prereq: AGR 366 or consent of instructor.

AGR 470G FERTILIZERS AND SOIL FERTILITY. (3)
Sources and manufacture of fertilizer materials; soil reaction of elements essential for plant growth; effective use of fertilizers for various soil situations. Prereq: AGR 366 and AGR 386 or consent of instructor.

AGR 501 RECLAMATION OF DISTURBED LAND. (3)
Development of concepts, principles and understanding of problems associated with reclaiming land disturbed in the process of mining coal in order to return this land to agricultural production. A limited discussion of reclamation of other types of disturbed lands. Two all-day field trips required. Prereq: AGR 386 or equivalent, or consent of instructor.

AGR 502 ECOLOGY OF ECONOMIC PLANTS. (3)
Critical study of the response of economic plants to natural and man-modified environments. Prereq: AGR 386 or consent of instructor.

AGR 510 ECOLOGY AND UTILIZATION OF GRASSLANDS. (4)
Critical study of grassland plants and the biological and physical factors operative in utilization of natural and cultivated grasslands by domestic animals. Lecture, three hours; laboratory, two hours. Prereq: AGR 386, or consent of instructor.

AGR 515 TURF MANAGEMENT. (3)
A study of the selection, culture, and management of certain turf species used for home lawns, golf courses, athletic fields, and highway slopes. Lecture, two hours; laboratory, two hours. Prereq: One botany and one soils course. (Same as HOR 515.)

AGR 556 SEED TECHNOLOGY. (3)
Changes occurring during reproductive development, seed germination and seed deterioration; principles of seed production for forage and grain crops; technical aspects of conditioning, testing, storage and marketing of genetically pure crop seed. Lecture, two hours; laboratory, four hours for 12 weeks. Prereq: AGR 386 or consent of instructor.

AGR 557 SEED BIOLOGY. (2)
Advanced study of the morphological and physiological changes occurring during seed formation, development, maturation, germination, establishment and longevity. Lecture, two hours; discussion, one hour per week. Prereq: AGR 360, BIO 530 or consent of instructor.

AGR 560 SOIL-PLANT RELATIONSHIPS. (3)
The soil-plant system with emphasis on the soil as an environment for plant roots; nutrient requirements of plants; and nutrient behavior in soils. Prereq: AGR 470G or equivalent, or consent of instructor.

AGR 562 ADVANCED GENETICS. (3)
Discussion of current concepts in genetics with special emphasis upon the processes of replication, recombination, and regulation of the genetic material and upon introducing students to current literature in genetics. Prereq: ASC/AGR 360 or equivalent. (Same as ASC 562.)

AGR 564 FOREST SOILS. (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Three class hours per week with occasional extended field trips. Prereq: AGR 366 and 367 and consent of instructor. (Same as FOR 564.)

AGR 566 SOIL MICROBIOLOGY. (3)
The nature and biochemical activities of soil microflora; their significance in soil genesis and structure and their role in soil fertility. Prereq: AGR 366 or an introductory microbiology course or consent of instructor.

AGR 573 SOIL MORPHOLOGY AND CLASSIFICATION. (3)
Study of concepts of soil horizons, soil profiles and soilscapes; morphological, physical, chemical and mineralogical parameters useful in their characterization. Soil forming factors and processes. Basic principles of soil classification. Characterization of selected Kentucky soils and their placement in the modern system; practical field problems in soil identification, characterization and classification. Lecture, two hours; laboratory, three hours per week. Prereq: AGR 366 and 367 or consent of instructor.

AGR 575 SOIL PHYSICS. (2)
Physical properties of soils and their relationship to chemical, mineralogical, and biological soil properties and to plant growth. Prereq: AGR 366 and 367 and consent of instructor.

AGR 576 LABORATORY IN SOIL PHYSICS. (1)
Laboratory experiences for the purpose of increasing an understanding of the principles of soil physical measurements and their relationships to chemical, mineralogical and the biological soil properties. Laboratory, two hours. Prereq: AGR 575 or concurrent.

AGR 581 CHEMICAL ANALYSIS OF SOILS AND PLANTS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative chemical analysis of soil and plant materials and relation of these analyses to physical, chemical and biological systems. Lecture, by auto-tutorial, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 366 or equivalent, or consent of instructor.

AGR 597 SPECIAL TOPICS IN AGRONOMY (Subtitle required). (1-3)
Special topical or experimental courses in crop science, soil science or related areas of agronomy for graduate and advanced undergraduate students. Special subtitle required and must be approved by the chairperson of the Department of Agronomy. A particular subtitle may be offered twice under AGR 597. Students may not repeat under the same subtitle. Prereq: Permission of instructor.

AGR 599 SPECIAL PROBLEMS IN AGRONOMY. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

AGR 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as BCH/BIO/MI/PPA 601.)

AGR 619 CYTOGENETICS. (4)
Classical, biochemical and molecular studies of the structure and function of eukaryotic chromosomes. Emphasis is placed on the effects of variation in chromosome type, structure and number on Mendelian genetics and in plant and animal breeding. Lecture, three hours; laboratory, two hours. Prereq: ASC/AGR 360 or BIO 404G. (Same as BIO 619.)

AGR 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constituents by centrifugation, chromotagraphy, spectroscopy and electrometry. Discussion of methods and design to culture, sample and prepare plant material for use in physiological experiments. Class, two hours per week; laboratory, three hours. Prereq: BIO 530, CHE 232 and 233, or consent of instructor. (Same as BIO 630.)

AGR 654 CROP PHYSIOLOGY. (3)
Discussion of physiological aspects associated with crop growth and production with emphasis on plant growth and maturation, dry matter production, and components of yield and yield quality. Prereq: AGR 386 and BIO 530.

AGR 658 ADVANCED WEED SCIENCE. (4)
Taxonomical, ecological, physiological, chemical and biochemical aspects of cultural and chemical weed control, and herbicide toxicity and selectivity. Prereq: AGR 404 or equivalent, one plant physiology course, one biochemistry course or consent of instructor.

AGR 660 ADVANCED SOIL BIOLOGY. (2)
A critical evaluation of the current research status in selected aspects of soil biology. Prereq: AGR 566 or consent of instructor.

AGR 664 PLANT BREEDING I. (3)
The application of advanced genetic principles to plant improvement. An in-depth study of existing plant breeding procedures and their applications and consideration of new techniques that can be applied to plant breeding and crop improvement. Prereq: STA 570 or consent of instructor; ASC 562 recommended.

AGR 666 ADVANCED PLANT BREEDING. (3)
Advanced study of gene action in commonly used plant breeding procedures, expansions and modifications of existing plant breeding procedures and new approaches to solution of plant breeding problems. Prereq: AGR 406G, STA 570 and ASC 662, or consent of instructor.

AGR 671 SOIL CHEMISTRY. (4)
A study of the chemical characteristics of the soil and of the more important chemical processes in the soil. Lecture and discussion, three hours; laboratory, two hours. Prereq: AGR 470G, 581; CHE 442G, or consent of instructor.

AGR 675 ADVANCED SOIL PHYSICS. (3)
Relation of physical properties of soil to transfer of water, air, plant nutrient ions, and heat in soil and factors affecting such movement. Prereq: AGR 575, MA 214 and consent of instructor.

AGR 676 QUANTITATIVE INHERITANCE IN PLANT POPULATIONS. (3)
After a brief review of population genetics theory, the course is divided into two sections which cover methods of estimating genetic variances and selection methods in population improvement. The course will focus on handling and interpretation of actual data sets through data analysis and discussion of current literature. Prereq: STA 570, STA 671, STA 672, and ASC 662. (Same as STA 676.)

AGR 678 STATISTICAL GENETICS. (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 672 and ASC 662 or consent of instructor. (Same as STA 678.)

AGR 681 MINERALOGICAL AND CHEMICAL ANALYSIS OF SOILS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative mineralogical and chemical analysis of soils and relation of these analyses to physical, chemical, and biological systems. Lecture, by auto-tutorial, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 581 or equivalent or consent of instructor. (Same as GLY 681.)

AGR 697 SPECIAL TOPICS IN AGRONOMY (Subtitle required). (1-3)
Special topical or experimental courses in crop science, soil science or related areas of agronomy for advanced graduate students. Special title required and must be approved by the chairperson of the Department of Agronomy. A particular title may be offered twice at most under AGR 697. Students may not repeat under the same title. May be repeated to a maximum of six hours. Prereq: Will be set by instructor.

AGR 712 ADVANCED SOIL FERTILITY. (3)
An integration of the effects of soil, climatic and physiological factors on the nutrition and dry matter accumulation of plants. Completion of special project required. Prereq: AGR 560 or consent of instructor.

AGR 721 PEDOGENESIS AND SOIL TAXONOMY. (4)
Soil forming factors and their interrelationships as related to development and distribution of soils. Processes of rock and mineral weathering with associated soil formation. Genesis and stability of soil clay minerals. Common methods used for pedological investigations. Basic principles and concepts of the present soil classification system and relationships between pedogenic processes and class criteria employed by soil taxonomy. Lecture, three hours; laboratory, two hours per week. Prereq: AGR 473G or consent of instructor.

AGR 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 735 or BCH 501 or consent of instructor. (Same as BIO/HOR 732.)

AGR 734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT. (3)
A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment. Prereq: BIO 530 or consent of instructor. (Same as BIO/HOR 734.)

AGR 741 CLAY MINERALOGY. (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, three hours. Prereq: GLY 260 and 662, AGR 581 and 681 or consent of instructor. (Same as GLY 741.)

AGR 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of qualifying exams.

AGR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

AGR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

AGR 770 AGRONOMY SEMINAR. (1)
Reports and discussion of problems and investigations of problems in soils, crops, and plant physiology. May be repeated three times for a maximum of four credits.

AGR 773 SEMINAR IN PLANT PHYSIOLOGY. (1)
Reports and discussions on various topics in plant physiology. May be repeated for a maximum of eight credits. (Same as BIO 773.)

AGR 799 RESEARCH IN AGRONOMY. (1-4)
May be repeated for a maximum of 12 credits. Prereq: Consent of instructor.

BOTANY

(May be used for agricultural credit, subject to the approval of adviser.)

BIO 530 PLANT PHYSIOLOGY. (3)
See course description under Biology.

BIO 619 CYTOGENETICS. (4)
See course description under Biology.

BIO 735 ADVANCED PLANT PHYSIOLOGY. (3)
See course description under Biology.

ALLIED HEALTH EDUCATION AND RESEARCH

AHE 101 INTRODUCTION TO THE HEALTH SCIENCES. (1)
Limited to students comtemplating a career in one of the health sciences.

AHE 220 PROFESSIONAL HEALTH EDUCATION. (2)
An analysis of the role of the educational process and skills in programs designed to change the state(s) of health. Prereq: Allied Health Education major or consent of the department.

AHE 320 PROFESSIONAL HEALTH EDUCATION METHODOLOGY. (3)
A systematic review of research and practice literature, observation of persons serving in professional health education positions, and development of skills as a professional health catalyst (educator). This course will be built upon the background knowledge and skills learned in previous education, and natural, and social science courses. Prereq: Allied Health Education major or consent of department.

AHE 321 SEMINAR IN PROFESSIONAL HEALTH EDUCATION. (3)
An educational approach to health planning and the relationships of multiple factors affecting the planning and implementation process. Prereq: AHE 320 or consent of the department.

AHE 440 WOMEN AND MENTAL HEALTH. (3)
An examination of historical and current factors affecting women's mental health across the life span. Emphasis is placed on identification of hidden biases; treatment and social control issues; and policy implications. Selected mental health problems are examined in-depth. (Same as NUR 440.)

AHE 481 PROFESSIONAL HEALTH EDUCATION PRACTICE. (4-8)
To provide the professional health education specialist an opportunity to observe and practice classroom-learned principles and skills in a community. Prereq: AHE 321.

AHE 502 PERFORMANCE EVALUATION IN THE CLINIC AND LABORATORY. (3)
Concepts and principles of performance evaluation in health care settings with emphasis on: defining performance and developing criteria; designing the performance evaluation system; implementing performance appraisal documentation; and, utilizing supervisory and feedback techniques. Prereq: A health professions background.

AHE 595 DIRECTED STUDIES. (1-3)
Independent work devoted to research on specific problems, to challenge the student to synthesize concepts from his total program and relate them to his allied health specialty. Conference, one to three hours per week. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

AHE 660 ADVANCED CLINICAL PRACTICUM IN ALLIED HEALTH. (1-6)
Offers advanced supervised clinical experience appropriate to the student's specialty. Forty clinical hours for one semester hour credit. May be repeated for a maximum of six credits. Prereq: Graduate standing; consent of instructor.

AHE 670 ADVANCED SEMINAR IN ALLIED HEALTH. (1-3)
Content of this course is determined by the clinical department(s) offering the seminar. It includes in-depth consideration of recent research and its application to health care delivery. May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

AHE 690 RESEARCH PROBLEMS IN ALLIED HEALTH. (3)
An independent research course for the study of special problems in allied health education. May be repeated to a maximum of 12 credits. Prereq: Graduate standing; consent of instructor.

AHE 831 EFFECTS OF DISEASE AND INJURY ON THE PATIENT AND FAMILY. (2)
Focuses on the psychosocial aspects of disease and injury encountered by physical therapists as they affect the adjustment of patients and families. The role of personality, the family, and the physical therapist in reaction and adjustment to specific medical conditions is emphasized and intervention techniques for facilitating patient adjustment are addressed. Prereq: Admission to the physical therapy curriculum or consent of instructor and two semesters of psychology.

AHE 842 CLINICAL PRACTICUM IN ALLIED HEALTH. (1-6)
Offers supervised clinical experience appropriate to the student's allied health specialty as determined by the clinical department. May be repeated to a maximum of 12 credits. Prereq: Admission to College of Allied Health Professions Program or permission of instructor.

AHE 854 BIOLOGY OF DISEASE. (1-5)
A study of the concept and process of disease. May be repeated for a total of five credits. Prereq: Consent of instructor.

AHE 859 INTRODUCTION TO RADIOLOGY FOR CLINICAL ASSOCIATES. (1)
Radiologic presentations will introduce the student physician assistant to the nature of X-rays and their uses in the diagnostic process. Prereq: Enrollment in the Clinical Associate Program.

AHE 880 SEMINAR IN ALLIED HEALTH (Variable Topic). (1-3)
Study and analysis of current and topical problems and issues regarding the roles, trends and research for allied health educators. May be repeated to a maximum of six credits. Prereq: Admission to the College of Allied Health Professions Program.

ALLIED HEALTH PROFESSIONS

AHP 840 ETHICS IN HEALTH PRACTICE. (2)
A study of selected ethical issues that arise in the practice of health professionals. The health professional's obligations to patients, colleagues, employing institutions, and the community will be considered, and relevant case studies will be analyzed. Prereq: Admission to a CAHP professional program or consent of instructor.

AHP 841 ALLIED HEALTH PRACTICUM: THE CONTEXT OF HEALTH CARE PRACTICE. (3)
An interdisciplinary course designed to increase students' ability to interact with health professionals in their practice. Emphasis is on problem-solving, roles/responsibilities of health professionals, communication (interpersonal, team, and interprofessional), and organizational dynamics. Lectures, workshops, and small group and practicum-activities, both on and off campus, will be included. Lecture, one hour; laboratory; two hours; and field practicum, four hours per week. Required for Allied Health Professions baccalaureate students. Prereq: Admission to a CAHP professional program or consent of instructor.

ANIMAL SCIENCES

ASC 300 LIVE ANIMAL AND CARCASS EVALUATION. (3)
Correlation of live animal and carcass characteristics of beef cattle, hogs and sheep; relation of live animal and carcass traits to the economic value of the carcass; laboratory exercises in grading and evaluating meat animals; lectures on environmental and genetic effects on live animal and carcass merit. Lecture, one hour; laboratory, four hours. Prereq: GEN 106.

ASC 301 LIVESTOCK SELECTION AND EVALUATION. (3)
Selection principles of purebred and commercial beef cattle, sheep, swine and horses. Evaluation of live animal and carcass characteristics of beef cattle, sheep and swine. Emphasis placed on oral reasons. Laboratory, six hours. Not open to freshmen. Prereq: GEN 106.

ASC 303 EVALUATION AND GRADING OF MEATS. (2)
A detailed consideration of the factors involved in the selection, grading and evaluation of carcasses and wholesale cuts of beef, pork and lamb. Specific emphasis will be given to cutability, quality and maturity as they relate to palatability and acceptance by the consumer. Laboratory, four hours. Prereq: ASC 304 or FSC 306.

ASC 304 MEATS AND MEATS PROCESSING. (4)
The relationship of production, slaughtering, processing and marketing of meat and meat products to the overall livestock and meat industry. Specific emphasis will be given to such topics as inspection, grading, cut-out, pricing, cooking, preserving, and composition as each relates to the wholesomeness, economy and palatability of meat. Anatomical study of the location and structure of muscles, organs and glands and physiological functions of organs and glands will be included in laboratory exercises. Lecture, two hours; laboratory, four hours. Prereq: GEN 106.

ASC 306 SELECTION, EVALUATION, AND USE OF ANIMAL FOOD PRODUCTS. (4)
History and growth of dairy, meat and poultry processing; physical and chemical composition and nutritive value of dairy meat and poultry products; identification, selection, evaluation and use of meat, dairy, and poultry products; grading, processing and freezing methods; wholesale and retail sales methods. Lecture, three hours; laboratory, two hours. (Same as FSC 306.)

ASC 309 ADVANCED EVALUATION AND GRADING OF MEAT. (2)
Further consideration of the factors involved in selecting, grading and evaluating carcasses and wholesale cuts of beef, pork, and lamb. Emphasis will be placed on writing reasons. Laboratory: four hours. Prereq: ASC 303 or consent of instructor.

ASC 310 FARRIER PRINCIPLES AND PRACTICES. (2)
Anatomy and physiology of the legs and hooves of horses with emphasis on proper shoeing and trimming techniques of various breeds of horses. Trimming of cattle hooves. Lecture, one hour; laboratory, two hours. Prereq: Senior classification and consent of instructor.

ASC 312 ADVANCED LIVESTOCK SELECTION AND EVALUATION. (2)
Selection of purebred and commercial beef cattle, sheep, swine and horses. Special emphasis on oral reasons, livestock contest procedures and herd improvement principles. Laboratory, six hours. Prereq: ASC 301 or consent of instructor.

ASC 321 DAIRY CATTLE EVALUATION. (2)
Evaluation of dairy cattle for type characteristics. Laboratory, four hours.

ASC 323 ADVANCED DAIRY CATTLE EVALUATION. (1)
Open only to those who have consent of instructor. Laboratory, two hours. Prereq: ASC 321.

ASC 360 GENETICS. (4)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, biochemical-molecular, physiological and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Lecture, three hours per week; laboratory, two hours per week. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as AGR 360.)

ASC 362 ANIMAL BREEDING. (3)
Study of roles of selection and mating systems for production of genetically superior livestock populations. Prereq: ASC 360.

ASC 364 REPRODUCTIVE PHYSIOLOGY OF FARM ANIMALS. (3)
Introduction to the anatomical and physiological processes of farm animal reproduction. Evaluation of management procedures as they relate to reproductive physiology. Prereq: GEN 106, BIO 104, CHE 230 or CHE 236.

ASC 378 ANIMAL NUTRITION. (3)
The fundamental study of the nutrients, their utilization and their role in the animal. Prereq: CHE 230 or 236.

ASC 380 FEEDS AND FEEDING. (3)
The composition and nutritional characteristics of common feedstuffs. The digestive systems, nutritional requirements, formulated rations and economical feeding programs for farm animals. Lecture, two hours; laboratory, two hours. Prereq: ASC 378.

ASC 382 PRINCIPLES OF LIVESTOCK NUTRITION. (3)
A study of the basic principles of livestock nutrition and the application of these principles in the use of various feeds and products in the feeding of beef cattle, dairy cattle, horses, sheep and swine—including the study of tables of nutrient requirements and feed composition and detailed study on the systematic balances of daily rations and formulation of feed mixtures. Lecture, two hours; laboratory, two hours per week. For nonmajors only.

ASC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE. (2)
Course designed for students interested in pursuing independently some specific problem. May be repeated for maximum of four credits. Prereq: Consent of instructor. (Same as FSC 395.)

ASC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE. (1-6)
A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as FSC 399.)

ASC 400G SPECIAL TOPICS IN ANIMAL SCIENCE/FOOD SCIENCE. (1-3)
Discussion of current practices and recent research information in animal sciences and food science to further the knowledge of professional agricultural workers such as vocational agricultural instructors, extension personnel and others who need additional information in specific areas of nutrition, breeding, reproductive physiology and food science and technology. Enrollment not open to animal science majors. May be repeated to a maximum of nine credits.

ASC 404G SHEEP SCIENCE. (4)
History and importance of the sheep industry; application of the principles of selection, breeding, feeding and management of sheep for efficient lamb and wool production. Lecture, two hours per week; laboratory, four hours per week. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380 or consent of instructor.

ASC 406G BEEF CATTLE SCIENCE. (3)
Scope and importance of the beef cattle industry; selection, breeding, feeding and management of beef cattle. Lecture, two hours; laboratory, two hours. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380.

ASC 408G SWINE SCIENCE. (3)
A study of scope and importance of the swine industry. The application of the principles of selection, reproductive physiology, breeding, nutrition, housing, environment and management to the modern production of swine. Lecture, two hours; laboratory, two hours. Prereq: ASC 300, ASC 362, ASC 364, and ASC 380.

ASC 410G HORSE SCIENCES. (3)
Detailed study of the anatomy and physiology of the horse as they relate to the nutrition, reproduction, athletic ability, unsoundness and control of diseases and parasites. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364, ASC 380.

ASC 412G HORSE HUSBANDRY PRACTICES. (3)
Housing, facilities, animal management, equine control and transportation, agronomic practices, economics and marketing, records and legal implications applied to commercial horse production, advanced training techniques for young horses. Exhibition and evaluation of horses. Lecture, one hour; laboratory, four hours. Prereq: ASC 410G.

ASC 420G DAIRY CATTLE SCIENCE. (3)
Scope and importance of the dairy cattle industry; selection, breeding, housing, feeding and management of dairy cattle. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364, and ASC 380.

ASC 442G POULTRY SCIENCE. (3)
A general study of avian anatomy, physiology, embryology, genetics and nutrition in relation to modern technology and management. Special emphasis on feed formulation, disease prevention, environmental control and product technology. Lecture, two hours; laboratory, two hours. Prereq: ASC 362, ASC 364 and ASC 380.

ASC 462G ARTIFICIAL INSEMINATION AND FERTILITY OF FARM ANIMALS. (2)
A course designed to acquaint students with current methods of applying artificial insemination to the improvement of farm animals with special reference to cattle Emphasis will be on management of herds for maximum fertility. Lecture, one hour; laboratory, two hours per week. Prereq: ASC 364 and permission of instructor.

ASC 470 SEMINAR IN ANIMAL SCIENCE/FOOD SCIENCE. (1)
Presentation and discusssion of current topics by students, staff, and guests. Students may elect their specialization interest group to participate. May be repeated once for a maximum of two credits. (Same as FSC 470.)

ASC 550 HORMONAL REGULATION OF FARM ANIMALS. (3)
A discussion of endocrine control of growth and production of animal products with particular emphasis on understanding various endocrine modifications which have been, or potentially can be, used to alter production efficiency of domestic livestock and poultry. Prereq: BCH 401G or equivalent and one of the following: ASC 404G, ASC 406G, ASC 408G, ASC 410G or ASC 420G; and consent of instructor.

ASC 562 ADVANCED GENETICS. (3)
Discussion of current concepts in genetics with special emphasis upon the processes of replication, recombination, and regulation of the genetic material and upon introducing students to current literature in genetics. Prereq: ASC/AGR 360 or equivalent. (Same as AGR 562.)

ASC 564 MILK SECRETION. (3)
Anatomy of the mammary gland, physiology and biochemistry of milk secretion and management factors affecting yield and composition of milk. Prereq: ASC 380, VS 350.

ASC 580 PRINCIPLES OF ANIMAL NUTRITION. (3)
The chemistry and physiology of animal nutrition and the nutritive requirements for growth, fattening, reproduction, lactation, and other body functions, Prereq: ASC 378 and ASC 380 or graduate standing.

ASC 630 ADVANCED MEAT SCIENCE. (4)
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: ASC 304, ASC/FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as FSC 630.)

ASC 660 PHYSIOLOGY OF REPRODUCTION. (3)
Physiological processes of reproduction in farm animals: gonadal functions, endocrine relationships, fertility, and factors affecting reproductive efficiency. Prereq: ASC 364, ASC 550.

ASC 662 POPULATION GENETICS. (3)
Discussion of theoretical and experimental aspects of population genetics and the evolutionary process with a brief introduction into quantitative genetics. Prereq: ASC/AGR 360, STA 570 and MA 113 or equivalent.

ASC 664 ADVANCED ANIMAL BREEDING. (3)
Advanced study of selection and mating system theory applicable to production of genetically superior livestock populations. Prereq: ASC 362 and STA 570; STA 671 and STA 672 desirable.

ASC 680 LABORATORY METHODS IN ANIMAL NUTRITION AND MEATS. (4)
The use of laboratory techniques and instrumentation in the solution of fundamental problems of nutrition and meats. Lecture, one hour; laboratory, six hours. Prereq or concur: ASC 580 or consent of instructor.

ASC 681 ENERGY METABOLISM. (2)
An in-depth discussion of nutritional energetics, from the standpoint of factors which influence the utilization of dietary energy. A critical review of current literature. Prereq: ASC 378 or equivalent, BCH 502 or equivalent or consent of instructor.

ASC 682 MICROBIAL ECOLOGY OF DIGESTION. (4)
Principles of microbiology as they relate to nutrition and digestion in ruminant and nonruminant animals. Procedures for cultivation, isolation and characterization of anaerobic bacteria from the gastrointestinal tract. Methods for measuring and evaluating microbial growth and activity in the gastrointestinal tract. Lecture, two hours; laboratory, four hours. Prereq: BIO 476G or equivalent and consent of instructor.

ASC 683 PROTEIN METABOLISM. (2)
A study of the principles and present concepts of protein and amino acid nutrition and metabolism in the animal. Prereq: Graduate level biochemistry.

ASC 684 ADVANCED RUMINANT NUTRITION. (3)
Principles of ruminant metabolism in the utilization of feedstuffs for meat, milk, and wool production. Prereq: ASC 682 and two or more courses from ASC 681, ASC 683, ASC 685 and ASC 687 or consent of instructor.

ASC 685 MINERAL METABOLISM. (2)
An in-depth review of the function, requirement deficiency and toxicity of mineral elements in nutrition. Emphasis on the interactions between elements and current literature will be made. Prereq: ASC 378 or NFS 510 or equivalent, BCH 502 or equivalent or consent of instructor. (Same as NFS 685.)

ASC 686 ADVANCED NONRUMINANT NUTRITION. (3)
A study of nutrient utilization as influenced by digestion, absorption and metabolism with emphasis on swine and poultry. Prereq: One course each in nutrition and biochemistry.

ASC 687 VITAMIN METABOLISM. (2)
Detailed study of the metabolism of vitamins and the role of vitamins in the metabolism of carbohydrates, proteins, lipids, and minerals. Prereq: BCH 502 or CHE 552 or consent of instructor.

ASC 688 EQUINE NUTRITION. (2)
Detailed study of anatomical, physiological and microbiological factors influencing the nutritive requirements of the equine for maintenance, growth, reproduction, lactation and work. Prereq: One course in nutrition and physiology or biochemistry or consent of instructor.

ASC 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ASC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ASC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ASC 771 ANIMAL SCIENCE SEMINAR. (1)
May be repeated twice for a maximum of three credits.

ASC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 780.)

ASC 781 SPECIAL PROBLEMS IN GENETICS AND ANIMAL BREEDING. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 782 SPECIAL PROBLEMS IN ANIMAL NUTRITION. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 783 SPECIAL PROBLEMS IN REPRODUCTIVE PHYSIOLOGY (Subtitle required). (1-4)
Intensive study or investigation of topics in physiology not covered in formalized courses. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 790 RESEARCH IN ANIMAL DERIVED FOODS. (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as FSC 790.)

ASC 791 RESEARCH IN GENETICS AND ANIMAL BREEDING. (1-6)
Problems involving original investigation. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 792 RESEARCH IN ANIMAL NUTRITION. (1-6)
Problems involving original investigaton. May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser.

ASC 793 RESEARCH IN REPRODUCTIVE PHYSIOLOGY (Subtitle required). (1-6)
Original investigation of mechanisms and problems related to mammalian reproduction. May be repeated under different subtitle to a maximum of nine credits. Prereq: Consent of graduate adviser.

FOOD SCIENCE COURSES

FSC 306 SELECTION, EVALUATION AND USE OF ANIMAL FOOD PRODUCTS. (4)
History and growth of dairy, meat and poultry processing; physical and chemical composition and nutritive value of dairy meat and poultry products; identification, selection, evaluation and use of meat, dairy and poultry products; grading, processing and freezing methods; wholesale and retail sales methods. Lecture, three hours; laboratory, two hours. (Same as ASC 306.)

FSC 335 CHEMICAL ANALYSIS OF FOOD. (4)
Purpose, principles, techniques and interpretation of results of chemical testing procedures essential to the control of food processing operations. Lecture, one hour; laboratory, six hours. Prereq: CHE 107, CHE 115.

FSC 395 SPECIAL PROBLEM IN ANIMAL SCIENCE/FOOD SCIENCE. (2)
Course designed for students interested in pursuing independently some specific problem. May be repeated for maximum of four credits. Prereq: Consent of instructor. (Same as ASC 395.)

FSC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES/FOOD SCIENCE. (1-6)
A field-based learning experience in animal sciences and food science under the supervision of a faculty member. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Consent of instructor and department chairperson and completion of a departmental learning contract before registration. (Same as ASC 399.)

FSC 430G SENSORY EVALUATION OF FOODS. (3)
An intensive study of methods of sensory evaluation of foods by taste, smell, feel and sight. Physiological and psychological problems involved. Research and commercial implications. Statistical handling of data. Lecture, one hour; laboratory, four hours. Prereq: STA 370 or consent of instructor.

FSC 470 SEMINAR IN ANIMAL SCIENCE/FOOD SCIENCE. (1)
Presentation and discussion of current topics by students, staff and guests. Students may elect their specialization interest group to participate. May be repeated once for a maximum of two credits. (Same as ASC 470.)

FSC 530 FOOD MICROBIOLOGY. (5)
Methods and techniques for the enumeration, identification and classification of microorganisms important in the food industry. Mode of contamination, effect of growth and methods of limiting and controlling growth of microorganisms in foods. Lecture, three hours; laboratory, four hours. Prereq: BIO 108 and BIO 109 or equivalent.

FSC 532 FOOD MICROBIOLOGY. (5)
Continuation of FSC 530. Microbial principles as applied to production, processing, handling and distribution of food products. Utilization of microorganisms in the manufacture of food products. Microorganisms and toxins involved in food-borne illnesses. Students will isolate and identify microorganisms from foods. Lecture, three hours; laboratory, four hours. Prereq: FSC 530 or equivalent.

FSC 534 FOOD CHEMISTRY. (4)
Chemical and physical characteristics for foods, food products and ingredients used in food processing; physical and chemical principles involved in food preparation and processing; special methods of analysis. Lecture, two hours; laboratory, four hours. Prereq: CHE 230 or equivalent.

FSC 536 FOOD PROCESSING. (4)
Commercial processing of foods including theory and use of heat exchangers, radiant heaters; freeze, air and vacuum dryers; extruders and mixers; membranes, and enzymes. Processed foods having physico-chemical changes in osmotic pressure, vapor pressure, pH, electrolytic dissociation, OX-Red potential, surface tension, viscosity, emulsification, and colloidal dispersion will be discussed. Lecture, three hours; laboratory, two hours. Prereq: CHE 232, PHY 201, AEN 340 or consent of instructor.

FSC 538 FOOD FERMENTATION AND THERMAL PROCESSING. (4)
Thermal processing of foods. The use of microorganisms in the preservation of raw foods and the manufacture of new foods. Manipulation and improvement of cultures to ensure production of desirable end products. Lecture, three hours; laboratory, two hours. Prereq: BIO 108, BIO 109, BIO 476G, FSC 530 or consent of instructor.

FSC 630 ADVANCED MEAT SCIENCE. (4)
Advanced meat science with special reference to the histological, chemical, physical and microbiological properties as they relate to meat quality, organoleptic acceptability and processing procedures. Lecture, three hours; laboratory, two hours. Prereq: ASC 304, ASC/FSC 306 or equivalent; one course in histology or biochemistry or consent of instructor. (Same as ASC 630.)

FSC 636 FOOD PACKAGING. (2)
Detailed description of food packaging materials, composition and resistance to chemical and physical damage and their use in food systems as well as criteria for selection of packaging systems for specific food processing techniques will be presented. Methods of production, e.g.: blow mold, casting and estrusion; layering; lamination and co-extrusion; processing; and printing and sealing will be discussed. Prereq: FSC 536, FSC 538 or equivalent or consent of instructor.

FSC 780 SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 780.)

FSC 790 RESEARCH IN ANIMAL DERIVED FOODS. (1-6)
Problems involving original investigation. May be repeated for maximum of nine credits. Prereq: Consent of graduate adviser. (Same as ASC 790.)

ANTHROPOLOGY

ANT 120 INTRODUCTION TO PHYSICAL ANTHROPOLOGY. (3)
Introduction to physical anthropology. Includes topics on human evolution, human "racial" (population) variation, primate behavior, and human genetics. The role of culture in affecting human evolution and human biology is considered.

ANT 121 INTRODUCTION TO CULTURAL ANTHROPOLOGY. (3)
The study of variations in beliefs, behaviors and institutions of different peoples. Acquaints the student with a knowledge of how anthropological concepts and knowledge are used to understand and appreciate cultural diversity.

ANT 130 INTRODUCTION TO COMPARATIVE RELIGION. (3)
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social organization. Eastern and Western religions are considered. (Same as RS 130.)

ANT 141 INTRODUCTION TO ARCHAEOLOGY. (3)
Introduces the theories, techniques, and strategies used by archaeologists to recover and interpret information about past cultures.

ANT 160 TRIBAL PEOPLES IN THE MODERN WORLD. (3)
An introduction to the society, culture, and beliefs of preliterate and tribal peoples, emphasizing both traditional culture patterns and adaptations to the modern world. The course will feature extended description of a single tribal people among whom the instructor has lived and worked.

ANT 161 THE WORLD OF PEASANTS. (3)
An introduction to the society, culture, and beliefs of peasant farmers and pastoralists, emphasizing both traditional cultural patterns and adaptations to the modern world. The course will feature extended description of a single peasant people among whom the instructor has lived and worked.

ANT 201 ANTHROPOLOGY IN THE MODERN WORLD. (3)
The application of anthropology to the problems of contemporary society in industrialized and less developed parts of the world. Cultural factors affecting change.

ANT 215 INTRODUCTION TO ANTHROPOLOGICAL LINGUISTICS. (3)
Introduction to the nature of language structure and function. Special emphasis on the relationship of language to other cultural systems. Credit will not be given to students who already have credit for either ENG/LIN 301, ENG 414G.

ANT 232 MODERN HUMAN VARIATION (RACE). (3)
A survey of the principal aspects of human variation within and between populations. Attention is focused upon the concepts of race, racial mixture, human ecology, and human biology.

ANT 235 FOOD AND CULTURE. (3)
Examines the way values and behaviors related to food production and consumption are shaped by the physical and cultural environment. Data are drawn fron non-Western and Western cultures. Implications of cultural factors for contemporary issues in nutrition are discussed.

ANT 241 ORIGINS OF OLD WORLD CIVILIZATION. (3)
A survey of cultural developments in the Old World from the earliest times to the beginning stages of civilization.

ANT 242 ORIGINS OF NEW WORLD CIVILIZATION. (3)
Survey of the origin and growth of prehistoric American Indian cultures as revealed by archaeological data. Prereq: ANT 120, 121.

ANT 251 CULTURE AND THE INDIVIDUAL. (3)
How culture shapes the development of individual personality, cognition, values, and world view as exemplified by studies of child rearing, cognitive and social development, and adult socialization and development in different cultures.

ANT 302 CULTURAL VARIATION AND HEALTH CARE SYSTEMS. (3)
Introduces the study of diversity in health care, beliefs, and practices among people in various cultural backgrounds. Examines Western and non-Western medical institutions as cultural systems with their own distinctive values. Prereq: ANT 121 or SOC 101.

ANT 312 COMPARATIVE CIVILIZATIONS. (3)
Comparison of a number of the high civilizations of the ancient, medieval, and modern worlds, including both Old World and New World civilizations. The course will stress both similarities and differences in their historical development and cultural achievements.

ANT 320 ANDEAN CIVILIZATION. (3)
A study of the Inca and other pre-Hispanic civilizations of highland South America in terms of their origins, their development, and their material, social, and intellectual achievements.

ANT 321 NORTH AMERICAN INDIANS. (3)
A survey of the aboriginal Indian cultures of North America, and of the impact of four centuries of British, French, Spanish, and Russian contact on the Indian communities. The course will include consideration of the status of Indians in present-day North America.

ANT 322 AZTEC AND MAYA CIVILIZATION. (3)
The course provides a study of the Aztec, Maya and related cultures of the New World. It provides a detailed discussion of pre-Columbian subsistence practices, economy, religion and politics by tracing the development of Mesoamerican civilization from its earliest beginnings to the Spanish conquest.

ANT 323 PEOPLES OF THE PACIFIC ISLANDS. (3)
A consideration of the various cultures of the Pacific Islands. Attention will be given to both traditional cultural features and the responses of contemporary Pacific societies to economic, political, and social influences from industrialized countries. Prereq: ANT 121.

ANT 325 PEOPLES OF INNER ASIA. (3)
A study of the pastoral nomadic societies and the oasis communities of central Russia, China, and Tibet, emphasizing their traditional culture patterns, their role in history, and their adaptation to the modern conditions of Russian and Chinese rule.

ANT 326 PEOPLES OF EAST ASIA. (3)
A survey of the societies and cultures of China, Japan, and Korea as revealed through anthropological studies of peasant communities, urban elites, and tribal minorities.

ANT 327 CIVILIZATION AND CULTURE OF INDIA. (3)
Considers the content and interrelationships between India's religious and philosophical tradition and the structure and organization of rural village life in historic, demographic and geographic context.

ANT 332 HUMAN EVOLUTION. (3)
Basic concepts and theory of evolution will be reviewed and applied to the study of fossil man. The evidence for the evolution of man and his primate relatives will be studied, with attention paid to alternate interpretations of the data. Prereq: ANT 120 or BIO 150.

ANT 338 PEOPLES OF THE NEAR EAST. (3)
A survey of past and present cultural adaptations in the Near East and North Africa, stressing the interplay of different ethnic and religious groups and the relationships between nomads, peasant farmers, and town dwellers.

ANT 350 TOPICS IN ANTHROPOLOGY (Subtitle required). (3)
Discussion, reading and writing focusing on specific topics in anthropology. May be repeated to a maximum of nine credits under different subtitle. Prereq: ANT 120 or ANT 121.

ANT 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as FAM/SOC/SW 354.)

ANT 355 HUMAN SEXUALITY IN CROSS-CULTURAL PERSPECTIVE. (3)
The study of human sexuality in evolutionary and cross-cultural perspective; considers gender identity, sexual response, cultural rules and norms concerning sexual behavior and the social organization of sexual behavior. Prereq: ANT 120 or ANT 121 or FAM 101 or PSY 100 or SOC 101. (Same as FAM 355.)

ANT 383 SPECIAL PROBLEMS. (2)
Designed for upper division students who undertake minor research problems in archaeology, ethnology and physical anthropology in regular consultation with the instructor. May be repeated to a maximum of eight credits.

ANT 399 FIELD BASED/COMMUNITY BASED EDUCATION IN ANTHROPOLOGY. (1-15)
A community-based or field-based experience in Anthropology under the supervision of a faculty member. May be repeated to a maximum of 15 credits. Pass-fail only. Prereq: Permission of instructor and departmental chairperson; completion of departmental learning agreement.

ANT 401 SEX ROLES IN CROSS-CULTURAL PERSPECTIVE. (3)
Explores the theoretical and substantive basis for contemporary thinking about sex roles from an anthropological perspective. The innate differences, belief systems, and socioeconomic perspectives are examined. Sex role content is explored in several societies representing all levels of sociocultural complexity. Prereq: ANT 121 or consent of instructor.

ANT 410G THEORETICAL PERSPECTIVES IN ANTHROPOLOGY. (3)
A survey of the most prevalent theoretical orientations among contemporary anthropologists in the United States and abroad. Cultural materialist, Marxist, structuralist, symbolist, and other approaches will be considered. Prereq: ANT 121 or consent of instructor.

ANT 420G CONTEMPORARY LATIN AMERICAN CULTURES. (3)
Detailed survey of societies and cultures of contemporary Latin America, utilizing contributions from anthropological research. Prereq: Introductory social science course.

ANT 428G CONTEMPORARY CULTURES AND SOCIETIES IN SOUTHEAST ASIA. (3)
A descriptive and analytical consideration of representative cultures from insular and mainland Southeast Asia in terms of their social, political, economic and religious organization. The history of the cultural contacts of Southeast Asia with India, China, Europe and the Islamic tradition will be discussed. Prereq: ANT 120, 121 or consent of instructor.

ANT 431G CULTURES AND SOCIETIES OF SUB-SAHARAN AFRICA. (3)
A survey of indigenous societies and cultures of Africa south of the Sahara, with special attention to their adaptation of colonialism and post-colonial national development. Prereq: ANT 121, or consent of instructor.

ANT 450G SYMBOLS AND CULTURE. (3)
Examines the way in which symbolic systems create the meanings through which we experience life. The course will explore symbols and symboling behavior from a humanistic perspective, and will present examples of non-Western symbolic systems. Prereq: ANT 121 or consent of instructor.

ANT 470G REGIONAL AMERICAN ETHNOGRAPHY. (3)
The ethnography of a selected North American or South American culture area or group. Both historical and contemporary cultures will be considered, e.g., Appalachia, Northwest Coast Indians, Urban American, etc. May be repeated to a maximum of six credits. Prereq: ANT 121 or consent of instructor.

ANT 510 HISTORY OF ANTHROPOLOGICAL THEORY. (3)
Traces the development of anthropological ideas and practices from their origins in the prescientific era through the Renaissance and Enlightenment, and their synthesis into a comparative natural science of man in the 19th and 20th centuries. Particular schools and trends in 20th century anthropology are discussed in detail. Prereq: ANT 121 and consent of instructor.

ANT 515 PHONOLOGICAL ANALYSIS. (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. Prereq: ENG/LIN 301 or equivalent. (Same as ENG/LIN 515.)

ANT 516 GRAMMATICAL ANALYSIS. (3)
Emphasis on the systematic interrelationships of morphemes within words and sentences. Practical training in the writing of grammars and exposure to various theories of grammatical description. Prereq: ENG/LIN 301 or equivalent. (Same as ENG/LIN 516.)

ANT 518 LANGUAGE IN CULTURE. (3)
Survey of problems of language in culture, including man's facility for communication, diversity and use of linguistic codes, semantic systems, paralinguistic phenomena, and applications of historical linguistics to cultural problems. Prereq: A course in linguistics or consent of instructor.

ANT 519 HISTORICAL LINGUISTICS. (3)
Language change; reconstruction of linguistic systems, language classification; comparative linguistics; temporal, spatial, and social context of language change. Prereq: ANT 215, ENG/LIN 211, or ENG 414G; or equivalent. (Same as LIN 519.)

ANT 524 MYTHOLOGY. (3)
The unwritten literature of primitive peoples. Themes, diffusion, style, literary devices, and function of myths.

ANT 525 APPLIED ANTHROPOLOGY. (3)
Principles of policy research and intervention in cultural anthropology with attention to the theoretical and ethnical basis of such research and intervention. Intervention techniques considered include research and development anthropology, action anthropology, community development, community advocacy anthropology and culture brokerage. Prereq: ANT 121.

ANT 526 PSYCHOLOGICAL ANTHROPOLOGY. (3)
Explores the interrelations of culture, social structure, and individual psychology. The historical development of theory treating the relationships between culture and personality, as well as recent theory are emphasized. Specific topics vary but usually include comparative child rearing, altered states of consciousness, cognition, mental health in cross-cultural perspective, and non-Western therapies. Prereq: ANT 121, PSY 100, or consent of instructor.

ANT 528 DIMENSIONS OF AGING. (3)
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. Prereq: Upper division or graduate level standing. (Same as SOC/PSY 528.)

ANT 529 SURVEY OF MEDICAL ANTHROPOLOGY. (3)
A cross-cultural survey of health, disease, and healing in folk, primitive, and modern pluralistic societies. Biocultural and ethnomedical approaches in medical anthropology. Prereq: ANT 120, 121 or permission of instructor. (Same as BSC 529.)

ANT 532 LEGAL AND POLITICAL ANTHROPOLOGY. (3)
A cross-cultural study of the legal and political systems of selected tribal and peasant societies from world ethnography. Emphasis will be on the nature and function of law and politics in small-scale societies and on the impact of national-level legal and political systems.

ANT 533 SOCIAL ANTHROPOLOGY. (3)
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: Six hours of social science or consent of instructor. (Same as SOC 533.)

ANT 534 THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION. (3)
A sociological interpretation of the Southern Appalachians, emphasizing the great diversity—social, cultural, economic—in the various parts of this area by study of the major institutions, value orientations, and social and cultural changes affecting both the whole area and its sections. Prereq: Six hours of social science or consent of instructor. (Same as SOC 534.)

ANT 538 ECONOMIC ANTHROPOLOGY. (3)
History of the development of various theoretical approaches to the cross-cultural study of economic systems and inquiry into the relationships existing between economy and the other systems within a society. Prereq: ANT 121 or consent of instructor.

ANT 539 AGING IN CROSS-CULTURAL PERSPECTIVE. (3)
A systematic examination of the ways in which aging and the aged are dealt with in cultures around the world. Theories in Social Gerontology will be tested and the social policy and service delivery implications of the cross-cultural data will be explored. Prereq: ANT 121, SOC 101, or PSY 100.

ANT 540 THE HISTORY OF ARCHAEOLOGY. (3)
Discussion of the development of archaeological theory in the New and Old World from the European Renaissance to the present. Prereq: ANT 141 or consent of instructor.

ANT 541 ARCHAEOLOGICAL METHOD AND THEORY. (3)
Examines the concepts, aims and methodology of archaeology as a scientific discipline within the social sciences. Attention given to the basic principles and recent advances of archaelogical fieldwork and post-field analysis. Prereq: ANT 241.

ANT 542 NORTH AMERICAN ARCHAEOLOGY. (3)
Origin and growth of prehistoric American Indian cultures north of Mexico as revealed by archaeological data.

ANT 550 FIELD STUDIES IN ANTHROPOLOGY. (1-6)
Field research as a part of a long-range anthropological research program. Provides student with an initial experience conducting research under faculty supervision. May be repeated for a maximum of 12 credits. (Three hours to full-time laboratory.) Prereq: At least one semester of the appropriate language of the area of research and consent of instructor, in addition to ANT 120, 121.

ANT 555 EASTERN NORTH AMERICAN ARCHAEOLOGY. (3)
Detailed analysis of prehistoric cultures of eastern United States with emphasis on interpretation of prehistory in Ohio River Valley. Prereq: ANT 120, 121, and 442G or consent of instructor.

ANT 560 ETHNOGRAPHIC PRINCIPLES AND PRACTICE. (3)
Exposition of the principles of ethnographic data collection, and practice in the acquisition and use of censuses, genealogies, personal histories, maps, specialized recordings, specimen collections, and other materials. Prereq: ANT 510.

ANT 580 TOPICS IN ANTHROPOLOGY. (3)
Selected topics of theoretical or methodological importance in anthropology, with special attention to topics of contemporary relevance. Refer to Schedule of Classes for topics. May be repeated to a maximum of six credits.

ANT 581 INDEPENDENT WORK IN ANTHROPOLOGY. (1-4)
May be repeated three times to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

ANT 582 SENIOR INTEGRATIVE SEMINAR. (3)
Seminar focusing on current issues in anthropology. Purpose is to provide a format in which advanced undergraduates can integrate knowledge acquired in previous anthropological course work and evaluate the contribution of the different anthropological subdisciplines to understanding contemporary problems. Emphasis placed on oral and written communication. Prereq: Major in anthropology; senior standing.

ANT 585 FIELD LABORATORY IN ARCHAEOLOGICAL RESEARCH. (3-6)
Practical supervised training in-field in archaeological research methods and techniques, problem analysis, field laboratory procedures, recording methods. Laboratory, 20 to 40 hours per week. May be repeated to a maximum of 12 credits. Prereq: ANT 541 and consent of instructor.

ANT 605 RESEARCH DESIGN. (3)
Seminar discussion and guided individual student research covering the relationship between theory, methods, and reality; how to better design anthropological inquiry. Prereq: One year of graduate work in a behavioral science field and consent of instructor.

ANT 611 SEMINAR IN ETHNOLOGY. (3)
A summary of the major topics within the subfield of ethnology. Emphasis is placed on the control of ethnographic data in a recognized culture area with respect to these topics. Prereq: Permission of instructor.

ANT 612 SEMINAR IN CULTURE HISTORY. (3)
An in-depth discussion of the theory and method of the various approaches to the study of culture history. Prereq: Permission of instructor and three hours of culture history.

ANT 613 SEMINAR IN PHYSICAL ANTHROPOLOGY. (3)
Seminar discussion and individual research covering the range of theory and method in physical anthropology. Historical development in relation to the broader sphere of anthropology will be emphasized. Prereq: ANT 120, 232, or equivalent.

ANT 614 SEMINAR IN ANTHROPOLOGICAL LINGUISTICS. (3)
An examination of the range of anthropological linguistics; its theories, methodologies and goals. Emphasis on the relationships of language to culture and cognition. Prereq: Permission of instructor.

ANT 620 TOPICS AND METHODS OF EVALUATION. (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as EDP/EPE 620/SOC 622.)

ANT 621 ADVANCED TOPICS AND METHODS OF EVALUATION. (3)
An advanced course in evaluation methods and techniques with an emphasis on quantitative methodology. State of the art ideas and methods of conducting evaluation studies and analyzing data from those studies are presented. The course is designed primarily for those who are conducting or will conduct evaluation studies. Prereq: A basic course in statistics or its equivalent; EDP/EPE 620/SOC 622; and consent of instructor. (Same as EDP/EPE 621.)

ANT 637 SOCIOCULTURAL DIMENSIONS OF ECONOMIC DEVELOPMENT. (3)
Examination of social, cultural and economic conditions in lesser developed countries. Discussion of the various socioeconomic and cultural theories of change and developments, and of alternative policies for the world of the future. Considers the possible roles for social scientists in policy formulation and application. Prereq: Six graduate credits in social sciences or consent of instructor. (Same as SOC 637.)

ANT 640 SCIENCE, AGRICULTURE, AND DEVELOPMENT. (3)
An in-depth examination of the interrelations between science, agriculture, and development. Both domestic and international issues are explored. Prereq: Graduate standing in the social or agricultural sciences. (Same as SOC 640.)

ANT 641 GENDER ISSUES IN DEVELOPMENT. (3)
An examination of gender issues in domestic and international development. Prereq: Graduate standing in the social or agricultural sciences or permission of the instructor. (Same as SOC 641).

ANT 664 CULTURAL ISSUES IN MENTAL ILLNESS. (3)
An in-depth discussion of theory and method of the various approaches to cultural and social factors in the etiology, distribution, and treatment of mental illness. Data from non-Western and Western cultures are examined. Prereq: Enrollment in graduate program in anthropology, sociology, psychology, educational and counseling psychology, or consent of instructor.

ANT 670 SEMINAR ON ROLE THEORY. (3)
An exploration of sociocultural and psychological concepts as used in the study of roles. Special attention is paid to professional and client roles in health care and other organizational contexts. Prereq: Consent of instructor. (Same as SOC/BSC 670.)

ANT 684 FARMING SYSTEMS RESEARCH METHODS. (3)
A critical analysis of the concepts, methods, and practices of farming systems research. Design and carry out an FSR project. Prereq: Graduate standing in the social or agricultural sciences. (Sames as SOC 684.)

ANT 690 ADVANCED PRE-FIELD STUDY SEMINAR. (3)
Orients graduate students on a specific cultural area where they will conduct research under faculty supervision; provides training in anthropological research design. Prereq: Requisite language skills and consent of instructor.

ANT 710 SEMINAR IN PHYSICAL ANTHROPOLOGY. (3)
A seminar covering one or more selected topics of interest in physical anthropology. May be repeated to a maximum of six credits. Prereq: Six credit hours in physical anthropology or consent of instructor.

ANT 720 SEMINAR IN CULTURAL ANTHROPOLOGY. (3)
Intensive examination of selected topics of theoretical and/or methodological interest in cultural anthropology. Possible topics include religion, kinship and marriage, political systems, law, economic systems, modernization, urbanization, cross-cultural methodology, and others. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

ANT 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ANT 750 GRADUATE FIELD STUDY IN ANTHROPOLOGY. (1-6)
Field research as part of a long-range anthropological research program for graduate interns training under direct faculty supervision. Provides student with experience conducting scientific research as research team member. Report required. Laboratory, three hours to full time. Prereq: Appropriate language fluency; preparatory area study plus consent of instructor.

ANT 764 TOPICAL SEMINAR IN PSYCHOLOGICAL ANTHROPOLOGY. (3)
Advanced study of topics of current interest in psychological anthropology: e.g., language and cognition, psychological concomitants of rapid culture change; and transcultural psychiatry. Prereq: ANT 526 or PSY 544, or consent of instructor. (Same as BSC 764.)

ANT 765 RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY. (3)
(1) Advanced history and theory of medical anthropology; (2) research design, field work, analysis of data in medical anthropology. Prereq: Consent of instructor. (Same as BSC 765.)

ANT 767 PRACTICUM IN APPLIED ANTHROPOLOGY. (1-6)
Practical field experience in which the student applies the theory and method of social anthropology to the solution of a problem defined by the student in consultation with a community or a public or private service agency. Required of all doctoral students in Applied Anthropology. Prereq: Consent of instructor.

ANT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ANT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ANT 770 SEMINAR. (3)
Intensive work in particular fields of anthropology. All students during a given semester will be assigned related phases of the same problem. Designed primarily for students working toward a master's degree in anthropology. May be repeated four times.

ANT 774 BEHAVIORAL AND ECOLOGICAL ASPECTS OF HUMAN NUTRITION. (3)
This course will examine the social ecology of human nutrition using the evolutionary perspective. It will apply the concepts and principles of social science to the study of human nutrition. The course serves also as an introduction to nutritional anthropology. Discussions will focus on the origins of the human diet; human dietary adaptation to diverse ecological and technological situations; social, cultural, behavioral and ecological factors that influence dietary choices in primitive, peasant, modernizing and contemporary societies; and methodological issues in studying food habits and assessing nutritional status. Among the topics that may be addressed are: social, cultural, and psychological factors involved in eating disorders; infant feeding cross-culturally; causes of malnutrition in the Third World as well as in developed countries; ethnic variation in food ideology and food habits; issues in the applicability of anthropometric measures to diverse populations and culturally appropriate approaches to nutritional change. Prereq: Consent of instructor. (Same as BSC 774.)

ANT 790 RESEARCH PROBLEMS IN ANTHROPOLOGY. (3)
Intensive study in the fields of physical anthropology, archaeology and ethnology with qualified staff members. Term papers required. May be repeated three times.

APPALACHIAN STUDIES

APP 200 INTRODUCTION TO APPALACHIAN STUDIES. (3)
A multidisciplinary introduction to Appalachian culture, history and society. Examines how Appalachia came to be viewed as a distinct region; looks at its place in American life.

ARCHITECTURE

INTRODUCTORY ARCHITECTURE SEQUENCE

ARC 101 AN INTRODUCTION TO ARCHITECTURE I. (4)
An introductory course for majors which will introduce the student to visual and architectural design and to the basic communication skills. Emphasis upon drafting and basic design. Studio, 12 hours. Prereq: Admission to College of Architecture or permission of dean.

ARC 102 AN INTRODUCTION TO ARCHITECTURE II. (4)
A continuation of ARC 101. Studio 12 hours. Prereq: ARC 101 with grade of C or better and ARC 120 or permission of dean.

BASIC ARCHITECTURE SEQUENCE

ARC 201 BASIC ARCHITECTURAL STUDIES I. (6)
An introduction into those forces and requirements which define the architectural problems: physical and environmental forces, cultural conventions, and visual design phenomena. Studio, 12 hours; lecture, two hours. Prereq: ARC 102 with grade of C or better and ARC 121 or permission of dean.

ARC 202 BASIC ARCHITECTURAL STUDIES II. (6)
A continuing study of the impact of the general parameters of the architectural problem on building form and complexes, with special reference to visual design phenomena. Lecture, two hours; studio, 12 hours. Prereq: ARC 201 with grade of C or better.

ARCHITECTURAL STUDIO SEQUENCE

ARC 810 ARCHITECTURAL STUDIO I. (6)
Investigation of the internal physical systems which comprise building; systems and their integration in architectural solutions. Lecture, two hours; studio, 12 hours. Prereq: ARC 202 with grade of C or better.

ARC 811 ARCHITECTURAL STUDIO II. (6)
Continuation of the investigation of internal physical systems; introduction of methodologies for ordering and rationalizing their integration in architectural solutions. Lecture, two hours; studio, 12 hours. Prereq: ARC 810 with a grade of C or better.

ARC 812 ARCHITECTURAL STUDIO III. (6)
Investigation of the external systems which influence architecture; program, functional and theoretical design considerations. Lecture, two hours; studio, 12 hours. Prereq: ARC 811 with grade of C or better.

ARC 813 ARCHITECTURAL STUDIO IV. (6)
A continuation of the investigation of external systems generating architectural form. Lecture, two hours; studio, 12 hours. Prereq: ARC 812 with grade of C or better.

HISTORY AND THEORY OF ARCHITECTURE SEQUENCE

ARC 120 HISTORY AND THEORY OF ARCHITECTURE I. (2)
A chronological survey of seminal works of architecture and urbanism and major ideas in architectural theory and aesthetic philosophy from the ancient world to the present. Reading, historical analysis and research. Prereq: Concurrent ARC 101 or permission of instructor.

ARC 121 HISTORY AND THEORY OF ARCHITECTURE II. (2)
A continuation of ARC 120. Prereq: ARC 120.

ARC 220 HISTORY AND THEORY OF ARCHITECTURE III. (3)
A continuation of ARC 121. Prereq: ARC 121.

ARC 221 HISTORY AND THEORY OF ARCHITECTURE IV. (3)
A continuation of ARC 220 with special emphasis upon a philosophical and critical overview of developments in the history of architecture. Prereq: ARC 220.

ARC 820 STUDIES IN HISTORY AND THEORY OF ARCHITECTURE AND URBAN FORM I. (3)
Lectures, seminars and workshops addressing major periods of topics in theory and history. Prereq: ARC 221 and ARC 840 or permission of instructor.

ARC 821 STUDIES IN HISTORY AND THEORY OF ARCHITECTURE AND URBAN FORM II. (3)
A continuation of ARC 820. Prereq: ARC 820 or permission of instructor.

ARC 822 STUDIES IN HISTORY AND THEORY OF ARCHITECTURE AND URBAN FORM III. (3)
A continuation of ARC 821 and including independent study leading to a significant analytical paper. Prereq: ARC 821 or permission of instructor.

ARC 823 INDEPENDENT STUDY IN HISTORY AND THEORY OF ARCHITECTURE IV. (3)
Special research projects and independent study in the history and theory of architecture. Not required of majors and may be taken as a professional elective. Prereq: ARC 822 or permission of instructor.

ARC 840 THEORIES OF URBAN FORM. (3)
Discussion of socio-economic forces and theories of planning affecting urban form. Discussion of contemporary theories of urban form, theories related to the functional elements of urban areas and comprehensive urban form. Lecture, two hours; laboratory, two hours.

STRUCTURAL DESIGN AND ANALYSIS

ARC 830 STRUCTURAL DESIGN AND ANALYSIS I. (3)
The use of mathematics and physics to determine forces, stresses and deformations in structural systems. Prereq: Completion of College of Architecture mathematics and physics requirements.

ARC 831 STRUCTURAL DESIGN AND ANALYSIS II. (3)
A continuation of ARC 830. Prereq: ARC 830.

ARC 832 STRUCTURAL DESIGN AND ANALYSIS III. (3)
Design of steel structures and timber structures. Prereq: ARC 831.

ARC 833 STRUCTURAL DESIGN AND ANALYSIS IV. (3)
Design of reinforced concrete structures, masonry structures, and foundations. Prereq: ARC 832 or consent of instructor.

MATERIALS AND METHODS OF CONSTRUCTION

ARC 230 MATERIALS AND METHODS OF CONSTRUCTION I. (2)
Intense analyses of selected major architectural works, considering employment of building materials, building systems and construction methods. An introduction to the art and technology of building. Prereq: ARC 102.

ARC 231 MATERIALS AND METHODS OF CONSTRUCTION II. (2)
Properties of building materials and methods of architectural construction. Detailed studies of materials and construction systems; technique of graphic representation. Prereq: ARC 230 or consent of instructor.

ENVIRONMENTAL CONTROLS

ARC 834 ENVIRONMENTAL CONTROLS I. (3)
Introduction to basic natural forces and mechanisms that create a luminous thermal or acoustical environment. Emphasis on these systems as respondents to human performance needs. Prereq: PHY 203.

ARC 835 ENVIRONMENTAL CONTROLS II. (3)
A continuation of ARC 834 with emphasis on the mechanically controlled interior environments seen as subsystems of the total building organization. Prereq: ARC 834.

PROFESSIONAL PRACTICE

ARC 850 PROFESSIONAL PRACTICE. (3)
Professional and ethical responsibility to profession and community; procedural matters pertaining to practice and management.

ADVANCED ARCHITECTURAL PROBLEMS SEQUENCE

ARC 910 ADVANCED ARCHITECTURAL PROBLEMS I. (7)
Advanced topical studies in architecture. Lecture, two hours; studio, 15 hours. Prereq: Approval of architecture faculty and ARC 813 with grade of C or better.

ARC 911 ADVANCED ARCHITECTURAL PROBLEMS II. (7)
Same as ARC 910. Lecture, two hours; studio, 15 hours. Prereq: ARC 910 with grade of C or better.

ARC 912 SEMINAR ON SELECTED TOPICS IN DESIGN. (3)
Seminar on selected topics on architectural and environmental design. Three class hours per week. May be repeated by permission of dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911; or consent of instructor.

ARC 914 SEMINAR ON SPECIAL PROBLEMS IN ARCHITECTURE. (3)
Seminar on special problems in architecture and environmental design. Three class hours per week. May be repeated by permission of dean for a maximum of six semester hours. Prereq: Enrollment in ARC 910 or 911, or consent of instructor.

ARC 920 PROGRAM IN CONTEMPORARY ARCHITECTURAL HISTORY. (2)
Analysis of current problems in architectural history, historic urban renewal and preservation, innovations in research techniques and their significance, modern architectural philosophies and their applications. Two class hours per week. Prereq: ARC 823; consent of instructor.

ARC 922 SEMINAR ON HOUSING. (2)
A survey of various aspects of housing, while scope of investigation will be international in scale. Participants will select a limited topic concentration of study. Two class hours per week. Prereq: Concurrent ARC 910-911, or consent of instructor.

ARC 950 COMPUTER APPLICATIONS IN ARCHITECTURE. (3)
Present utilization methods for computers in architecture to include information retrieval, problem decomposition, graphics, simulation, etc. Lecture, two hours; laboratory, three hours. Prereq: CS 150, 220; enrollment in architecture.

ARC 961 ARCHITECTURAL PHOTOGRAPHIC MEDIA IN DESIGN II. (3)
Continuation of Architectural Photographic Media in Design I. Application of the recording and transforming powers of the camera to problems in architecture and design. Exploration of photometaphoric evocation, direct subject matter contact, compositional interpretation and concentrated investigation of concepts in ARC 960 as related to the enhancement of the student's abilities to comprehend architectural phenomena. Evaluation of impact or photography on architectural communication. Lecture, two hours; laboratory, four hours. Prereq: ARC 960 and/or consent of instructor.

ARC 962 SELECTED TOPICS IN THE HISTORY OF PHOTOGRAPHY. (3)
An intensive investigation into a particular aspect of the development of photography as a fine art form and phenomenon related to space/time considerations. A critical analysis will be given to the growth of thought and theory from the infancy of a mechanical medium to current uses of photography as a means of documentation, self-expression, and exploration of form. May be repeated to a maximum of nine credits. Prereq: Junior standing or permission of instructor. (Same as A-H 550.)

ARC 963 ADVANCED SPECIAL PROBLEMS IN ARCHITECTURE I. (3)
Seminars and independent investigations in special problem areas in architecture. May be repeated by permission of dean for a maximum of 15 semester hours. Prereq: Consent of instructor.

ARC 964 ADVANCED SPECIAL PROBLEMS IN ARCHITECTURE II. (3)
Seminars and independent investigations in special problem areas in architecture. May be repeated by permission of the dean for a maximum of 15 semester hours.

ART

ART 100 INTRODUCTION TO ART. (3)
This course is open to all University students interested in an understanding and appreciation of the visual arts. The formal and expressive qualities of major art forms are examined through lectures and presentations.

ART 191 ART PROFESSIONS. (1)
Lectures and discussions on the various art professions as they affect the student, the professional artist, the art historian, the art educator, and the community. May be repeated to a maximum of eight hours.

ART 501 BASIC MUSEUM TRAINING: HISTORICAL ART. (3)
Theory and practice of curatorship; care and handling of art objects, conservation, connoisseurship, registration, research, publication, exhibition, public relations. Lectures, demonstrations, visits to galleries and museums, and practical experience in the University Art Gallery. Lecture/discussion, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of instructor.

ART 502 BASIC MUSEUM TRAINING: CONTEMPORARY ART. (3)
Introduction to the special problems of handling and displaying works of contemporary art with consideration of various functions of contemporary art exhibitions and their organization. Lectures, demonstrations, visits to galleries, and practical experience in the University Art Gallery and the Center for Contemporary Art. Lecture/discussion, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of instructor.

ART 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ART EDUCATION

A-E 270 INTRODUCTION TO ART EDUCATION. (2)
A lecture-laboratory course investigating the theoretical, historical, psychological and sociological foundations of art education. Critical examination of individual and group activities currently offered in the elementary school art program. Lectures, curriculum design, evaluation of process and technique. Introduction to the visual arts through studio experiences. Lecture, one hour; laboratory, two hours per week. A-E 270 and A-E 272 together satisfy the state art requirement for general elementary teacher certification. Prereq: EDP 202.. (Same as EDC 270.)

A-E 272 WORKSHOP IN DESIGN EDUCATION. (2)
Exploration and analysis of design, media and concepts with special attention to classroom application. Lecture, one hour; laboratory, two hours per week. Prereq: A-E 270.

A-E 395 INDEPENDENT WORK: ART EDUCATION. (1-3)
Supervised individual research, practicum, and field experience leading to the development of art education curriculum theory, and teaching techniques appropriate for various populations and conditions. A learning contract will be submitted to both the department and to the office of the dean at the time of registration. May be repeated to a maximum of six credits. Prereq: Major and consent of instructor.

A-E 399 EXPERIENTIAL EDUCATION. (1-15)
Development of personally motivated and planned projects and internships in art education and interdisciplinary program activities outside the academic classroom experience, encompassing recreation, general education, adult education, special education, state programs, and group field experiences and workshops. (Approval of Dean required for more than six credits per semester.) May be repeated to a maximum of 15 credits. Prereq: Recommendation of art faculty member and department chairperson; completion of departmental learning agreement.

A-E 515 INTRODUCTION TO ART THERAPY. (3)
An examination of various historical and contemporary conceptions of the therapeutic function and value of art from an art education perspective. The impact of art experience on emotional, intellectual and behavioral development and/or rehabilitation will be explored through readings, discussions, guest lectures, and lab experiences. Lecture, two hours per week; laboratory, two hours per week. Prereq: PSY 331 and major or consent of instructor.

A-E 525 THE ELDERLY AND THE ARTS. (3)
An examination of the problems of the elderly and the possibilities of art education for older persons in various settings including nursing homes, day care and recreation centers, housing complexes, and continuing education programs. The impact of art experience on the psychological, social, and physical well-being of the older person and the initiation of quality programs in the arts will be explored through readings, lectures, demonstrations, and field experience. Lecture, two hours; laboratory, two hours.

A-E 538 ADVANCED ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL. (3)
Planned to give the elementary teacher an understanding of teaching methods involved in, and construction of, art activities which would enrich the classroom program. (Same as EDC 538.)

A-E 545 TOPICAL STUDIES IN ART EDUCATION (Subtitle required). (3)
Intensive study and analysis of a designated topic, issue or development in the philosophy, history, or methodology of art education in community and public school settings. May be repeated to a maximum of six credits. Prereq: Art education major or consent of the instructor.

A-E 572 ART EDUCATION WORKSHOP. (1-6)
Creative problems, lectures, demonstrations, and discussions. Primarily for in-service teachers through workshop involvement. Course content determined by instructor; exploration of ceramic education, photography and photographic printmaking techniques, fabric design and newer media with emphasis upon contemporary viewpoints. May be repeated to a maximum of six credits. Prereq: Permission of instructor.

A-E 575 ART IN ELEMENTARY SCHOOLS. (3)
Study of perceptual and aesthetic awareness in children. Field experiences and practicum experiences with methods and materials appropriate to the teaching of art in the elementary school. Lectures and demonstrations. Prereq: Major in art education, or consent of the instructor.

A-E 577 ART IN SECONDARY SCHOOLS. (3)
Study of the artistic expression of the middle school and secondary school student. Development of courses of study and teaching materials, with emphasis upon the development of the teacher as an artist/teacher. Lectures, demonstrations, and practicum experiences, including contemporary theory and media. Prereq: Major in art education.

A-E 579 SEMINAR IN ART EDUCATION. (2)
Inquiry into the relationship of current philosophies of art education and aesthetics; a consolidation of art education ideas with a formation of criteria for making value judgments; the development of a personal viewpoint consistent with education and art as humanistic endeavors. Prereq: Major in art education, or consent of the instructor.

A-E 645 TOPICAL RESEARCH IN ART EDUCATION (Subtitle required). (3)
Advanced study and research of a designated topic, issue, or development in the philosophy, history, or methodology of art education in community and public school settings. May be repeated to a maximum of six credits. Prereq: Graduate standing in art education or consent of the instructor.

A-E 670 SCHOOL AND COMMUNITY ART. (3)
Analysis of the social function of art; organization of school and community related programs in art; case studies of existing programs. Field experience, educational involvement. Lectures and demonstrations. Prereq: Major in art education or consent of instructor.

A-E 695 INDEPENDENT WORK: ART EDUCATION. (1-3)
Supervised individual research, experimental practicum, and the initiation of field programs leading to the discovery and development of new knowledge in art education theory and method. A formal learning contract between student and supervising faculty member is required. May be repeated to a maximum of six credits. Prereq: Graduate standing in the department and consent of instructor.

ART HISTORY

A-H 105 ANCIENT THROUGH MEDIEVAL ART. (3)
Survey of the development of art and architecture with primary emphasis on cultures of Egypt, Western Asia, Greece, Rome, and medieval Europe.

A-H 106 RENAISSANCE THROUGH MODERN ART. (3)
Historical development of Western art and architecture from the fourteenth century through the present.

A-H 310 ART AND ARCHAEOLOGY OF EGYPT AND WESTERN ASIA. (3)
Study of Nilotic, Palestinian, and Mesopotamian civilizations as reflected in art and material culture from the 5th through the 1st millennia B.C. Emphasis usually will be on Egyptian culture and its interconnections with Western Asia.

A-H 311 GREECE: FROM THE DARK AGES INTO HISTORY. (3)
Study of the art and architecture of Greece from about the 11th through the 6th century B.C. Emphasis on the development of social and philosophical traditions as expressed in art and material culture. (Same as CLA 311.)

A-H 312 THE ART OF CLASSICAL GREECE. (3)
Study of the art and architecture of Greece in the 5th and 4th centuries B.C. in their historical context. The contributions of Greece to the art of the Roman Republic and Empire will also be considered. (Same as CLA 312.)

A-H 313 THE ART OF ROME. (3)
A study of the art and architecture of Rome from early Republican times through the age of Constantine. Attention will be focused on painting, sculpture and architecture as reflections of social, political and cultural developments in the Roman world. (Same as CLA 313.)

A-H 320 EARLY MEDIEVAL ART. (3)
Western medieval art and architecture from its origins in the Late Antique through the early Ottonian (Saxon) period. Course will examine the art of the "Barbarians" Hiberno-Saxon and later Northern art, Mozarabic and proto-Romanesque forms, and the relationship between art and the concepts of Renaissance and *Imperium* under Charlemagne and his successors. Prereq: A-H 105 recommended.

A-H 321 ROMANESQUE AND GOTHIC ART. (3)
Later medieval art and architecture in the West, with emphasis on the variety of the Romanesque, the formation of the Gothic style, and the interaction of intellectual and religious movements. Prereq: A-H 105 recommended.

A-H 322 BYZANTINE ART AND CIVILIZATION. (3)
Study of the art forms of Byzantium (the Eastern Medieval Empire) from its origins in Late Antique and Early Christian art to its final demise in 1453. Emphasis on the continuity and transformation of the classical tradition and on the innovations peculiar to Byzantine art within its religious, imperial, and social context. Prereq: A-H 105 recommended.

A-H 330 ITALIAN RENAISSANCE ART. (3)
An examination of sculpture, painting, and architecture in Italy from the 14th through the 16th centuries. An effort is made to study art in its historical and cultural context. Prereq: A-H 106 recommended.

A-H 331 NORTHERN EUROPEAN RENAISSANCE ART. (3)
Painting, sculpture and graphic arts in the Low Countries, Germany and France from the late 14th century through the Reformation. Historical, religious and social factors are considered as well as style. Prereq: A-H 106 recommended.

A-H 332 BAROQUE AND ROCOCO ART. (3)
An examination of the development of Western European painting, printmaking, sculpture and architecture from 1600-1750. In order to study the art within its given cultural context, the course is organized by region, including Italy, Flanders, Spain, Holland, France and England. The artistic and cultural interrelationships existing between these regions are stressed. Prereq: A-H 106 recommended.

A-H 340 NINETEENTH CENTURY ART. (3)
A study of the visual arts in the nineteenth century with emphasis on their historical and cultural background. Analysis of the origin and development of major artistic currents in Europe. Prereq: A-H 106 recommended.

A-H 341 TWENTIETH CENTURY ART. (3)
An examination of the visual arts from c.1900 to the present, with emphasis on Europe and the United States. Prereq: A-H 106 recommended.

A-H 342 AMERICAN ART. (3)
A history of the visual arts in the United States from the colonial period to the present, and their relation to Europe. Prereq: A-H 106 recommended.

A-H 390 TOPICAL RESEARCH IN ART HISTORY. (3)
Investigation of special critical or historical problems of form and content which cross the customary period divisions of Art History. May be repeated to a maximum of six credits. Prereq: One Art History course or consent of the instructor.

A-H 395 INDEPENDENT WORK: ART HISTORY. (1-3)
Supervised and sustained individual research in the history of art leading to the discovery and demonstration of new knowledge. A formal learning contract between student and supervising faculty member required. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department and consent of the instructor.

A-H 399 EXPERIENTIAL EDUCATION IN ART HISTORY. (1-15)
A community-based or field-based experience in Art History. A formal learning contract among student, field supervisor, and supervising faculty member required. May be repeated to a maximum of 15 hours. Prereq: A-H 105 and A-H 106.

A-H 510 STUDIES IN ANCIENT ART. (3)
Seminar dealing with a single archaeologically defined area within a limited chronological framework. Subjects usually will be drawn from Chalcolithic through Bronze Age eastern Mediterranean or Aegean cultures. Emphasis on reconstructing complex ancient societies on the basis of material culture. May be repeated to a maximum of six credits. Prereq: A-H 105 and one of the following: A-H 310, 311, 312, or consent of instructor.

A-H 520 STUDIES IN MEDIEVAL ART. (3)
Special topics in period and regional styles, selected artists or works, iconography, or particular problems in medieval art and architecture of Western Europe and the Byzantine Empire. May be repeated to a maximum of six credits. Prereq: A-H 105 and one art history course at the 300 level or consent of instructor.

A-H 530 STUDIES IN RENAISSANCE ART. (3)
Investigation of a specialized topic or problem selected from art of the 14th through the 17th centuries. Readings, lectures, individual projects and class discussions. May be repeated to a maximum of six credits. Prereq: A-H 106 and either A-H 330, 331, or 332 or consent of instructor.

A-H 540 STUDIES IN MODERN ART. (3)
Intensive study of a particular artist, architect, or group, specific media, techniques, trends, or themes in the visual arts from the eighteenth century to the present. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: A-H 106 or consent of instructor.

A-H 550 SELECTED TOPICS IN THE HISTORY OF PHOTOGRAPHY. (3)
An intensive investigation into a particular aspect of the development of photography as a fine art form and phenomenon related to the space-time considerations. A critical analysis will be given to the growth of thought and theory from the infancy of a mechanical medium to current uses of photography as a means of: documentation, self-expression, and exploration of form. May be repeated to a maximum of nine credits. Prereq: Junior standing or permission of instructor. (Same as ARC 962.)

A-H 560 ART HISTORY SEMINAR. (3)
Training in art historical method with emphasis on interpretation of sources and the handling of visual and bibliographical material. Primarily for art history majors and graduate students. May be repeated to a maximum of six credits. Prereq: Three art history courses or consent of instructor.

A-H 580 HISTORICAL TECHNIQUES OF DRAWING, PAINTING, AND PRINTMAKING. (3)
Close analysis of the most common two-dimensional media developed through history. Consideration of problems of perception, representation and expression in the work of the major masters. Lectures, demonstrations, gallery and studio visits, reading, studio exercises, written examinations and analytical papers. Prereq: Two art history courses and two art studio courses.

A-H 590 TOPICAL STUDIES IN ART HISTORY. (3)
A topic or area not covered in the series of 500-589 courses; especially studies in media, forms, styles, iconography and in theoretical or critical studies. Readings, lectures, discussions. May be repeated to a maximum of nine credits. Prereq: Two art history courses or consent of the instructor.

A-H 592 AESTHETICS. (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts, in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. (Same as PHI 592.)

A-H 598 COORDINATE STUDY. (3)
Course number for those students wishing to do advanced work on a special subject in conjunction with a regularly scheduled 300-level class not previously taken by the student. May be repeated to a maximum of six credits. Prereq: Two art history courses or consent of instructor.

A-H 610 PROBLEMS IN ANCIENT ART. (3)
Intensive study of a limited typological or historical problem as an introduction to the methodology of original research. Students will give evidence of knowledge of appropriate bibliography and present the results of their research in forms previously agreed upon with the instructor. May be repeated to a maximum of six credits. Prereq: Eighteen credit hours drawn from ancient history, classical languages and literatures, anthropology, and/or art history.

A-H 620 PROBLEMS IN MEDIEVAL ART. (3)
Research and analysis in selected topics of art history from the Late Antique-Early Christian period through the 15th century. Readings, discussion, formal presentation of research. May be repeated to a maximum of six credits. Prereq: Eighteen credits in art history or consent of instructor.

A-H 630 PROBLEMS IN RENAISSANCE ART. (3)
Intensive study of a topic or problem from art of the 14th through 17th centuries. Individual research as training in historical methodology and formal presentation of this research will be required. May be repeated to a maximum of six credits. Prereq: Eighteen credits in art history or consent of instructor.

A-H 640 PROBLEMS IN MODERN ART. (3)
Investigation of particular critical and historical problems in the visual arts from the 18th century to the present. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: Eighteen credits in art history or consent of the instructor.

A-H 690 TOPICAL PROBLEMS IN ART HISTORY. (3)
Investigation of special critical and historical problems crossing the customary period divisions of art history. Lectures, discussion, original research, and critiques. May be repeated to a maximum of six credits. Prereq: Eighteen credits in art history or consent of instructor.

A-H 780 INDEPENDENT WORK: ART HISTORY. (1-3)
Supervised and sustained individual research and interpretation in the history of art leading to the discovery and demonstration of new knowledge. A formal learning contract between student and supervising faculty member required. May be repeated to a maximum of six credits. Prereq: Graduate standing in the department, 18 credits in art history and consent of instructor.

ART STUDIO

A-S 102 VISUAL EXPLORATION I. (3)
Introductory studio experience in two-dimensional representation and abstraction using a variety of basic drawing materials and processes. Six studio hours per week.

A-S 103 VISUAL EXPLORATION II. (4)
Introductory studio experience in three dimensional representation and abstraction. A variety of sculptural materials and basic shop processes will be studied. Eight studio hours per week.

A-S 200 STUDIO I. (3)
Studio investigation of recent ideas, values, and directions in Art introduced thorugh a variety of traditional and nontraditional processes, materials, and methods. Nine studio hours per week. Prereq: A-S 102 and 103.

A-S 202 FIGURE DRAWING. (3)
The human figure will be explored as a source for drawing. All two-dimensional techniques and modes of forming, both traditional and contemporary-experimental, will be used. Studio, eight hours; one hour by appointment. Prereq: A-S 102 or consent of instructor.

A-S 215 STUDIO II. (3)
Continued studio experience emphasizing the descriptive and expressive function of shape and color in visual organization using two dimensional marking and shaping materials and processes. Nine studio hours per week. Prereq: A-S 102.

A-S 255 STUDIO III. (3)
Continued studio experience in three dimensional expression, emphasizing design and technical development, including modelling, mold making, fabrication and assemblage in a variety of materials. Nine studio hours per week. Prereq: A-S 103.

A-S 280 PHOTOGRAPHY I. (3)
A-S 280 is an introductory course in photography. Although it provides a thorough background in basic techniques that students may apply to any discipline, its primary emphasis is upon the practice of the medium as a fine art. Students receive technical instruction in camera and lens construction, exposure controls, processing of black and white slides, and presentation. Studio, nine hours.

A-S 310 PAINTING I. (3)
Concentrated painting experience stressing enlargement of formal understanding and personal expression. Prereq: A-S 215 or consent of instructor.

A-S 311 PAINTING II. (3)
A continuation of A-S 310. Prereq: A-S 310 and consent of the instructor.

A-S 320 PRINTMAKING I. (3)
Introductory studio experience in printmaking media and procedures relevant to individual development. Nine studio hours per week. Prereq: A-S 102 or consent of instructor.

A-S 321 PRINTMAKING II. (3)
A continuation of A-S 320. Nine studio hours per week. Prereq: A-S 320 or consent of instructor.

A-S 330 INTERMEDIATE DRAWING. (3)
Continued studio experience in two-dimensional representation and abstraction using a variety of drawing materials and processes. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 102 or consent of instructor.

A-S 340 GRAPHIC DESIGN I. (3)
Introductory studio experience in the application of visual design to graphic communication. Nine studio hours per week. Prereq: A-S 102 and A-S 103, or consent of instructor.

A-S 341 GRAPHIC DESIGN II. (3)
Continued exposure to the aesthetics and principles of design and their creative application in visual communication. Class projects will develop sensibilities gained in A-S 340 such as the use of type as a spatial element; selection of typefaces, hand-lettering, and graphic imagery. Mass production procedures and techniqes will be introduced. Studio, nine hours per week. Prereq: A-S 340.

A-S 350 FIBER I. (3)
Introductory studio experience to the design and fabrication of woven and non-woven fiber art in two and three dimensions; emphasis on color, structure and related aesthetic values. Nine studio hours per week. Prereq: A-S 102 or A-S 103 or consent of instructor.

A-S 351 FIBER II. (3)
Continuation of A-S 350, emphasis on developing perceptual and technical skills toward increasing aesthetic involvement with woven and nonwoven fiber and fabric. Nine studio hours per week. Prereq: A-S 350 or consent of instructor.

A-S 360 SCULPTURE I. (3)
Concentrated sculptural experience in a variety of media emphasizing expanded understanding of material and methods. Nine studio hours per week. Prereq: A-S 255 or consent of instructor.

A-S 361 SCULPTURE II. (3)
A continuation of A-S 360. Nine studio hours per week. Prereq: A-S 360 or consent of instructor.

A-S 370 CERAMICS I. (3)
Introductory studio experience to a variety of ceramic materials and processes. Nine studio hours per week. Prereq: A-S 103 or consent of instructor.

A-S 371 CERAMICS II. (3)
A continuation of A-S 370. Nine studio hours per week. Prereq: A-S 370 or consent of instructor.

A-S 380 PHOTOGRAPHY II. (3)
A-S 380 is a continuation of A-S 280. The emphasis is upon refining visual perception and basic photographic skills with an introduction to some of the more advanced techniques. Students receive technical instruction in black and white printing, archival processing, toning, and presentation. Studio, nine hours. Prereq: A-S 280 or consent of instructor.

A-S 390 TOPICAL STUDIES (Subtitle required). (3)
Studio investigation of art forms, processes, and topics not specially treated in the regular studio course of study. Topics announced in schedule book for each semester. Nine studio hours per week. May be repeated to a maximum of 12 credits when identified by different course subtitles. Prereq: To be specified as appropriate when topic is identified.

A-S 395 INDEPENDENT WORK: ART STUDIO. (1-3)
Supervised individual work in Art Studio. A learning contract will be submitted both to the department and the office of the dean at the time of registration. May be repeated to a maximum of nine credits. Prereq: Art major, senior standing, grade-point average of 3.0 within the department and consent of instructor.

A-S 396 WORKSHOP (Subtitle required). (1-6)
Workshops in a variety of media dealing with supervised investigation of Art-Studio problems. Studio, 3-18 hours per week. May be repeated to a maximum of nine credits when identified by different subtitles. Prereq: Consent of instructor.

A-S 398 COORDINATED STUDIES IN ART STUDIO. (3)
Supervised independent study in conjunction with regularly scheduled upper-division classes. Coordinate study credits may not be attached to any upper-division course in which the student is concurrently enrolled. Studio, nine hours per week. May be repeated to a maximum of nine credits. Prereq: Art major, junior standing or above, grade-point average of 3.0 in the department.

A-S 399 EXPERIENTIAL EDUCATION. (1-15)
Off-campus studio experience outside the academic environment leading to significant professional growth. A formal learning contract among student, field supervisor and the department. Studio hours per week by arrangement. May be repeated to a maximum of 15 credits. Prereq: Upper division standing; written statement of objective, recommendation of a studio faculty member and the approval of the department chairperson and the Office of Experiential Education.

A-S 490 SENIOR SEMINAR. (1)
Readings and critical discussion relating to art. Selection, preparation, and presentation of senior exhibitions and portfolios. To be taken during student's final year of study. Two lecture hours per week. Prereq: Senior standing in Department of Art.

A-S 510 PAINTING III. (3)
Supervised individual development in painting. Nine studio hours per week. Prereq: A-S 311 or consent of instructor.

A-S 511 PAINTING IV. (3)
Continuation of A-S 510; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 510 or consent of instructor.

A-S 520 PRINTMAKING III. (3)
Supervised individual development in printmaking. Nine studio hours per week. Prereq: A-S 321 or consent of instructor.

A-S 521 PRINTMAKING IV. (3)
Continuation of A-S 520; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 520 or consent of instructor.

A-S 530 ADVANCED DRAWING. (3)
Supervised individual development in drawing. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 330 or consent of instructor.

A-S 540 GRAPHIC DESIGN III. (3)
The analysis of popular graphic formats and their relationship to current ideas in painting and photography, stressing experiences gained by the student in other art-studio classes. Additional emphasis on practical considerations in developing visual communication design problems from initial concept to finished artwork. Exploration of specification procedures as they relate to printing papers, typesetting, and photographic methods. Studio, nine hours per week. Prereq: A-S 341 or consent of instructor.

A-S 550 FIBER III. (3)
Supervised individual development in fiber. Nine studio hours per week. Prereq: A-S 351 or consent of instructor.

A-S 551 FIBER IV. (3)
Continuation of A-S 550; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 550 or consent of instructor.

A-S 560 SCULPTURE III. (3)
Supervised individual development in sculpture. Nine studio hours per week. Prereq: A-S 361 or consent of instructor.

A-S 561 SCULPTURE IV. (3)
Continuation of A-S 560; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 560 or consent of instructor.

A-S 570 CERAMICS III. (3)
Supervised individual development in ceramics. Nine studio hours per week. Prereq: A-S 371 or consent of instructor.

A-S 571 CERAMICS IV. (3)
Continuation of A-S 570; emphasis on professional awareness and development. May be repeated to a maximum of six credits. Nine studio hours per week. Prereq: A-S 570 or consent of instructor.

A-S 580 PHOTOGRAPHY III. (3)
A-S 580 is a continuation of A-S 380. The emphasis is upon advanced photographic processes and continued acquisition of skills for self-expression through the medium. Students receive thorough instruction in the zone system and an introduction to color printing. May be repeated to a maximum of six credits. Studio, nine hours per week. Prereq: A-S 380 or consent of instructor.

A-S 596 WORKSHOP. (1-6)
Workshops in a variety of media dealing with supervised investigation of advanced art studio problems. Prereq: Consent of instructor.

A-S 610 PAINTING V. (3)
Advanced studio investigation of current ideas in painting. Exploration of contemporary and traditional procedures, materials, and issues in a context of a group discussion and review. May be repeated to a maximum of nine credits. Prereq: Graduate standing in the department and approval of the instructor.

A-S 611 PAINTING VI. (3)
Continued studio investigation of current ideas in painting, with increased concentration on critical group discussions of student work and readings in contemporary art. May be repeated to a maximum of nine credits. Studio, nine hours. Prereq: A-S 610 and consent of instructor.

A-S 620 PRINTMAKING V. (3)
Advanced studio investigation of current ideas in printmaking. Exploration of contemporary and traditional procedures, materials, and issues. May be repeated to a maximum of nine credits. Studio, nine hours. Prereq: Graduate standing in the department and consent of the instructor.

A-S 621 PRINTMAKING VI. (3)
Continued advanced studio investigation of current ideas in printmaking. Increased concentration of technical and aesthetic development in preparation for entry into the professional environment. May be repeated to a maximum of nine credits. Studio, nine hours. Prereq: A-S 620.

A-S 650 FIBER V. (3)
In this supervised graduate studio course in fiber, emphasis will be placed on personal style, its identification, definition, and further development in the context of major directions in the fiber arts. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

A-S 651 FIBER VI. (3)
Continued advanced studio investigation of current ideas in the fiber arts. Increased concentration on technical and aesthetic development, professional readings, and group discussion. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: A-S 650.

A-S 660 SCULPTURE V. (3)
In this supervised studio course in graduate sculpture, emphasis will be placed on personal style, its identification, definition, and further development in the context of modern sculpture. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

A-S 661 SCULPTURE VI. (3)
Continued advanced studio investigation of current ideas in sculpture. Increased concentration on technical and aesthetic development, professional readings, and group discussion. May be repeated to a maximum of nine credits. Studio, nine hours per week. Prereq: A-S 660.

A-S 670 CERAMICS V. (3)
In this supervised studio course in graduate ceramics, emphasis will be placed on personal style, its identification, definition, and further development in the context of direction in modern ceramics. Studio, nine hours per week. May be repeated to a maximum of nine credits. Prereq: 12 credits in upper division studio work and consent of instructor.

A-S 671 CERAMICS VI. (3)
Continued advanced studio investigation of current ideas in ceramics, increased concentration on technical and aesthetic development, professional readings, and group discussions. Studio, nine hours per week. May be repeated to a maximum of nine credits. Prereq: A-S 670.

A-S 740 PROBLEMS IN FIBER. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of fiber. May be repeated two times to a maximum of nine credits. Nine studio hours per week. Prereq: Twelve credits in upper division studio work and consent of instructor.

A-S 750 PROBLEMS IN SCULPTURE. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of sculpture. May be repeated to a maximum of nine credits. Nine studio hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

A-S 767 M.F.A. STUDIO THESIS PROJECT. (1-6)
Independent research and preparation for the M.F.A. thesis exhibition. For the student working in a highly technical medium or process, the preparation of a correlated written thesis under close guidance will be the outcome. The student will be expected to know the standard forms for photograhic records and the preparation of a professional portfolio. May be repeated to a maximum of six credits. Prereq: Normally taken during final semester for graduate study.

A-S 770 PROBLEMS IN CERAMICS. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of ceramics. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

A-S 780 PROBLEMS IN DESIGN. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of design. May be repeated two times for a maximum of nine credits. Nine studio hours per week. Prereq: 12 credits in upper division studio work and consent of instructor.

A-S 790 TOPICAL STUDIES (Subtitle required). (3)
Graduate workshops dealing with supervised investigations of art studio problems in a variety of media. May be repeated to a maximum of 12 credits when identified by different course subtitles. Studio, nine hours.

A-S 793 GRADUATE STUDIO SEMINAR. (1)
A seminar especially for graduate students in the studio area, in all areas of concentration. Lectures, discussion and criticism will focus on current formal and aesthetic problems in the arts. Emphasis will be placed on the integration of concepts arising in the different fields in the visual arts. Required of M.F.A. candidates for three semesters. May be repeated to a total of three credits. Prereq: Graduate standing in the department.

A-S 799 PROBLEMS IN PAINTING AND PRINTMAKING. (3)
Sustained individual problems in drawing, painting and printmaking. May be repeated two times for a maximum of nine credits. Prereq: 12 credits of upper division studio work and consent of instructor.

ARTS AND SCIENCES

A&S 100 SPECIAL INTRODUCTORY COURSE: Title to be Assigned. (1-3)
This course permits the offering at the introductory level of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Dean of the College of Arts and Sciences. A particular title may be offered at most twice under the A&S 100 number. Students may not repeat under the same title. Prereq: Will be set by instructor.

A&S 103 BASIC INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES I (Subtitle required). (3-5)
This course provides elementary language instruction with an emphasis upon the spoken language of everyday use where appropriate. Writing and the elements of grammar are gradually introduced. Students may not repeat this course under the same subtitle. Prereq: Will be set by instructor.

A&S 104 BASIC INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES II (Subtitle required). (3-5)
A continuation of A&S 103. Students may not repeat this course under the same subtitle. Prereq: A&S 103.

A&S 203 INTERMEDIATE INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES I (Subtitle required). (3-5)
This course provides intermediate instruction in a less commonly taught language. Development of speaking, listening, reading, and writing skills, as appropriate, will be stressed. Students may not repeat this course under the same subtitle. Prereq: A&S 104 in the same language or permission of instructor.

A&S 204 INTERMEDIATE INSTRUCTION IN LESS COMMONLY TAUGHT LANGUAGES II (Subtitle required). (3-5)
A continuation of A&S 203. Students may not repeat this course under the same subtitle. Prereq: A&S 203 in the same language or permission of the instructor.

A&S 300 SPECIAL COURSE. (1-3)
Interdisciplinary, topical or experimental courses to be approved by the Dean of the College of Arts and Sciences. A particular course may be offered at most twice under the A&S 300 number, and no A&S 300 course may be given for more than three credits per semester. Open to all University students, subject to such limits or prerequisites as set by the instructor.

ASTRONOMY

AST 101 FRONTIERS OF ASTRONOMY. (3)
A one-semester introductory course for liberal arts majors. Topics include the life histories of stars, the nature of black holes and quasars, the origin of the universe, planets of the solar system, and the possibilities for extraterrestrial life. Evening observing sessions are held regularly. This course does not satisfy the General Studies Area II requirement, and credit is not given to students who have received credit for AST 191 or 192.

AST 191 THE SOLAR SYSTEM. (3)
One part of the two-semester introduction to astronomy. This course is primarily about the nature, origin, and evolution of the planets of our solar system and of their satellites. Special emphasis is given to recent spacecraft studies of the solar system. Related topics include the nature of comets, the uses of astronomical telescopes, and eclipses and other solar phenomena.

AST 192 GALACTIC AND EXTRA-GALACTIC ASTRONOMY. (3)
One part of a two-semester introduction to astronomy. This course concentrates on the universe outside our own solar system. A principle theme is the origins and evolution of stars, of galaxies, and of the universe at large. Highlights include the nature of black holes and quasars, synthesis within stars of the chemical elements essential for life, the Big Bang model of the formation of the universe, and the possible fates of the universe.

AST 395 INDEPENDENT WORK IN ASTRONOMY. (1-3)
Students may select an approved topic for study under the direction of a faculty member. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

AST 595 INTRODUCTION TO ASTROPHYSICS I. (3)
Introductory astrophysics with emphasis on the basic physics which governs the behavior of selected phenomena in the universe. Topics include stellar structure and evolution, and the interstellar medium. Prereq: PHY 361 and PHY 417G. (Same as PHY 595.)

BIOLOGICAL SCIENCES

BIO 102 HUMAN ECOLOGY. (3)
A study of the interrelationships of man, populations, space, energy, food, mineral resources and other life on earth.

BIO 103 BASIC IDEAS OF BIOLOGY. (3)
Introductory biology. Discussion topics are those relevant to both plants and animals—cell structure and function, molecules important to living things, metabolism, heredity, environment.

BIO 104 ANIMAL BIOLOGY. (3)
An introduction to the major areas of interest in animal biology, e.g., life processes, the cell, development, heredity, body systems, evolution, taxonomy, phylogeny, ecology. Prereq: High school chemistry recommended.

BIO 105 ANIMAL BIOLOGY LABORATORY. (1)
Laboratory to be taken concurrently with BIO 104. Laboratory, two hours per week. Prereq: One unit of chemistry or consent of instructor; BIO 104 should be taken concurrently.

BIO 106 PRINCIPLES OF PLANT BIOLOGY. (3)
The principles underlying the structure, physiology and reproduction of flowering plants. Prereq: High school chemistry recommended.

BIO 107 PLANT BIOLOGY LABORATORY. (1)
Laboratory studies of the morphology, physiology and reproduction of plants with emphasis on the flowering plants. Laboratory, two hours per week. Prereq: One unit of chemistry or consent of instructor. BIO 106 should be taken concurrently.

BIO 108 PRINCIPLES OF MICROBIOLOGY. (3)
This course will introduce biology and nonbiology students to fundamental microbiological principles and techniques. Emphasis is placed upon structural, functional, ecological and evolutionary relationships among microorganisms, principally viruses, rickettsiae, bacteria, fungi and algae. Prereq: High school chemistry recommended.

BIO 109 INTRODUCTORY MICROBIOLOGY LABORATORY. (2)
Laboratory exercises in general microbiology. Laboratory, four hours per week. Prereq: One unit of chemistry or consent of instructor; BIO 108 should be taken concurrently.

BIO 110 INTRODUCTION TO HUMAN BIOLOGY AND HEALTH. (3)
A course describing basic anatomical and physiological functions of various body cells, tissues, and organs and their interrelationships as a functioning whole. It also deals with basic information as to maintenance of health; brief description of the major and common diseases affecting man—their control and prevention.

BIO 114 MAJOR DISCOVERIES IN BIOLOGY. (3)
This course considers important experiments and observations (e.g., the basic principles of genetics, the origin of species, the discovery of penicillin, DNA as genetic material, the conditioned reflex, etc.) that will serve to acquaint students with the excitement of conducting research in biology, while familiarizing them with some of the major advances in this science. The course is designed for students who do not intend to major in biology.

BIO 150 PRINCIPLES OF BIOLOGY I. (3)
First semester of a highly integrated one-year course (BIO 150 and BIO 152) that deals with essential molecular, cellular, organismal, population, and community principles of biology. Students normally take the associated BIO 151 and BIO 153 laboratories simultaneously. Prereq: High school biology and chemistry strongly recommended; ACT Natural Sciences score of 25 or higher recommended for freshmen.

BIO 151 PRINCIPLES OF BIOLOGY LABORATORY I. (2)
Laboratory to accompany BIO 150. Laboratory, three hours; recitation, one hour. Prereq: Concurrent or previous enrollment in BIO 150; high school biology and chemistry strongly recommended; ACT Natural Sciences score of 25 or higher recommended for freshmen.

BIO 152 PRINCIPLES OF BIOLOGY II. (3)
Continuation of BIO 150. Prereq: BIO 150 and 151 or consent of instructor.

BIO 153 PRINCIPLES OF BIOLOGY LABORATORY II. (2)
Laboratory to accompany BIO 152. Laboratory, three hours; recitation, one hour. Prereq: Concurrent or previous enrollment in BIO 152. Also open to students who have completed BIO 151.

BIO 177, 178 ORIENTATION IN MICROBIOLOGY. (1 ea.)
A course of assigned readings, lectures and discussions to give the prospective major a view of the past and present nature and significance of the field of microbiology.

BIO 204 THE GENETIC PERSPECTIVE. (3)
An introductory genetics course for nonscience majors examining how heredity affects humans and the remainder of the living world and providing some insights into other fields of science from the geneticist's perspective. Prereq: Courses in high school biology and chemistry or an introductory college biology course.

BIO 261 FIELD BOTANY. (3)
A study of the local flora with emphasis on the Bluegrass and the Appalachian regions of Kentucky, with the use of identification keys and herbarium collections. Laboratory, two hours; field trip, four hours per week. Prereq: An introductory course in biology.

BIO 276 PRINCIPLES OF MICROBIOLOGY. (4)
This course will introduce microbiology and other science majors to fundamental microbiological principles and techniques. Emphasis is placed on the physiology, morphology, classification, genetics, and metabolism of microorganisms. (This course is a required course for majors in microbiology and is a prerequisite to a significant number of courses in this area. This course is also an alternative course for students who do not have the prerequisites for BIO 476G.) Lecture and recitation, two hours; laboratory, four hours. Prereq or concur: CHE 107.

BIO 300 GENERAL ENTOMOLOGY. (3)
Fundamentals of insect biology and relationships among insects, plants, and other organisms; identification of commonly encountered insects. Beneficial and detrimental effects of insects are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: One course in introductory biology. (Same as ENT 300.)

BIO 310 ENVIRONMENTAL MICROBIOLOGY. (3)
The consolidation into one concept of the many previously diverse areas in which microbes play a critical role in ecosystems. The course will demonstrate the intricate interdependence of all components in the "web of life." Prereq: Two semesters of introductory chemistry; six credits in biological sciences (including three credits of microbiology or consent of instructor).

BIO 315 INTRODUCTION TO CELL BIOLOGY. (3)
The structure and function of the cells will be considered. Emphasis will be placed on the ultrastructure of cell organelles in plants and animals as a framework for understanding the compartmentalized nature of cell activity. Prereq: BIO 150, 151, 152, 153 (or equivalent). Coreq: CHE 230 or equivalent.

BIO 325 MICROBIOLOGY SEMINAR. (1)
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national scientific societies. Required of all majors. May be repeated three times for a maximum of four credits.

BIO 340 COMPARATIVE ANATOMY. (5)
Comparative study of the anatomy of vertebrates with emphasis on evolutionary change, adaptive and functional significance of structural organization and basic concepts of the comparative approach. Laboratory studies on representative vertebrates involving dissections, models, and demonstrations. Lecture, three hours; laboratory, four hours per week. Prereq: BIO 150, 151, 152, 153 or BIO 104, 105 or equivalent course in animal biology.

BIO 350 ANIMAL PHYSIOLOGY. (4)
An introduction to the basic principles of animal physiology. An elementary discussion of the major vertebrate organ systems including nutrition, metabolism, respiration, circulation, excretion, muscle contraction, peripheral and central nervous system, and endocrine function emphasizing homeostasis. Lecture, three hours; demonstration, two hours. Prereq: BIO 150-153 or equivalent; CHE 105, 107.

BIO 351 PLANT KINGDOM. (3)
An evolutionary survey of the morphology, taxonomy, life histories and biological relationships of all plant groups comprising the plant kingdom. Lecture, two hours; laboratory, two hours. Prereq: An introductory course in biology.

BIO 395 INDEPENDENT WORK IN MICROBIOLOGY. (3)
Students are assigned special problems in laboratory work and reference reading. Laboratory, six hours. May be repeated five times for a maximum of 18 credits. Prereq: Major and standing of 3.0 in the department.

BIO 404G PRINCIPLES OF GENETICS. (3)
A study of inheritance dealing with physical and chemical aspects of the genetic material and their relationship to the expression of the phenotype. Prereq: One year of biology or equivalent.

BIO 411G MODELS IN MATHEMATICAL BIOLOGY. (3)
Emphasis will be on derivation of the mathematical models from the following areas: growth, enzyme kinetics, tracers in physiology, population genetics. Elementary mathematical analysis will be applied to the models to obtain some of the biological implications. Additional models will be selected from: predator-prey systems, biological fluid dynamics, diffusion in biology, nerve transmission, biological clocks, ecology, and epidemiology. Prereq: A calculus course, a biology course and consent of instructor.

BIO 420 BIOLOGICAL MACROMOLECULES AND LIFE PROCESSES. (3)
Modern concepts bearing on the universality and diversity of living systems will be studied from physiological, morphological and biochemical viewpoints. Prereq: Organic chemistry, general physics and introductory biology with laboratory.

BIO 451G INTRODUCTORY ECOLOGY. (4)
A nonlaboratory course in basic ecology taught jointly by botany and zoology departments. Will stress the ecosystem approach to understanding the interrelationships between organisms and their environment including current environmental problems. Lecture, three hours; recitation, one hour. Prereq: One course in introductory biology.

BIO 452G LABORATORY IN ECOLOGY. (1)
An introduction to laboratory and field experimentation and computer simulation in ecology. Exercises and demonstrations will be performed to familiarize students with (1) particular populations and ecosystems, (2) some important research problems in ecology, and (3) current research techniques for dealing with them. One or two Saturday field trips will be required. Laboratory: three hours. Prereq or coreq: BIO 451G or equivalent and consent of instructor.

BIO 465G ECONOMIC BOTANY. (3)
Study of ethnobotany and the domestication of plants. Plants as sources of food, medicines and other plant products. Lecture, two hours; laboratory, two hours. Prereq: Introductory course in biology or consent of instructor.

BIO 476G GENERAL MICROBIAL PHYSIOLOGY. (4)
Microorganisms: their physiology, morphology, fine structure, genetics and metabolism in relationship to bacterial growth and division. Lecture, two hours; laboratory, four hours. Prereq: CHE 230 and BIO 150, 151, 152, 153 (or equivalent).

BIO 494G IMMUNOBIOLOGY. (3)
A survey of theories and mechanisms of immunity including: nature of antigens and antibodies, antigen-antibody reactions, immunocompetent cells, immunogenetics, allergic reactions, tumor immunology and transplantation immunology. Prereq: BCH 401G (may be taken concurrently) and BIO 108 or BIO 276, or BIO 476G, or consent of instructor. (Same as MI 494G.)

BIO 502 PRINCIPLES OF PHYSIOLOGY LECTURE. (5)
Advanced survey of the major mammalian physiological systems. Course organization includes lectures, assigned reading in advanced texts or monographs, demonstrations and problem oriented study questions. Prereq: One year each, physics, general chemistry; PGY 206 or its equivalent. (Same as PGY 502.)

BIO 508 EVOLUTION. (3)
Mechanisms of evolutionary change, with a brief summary of historical evolution, especially of the Metazoa. Prereq: BIO 404G or ASC/AGR 360.

BIO 510 RECOMBINANT DNA TECHNIQUES LABORATORY. (4)
An introduction to the construction, isolation, and analysis of recombinant DNA clones, with emphasis on practical experience in basic techniques. Graduate students will be given first preference in course enrollment. Lecture, one hour; laboratory, six hours per week. Prereq: BIO 404G and BIO 276 or equivalent and BCH 401G, or BCH 501 or BCH 502 or equivalent.

BIO 515 GENERAL CELL BIOLOGY. (3)
An integrative, analytical study of the cell as the basic unit of biological structure and function, with emphasis on eukaryotes. Lecture, discussions with readings in some original literature. Prereq: BIO 315 or BCH 401G or equivalent and consent of instructor. (Same as MI 515.)

BIO 522 INDEPENDENT WORK IN ZOOLOGY. (3)
Special problems for individual students who are capable of pursuing independent investigations. May be repeated three times for a maximum of 12 credits. Prereq: Consent of instructor.

BIO 523 ZOOLOGY SEMINAR. (1)
Reports on: Technical papers in scientific journals, book reviews, recent developments in zoology, scientific meetings. Required of all majors in zoology. May be repeated to a maximum of four credits.

BIO 524 BOTANY SEMINAR. (1)
Reading and reports on special topics. Required of all senior botany majors. May be repeated once for a maximum of two credits.

BIO 525 INDEPENDENT WORK IN BOTANY. (1-3)
Independent work in some phase of advanced botany. May be repeated three times for a maximum of 12 credits. Prereq: Consent of instructor.

BIO 529 DEVELOPMENTAL BIOLOGY. (3)
A review of theories of differentiation, a consideration of the genetic environment, and intensive study of correlative factors in development and differentation at the tissue, cell and molecule levels. Lectures and assigned readings. Prereq: Any introductory biology course dealing with plants or animals.

BIO 530 PLANT PHYSIOLOGY. (3)
Basic principles of plant physiology; the physiological processes of green plants and the effect of the environment on these processes. Prereq: Two semesters of inorganic chemistry, a pre- or corequisite of organic chemistry (CHE 230-232 or CHE 236), and a prerequisite of six credits of biology or botany.

BIO 531 LABORATORY IN PLANT PHYSIOLOGY. (2)
Laboratory for BIO 530. Laboratory, four hours. Prereq: BIO 530 or concurrent with BIO 530.

BIO 535 COMPARATIVE NEUROBIOLOGY AND BEHAVIOR. (3)
The course consists of an introduction to neurophysiology and study of the neural basis of sensory processing and motor patterns. A comparative analysis of the neurobiological basis of behavioral responses will be made, utilizing a broad range of vertebrates and invertebrates. Prereq: BIO 350 or consent of instructor. (Same as PGY 535.)

BIO 540 GENERAL RADIATION BIOLOGY. (4)
A basic course devoted to a study of radiation techniques and research and their application in the various fields of biology. Lectures devoted to basic background and health hazard aspects followed by more comprehensive treatment of biological aspects. Laboratory devoted to use of radioisotopes and techniques of their measurement using various radiation detectors and counters. Lecture, two hours; laboratory, four hours. Prereq: Two years of biological sciences; one year of chemistry, and consent of instructor. (Same as RM 540.)

BIO 542 HISTOLOGY. (5)
An intensive study of vertebrate histology at the tissue, cell and subcell levels with emphasis on human tissues. Some knowledge of cell biology, biochemistry, physiology and anatomy is desirable. The laboratory involves study of prepared microscope slides. Lecture: three hours per week; laboratory: four hours per week. Prereq: BIO 152 or BIO 315 or BIO 340 or consent of instructor.

BIO 544 EMBRYOLOGY. (5)
A comparative study of chordate development, stressing morphogenesis and reproduction of vertebrate species and evolutionary changes in ontogeny. Laboratory devoted principally to development of the frog, chick and pig. Three lectures and two two-hour laboratories per week. Prereq: BIO 340.

BIO 549 COMPARATIVE ENDOCRINOLOGY. (3)
An introductory and comparative survey of invertebrate and vertebrate endocrine organs and neuroendocrine mechanisms with emphasis on the evolution, chemistry, actions and functions of hormones. Prereq: BIO 350 or consent of instructor. (Same as PGY 549.)

BIO 550 COMPARATIVE PHYSIOLOGY. (5)
Physiological mechanisms by which animals cope with different environmental stresses. Osmoregulation, respiration, temperature regulation and tolerance, sensory reception, circulation, etc. Prereq: One year college chemistry, BIO 350 or equivalent, one year college physics or consent of instructor.

BIO 551 PLANT AUTECOLOGY. (4)
The effect of physical and biotic factors on plants and environment. Physiological, morphological and anatomical adaptations of plants to the physical factors of the environment are emphasized. Some of the laboratory exercises are carried out in the field. Lecture, three hours; laboratory, two hours. Prereq: BIO 451G or consent of instructor.

BIO 552 TAXONOMY OF VASCULAR PLANTS. (4)
A study of the principles and practices of taxonomy and a detailed consideration of the families of vascular plants. Lecture, two hours; laboratory, four hours, including field trips. Prereq: Two semesters of biology or consent of instructor.

BIO 553 FISH BIOLOGY. (4)
This course explores the biology of fishes from an evolutionary perspective. Lectures cover physiology, functional morphology, ecology, population biology, behavior, evolutionary relationships, and fisheries biology. Laboratory exercises include development of a fish collection; experiments in fish physiology, behavior and ecology; computer modelling of problems in fisheries biology; and field trips. Lecture, two hours; laboratory, four hours per week. Prereq: BIO 150, 151, 152 and 153 or consent of instructor.

BIO 554 MAMMALOGY. (3)
A study of the mammals of the world and their evolution, classification, adaptations and life history, with emphasis on the mammals of Kentucky. Lecture, two hours; laboratory, three hours per week.

BIO 555 VERTEBRATE ZOOLOGY. (4)
An intensive survey of the vertebrate classes with emphasis on morphology, classification, phylogeny, trends in evolution, and adaptations. Lecture, two hours; laboratory, two hours. Prereq: BIO 104, 105 or BIO 150, 151, 152, 153 or consent of instructor.

BIO 557 HERPETOLOGY. (4)
An intensive survey of amphibians and reptiles of North America, their classification, adaptations and natural history. Emphasis is placed on eastern North American herptefauna, with special emphasis on Kentucky's fauna. Lecture, two hours; laboratory, four hours. Prereq: BIO 104, 105 or BIO 152, 153 or consent of instructor.

BIO 559 ORNITHOLOGY. (4)
A study of the life histories, habits, identification, structure, adaptations, and physiology of birds. Special emphasis upon migrations, songs, nests and economic importance of our native birds. Lecture, field excursions, laboratory studies. Prereq: BIO 104, 105 or BIO 150, 151, 152, 153 or consent of instructor.

BIO 560 BIOLOGY OF INSECTS. (4)
Introduction to the Class Insecta. Morphology, physiology, development, systematics, and ecology of insects; procedures and techniques of insect identification; preparation of insect collections for research purposes. Lecture, two hours; laboratory, four hours. Prereq: BIO 104 or BIO 150, 151, 152, 153.

BIO 561 MEDICAL ENTOMOLOGY. (4)
Study of arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Prereq: BIO 104/105, BIO 106/107 or consent of instructor. (Same as ENT 561.)

BIO 562 EXTERNAL MORPHOLOGY OF INSECTS. (4)
A study of the external structure of insects, including function and variation of form. Prereq: ENT 100 or equivalent. (Same as ENT 562.)

BIO 563 PARASITOLOGY. (4)
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures, and life histories. Techniques for host examination and preparation of material for study. Prereq: BIO 150, 151, 152, 153 or consent of instructor. (Same as ENT 562.)

BIO 564 INSECT TAXONOMY. (4)
A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Prereq: ENT 562 or equivalent. (Same as ENT 564.)

BIO 565 LIMNOLOGY. (4)
Analysis of fresh-water systems, with special emphasis on aquatic ecology. Lecture, three hours; laboratory, three hours per week. Prereq: CHE 115, PHY 213, and BIO 150-153; or consent of instructor.

BIO 568 INSECT BEHAVIOR. (3)
The principles of animal behavior will be stressed using insects as examples. Physiology, mechanisms, behavioral ecology and evolution of insect behavior will be covered. Prereq: One year of biology. (Same as ENT 568.)

BIO 570 INVERTEBRATE ZOOLOGY. (4)
An intensive survey of the invertebrate phyla, including morphology, classification, phylogeny, general trends in the evolution of organ systems, and adaptations to varied modes of existence. Lecture, two hours; laboratory, four hours. Prereq: BIO 104, 105 or BIO 152, 153 or consent of instructor.

BIO 571 ALGOLOGY. (4)
A survey of the physiology, morphology, life histories, taxonomy and evolutionary relationships of the various groups comprising the algae, with the main emphasis upon the freshwater algae. Lecture, two hours; laboratory, four hours. Prereq: Six credits in biology.

BIO 573 MYCOLOGY. (4)
A survey of the physiology, morphology, life histories, taxonomy and evolutionary relationships of the various groups comprising the fungi. Lecture, three hours; laboratory, two hours. Prereq: BIO 106, 107 or BIO 152, 153.

BIO 574 ANATOMY OF VASCULAR PLANTS. (4)
The nature and origin of primary and secondary tissues and their distribution in plant organs; the use of anatomical information in phylogeny, pathology, ecology and other research areas. Lecture, two hours; laboratory, two hours. Prereq: Two semesters of biology or consent of instructor.

BIO 576 INDUSTRIAL MICROBIOLOGY. (4)
Physiological and genetical aspects of microbial growth, dormancy, and death with special emphasis on the use of microbes by industry. Lecture, two hours; laboratory, four hours per week. Prereq: BIO 108; CHE 232 or consent of instructor.

BIO 580 METABOLISM OF MICROORGANISMS. (4)
An intensive study of the physiology and biochemistry of microorganisms with special emphasis on anaerobic fermentations, anaerobic and aerobic respiration, oxidation-reduction pathways involving organic and inorganic compounds, and the comparative aspects of procaryotic and eucaryotic energy transducing and utilization mechanisms. Lecture or conference, two hours; laboratory, four hours per week. Prereq: CHE 230, CHE 231, BCH 401G (or equivalent), and an introductory course, with laboratory, in microbiology.

BIO 582 VIROLOGY. (3)
Physical, chemical and biological properties of viruses. Modes of replication and control of gene product formation displayed by representative plant, animal, and bacterial viruses. Prereq: One year of biology and one semester of introductory microbiology or equivalent. BIO 404G and biochemistry or equivalent strongly recommended, or consent of instructor.

BIO 585 PATHOGENIC MICROBIOLOGY. (3)
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Prereq: BIO 108 or 276 or 476G, and CHE 107.

BIO 586 LABORATORY IN PATHOGENIC MICROBIOLOGY. (2)
Laboratory studies on human and animal pathogenic bacteria, especially their morphological, cultural, and pathogenic properties. Laboratory, four hours per week. Prereq or concur: BIO 585.

BIO 590 GNOTOBIOTIC METHODOLOGY. (2)
A practical course for students who wish to learn how to conduct gnotobiotic experiments. In this type of work animals are maintained either in absence or in association with known microbial contaminants. Prereq: BIO 276 or equivalent and consent of instructor. (Same as CNU 590.)

BIO 595 IMMUNOBIOLOGY. (2)
Laboratory in immunology and serology. Preparation, standardization, and uses of biological products; serology. Laboratory; four hours. Prereq: BIO/MI 494G or concurrently; or consent of instructor. (Same as MI 595.)

BIO 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BCH/MI/PPA 601.)

BIO 608 BEHAVIORAL ECOLOGY. (3)
This course uses an evolutionary approach to examine the behavior of organisms. Topics addressed include: optimality and behavior, kin and group selection, predator and prey behaviors, and social and mating behaviors. Prereq: BIO 451G and one semester of calculus; or consent of instructor. (Same as ENT/FOR 608.)

BIO 609 COMMUNITY AND ECOSYSTEM ECOLOGY. (3)
This course discusses the structural attributes of communities, particularly as determined by antagonistic and mutualistic interactions among populations. The diversity and stability of communities and response of species distributions to environmental gradients are emphasized. The ecosystem concept is introduced and system ecology is considered. Prereq: BIO 451G or FOR 340 or consent of instructor. (Same as ENT/FOR 609.)

BIO 610 POPULATION ECOLOGY. (3)
This course examines the processes that determine the sizes and distributions of plant and animal populations. Topics addressed include: life tables, life history strategies, population regulation and population stability, and the role of biological factors such as competition, predation and mutualism in determining single-species and multi-species population dynamics. Prereq: BIO 451G or FOR 340 and one semester of calculus; or consent of instructor. (Same as ENT/FOR 610.)

BIO 611 BIOPATHOLOGY. (3)
The course will examine the mechanisms by which various biological, chemical and physical agents injure susceptible hosts and the complex biochemical and immunological reactions which occur in response to injury. The host defense mechanisms will be illustrated by an analysis of selected human diseases and animal model systems with particular emphasis on the events at the molecular and cellular level. Prereq: BCH 502 or concurrent, BIO/MI 494G or equivalent and consent of instructor. (Same as MI 611.)

BIO 612 BIOLOGY OF AGING. (3)
A multidisciplinary discussion of how the process of aging affects biological systems. Coverage will be quite broad and includes topics such as subcellular and cellular aging, genetics, immunology, anatomy and physiology, animal model of aging, etc. Prereq: Enrollment in a graduate program of a biomedical science department or consent of instructor. (Same as GRN 612.)

BIO 615 MOLECULAR BIOLOGY. (3)
An integrative and functional approach to the regulatory aspects of DNA, RNA and proteins in procaryotic and eucaryotic cells. Lectures and discussions with readings in original literature. Prereq: BIO 404G or equivalent; BCH 401G or equivalent. (Same as BCH/MI 615.)

BIO 617 ADVANCED MICROTECHNIQUE. (3)
Special methods in histological techniques for students of zoology, pathology or anatomy. Prereq: A course in zoology, pathology or anatomy or consent of instructor.

BIO 619 CYTOGENETICS. (4)
Classical, biochemical and molecular studies of the structure and function of eukaryotic chromosomes. Emphasis is placed on the effects of variation in chromosome type, structure and number on Mendelian genetics and in plant and animal breeding. Lecture, three hours; laboratory, two hours. Prereq: AGR/ASC 360 or BIO 404G. (Same as AGR 619.)

BIO 621 TOPICS IN MODERN BIOLOGY (Subtitle required). (1-3)
A course for students in the biological and related sciences to be taught on various topics by specialists in their fields. Designed to give the student the most up-to-date information on the various topics. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

BIO 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constitutents by centrifugation, chromatography, spectroscopy and electrometry. Discussion of methods and design to culture, sample and prepare plant material for use in physiological experiments. Lecture, two hours; laboratory, three hours. Prereq: BIO 530, CHE 232, 233 or consent of instructor. (Same as AGR 630.)

BIO 632 ADVANCED CELL BIOLOGY I. (3)
A molecular level treatment of cell structure and function derived from current experimental approaches. Eukaryotes will be stressed. Topics will usually include membrane structure and function, the cytoskeleton and the extracellular matrix, and bioenergetics. Lectures and discussions with reading in the original literature. Prereq: BIO 404G or equivalent; coreq: BCH 501 or equivalent, or consent of instructor.

BIO 633 ADVANCED CELL BIOLOGY II. (3)
This course is a companion to BIO 632. Topics will usually include a molecular level discussion of gene structure, gene expression, and gene regulation, followed by the cell and molecular biology of cell proliferation, development, and differentiation. Lectures and discussions with reading in the original literature. Prereq: BIO 404G or equivalent, BCH 501 or equivalent, or consent of instructor.

BIO 635 INSECT PHYSIOLOGY AND INTERNAL MORPHOLOGY. (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, neurophysiology, endocrinology, and digestion. Internal morphology will be studied as it relates to function. Lecture, three hours; laboratory, two hours. Prereq: Consent of instructor. (Same as ENT 635.)

BIO 639 RESEARCH PROJECTS IN BIOLOGICAL MODELING. (3)
Mathematical modeling of selected biological systems. Small groups will define the problem, develop a mathematical model, and examine its biological implications. Systems to be modeled may be chosen from any area of the life sciences depending on the experience and interest of the group members. The groups will be supervised by a faculty member from biological sciences and one from mathematics. Prereq: MA/BIO 411 or consent of instructor. (Same as MA 639.)

BIO 640 BIOLOGICAL EFFECTS OF RADIATION. (3)
A consideration of the action of ionizing radiation and ultraviolet light at progressively higher levels of organization. Recent experiments and current theoretical concepts will be emphasized. Prereq: BIO/RM 540 or one year of chemistry, physics, and biological sciences and consent of instructor. (Same as RM 640.)

BIO 645 SPECIAL TOPICS IN ENDOCRINOLOGY. (2)
A lecture-seminar course designed to explore in-depth certain areas not covered in the introductory course. Usually invertebrate endocrinology, plant hormones, and physiology of reproduction will be covered. Prereq: BIO 549 or consent of instructor.

BIO 660 ADVANCED ANIMAL ECOLOGY. (3)
Selected topics from recent studies on the energy flow concept of ecology, population ecology and community ecology. Prereq: BIO 502 or BIO 551, one year physics, organic chemistry, one year mathematics; calculus and statistics recommended.

BIO 665 INSECT ECOLOGY. (3)
The biotic and physical factors influencing the distribution and abundance of insects and insect populations. Prereq: Consent of instructor. (Same as ENT 665.)

BIO 673 EXPERIMENTAL MYCOLOGY. (4)
The physiology, morphogenetic systems, and genetics of the fungi. Lecture, two hours; laboratory, four hours per week. Prereq: BIO 573 or consent of instructor.

BIO 685 ADVANCED IMMUNOBIOLOGY. (4)
An introductory level graduate course surveying current trends in immunology including the organization and structure of cells relevant to immunity, immunochemistry, types of immune responses, cellular immunology, immunogenetics and immunopathology. Prereq: BCH 401G, or BCH 501 or 502 or equivalent or consent of instructor. (Same as MI 685.)

BIO 707 CONTEMPORARY TOPICS IN IMMUNOLOGY. (2)
This course will deal with controversial and evolving areas in immunology. Lectures in a given topic will be accompanied by student discussion of contemporary literature. Prereq: MI 685 or equivalent or consent of instructor. (Same as MI 707.)

BIO 714 MICROBIAL GENETICS. (4)
The nature and action of genetic material in microorganisms. Lecture and conference, two hours; laboratory, four hours. Prereq: Basic courses in genetics and microbiology; CHE 232.

BIO 716 METABOLISM OF MICROORGANISMS. (4)
Continuation of BIO 580. Lecture or conference, two hours; laboratory, four hours. Prereq: BIO 580.

BIO 720 MICROBIAL STRUCTURE AND FUNCTION. (3)
Molecular basis of structure and function in unicellular microbes. Molecular genetic and structural approaches to the analysis of bacterial architecture growth, division, and differentiation. Prereq: Consent of instructor, BCH 501, BCH 502, and BIO 476G or equivalent. (Same as MI 720 and OBI 720.)

BIO 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 735 or BCH 501 or consent of instructor. (Same as AGR/HOR 732.)

BIO 734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT. (3)
A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment. Prereq: BIO 530 or consent of instructor. (Same as AGR/HOR 734.)

BIO 735 ADVANCED PLANT PHYSIOLOGY. (3)
Various apsects of plant physiology including the nature of plant cell membranes, membrane transport phenomena, the interaction of light with plant pigments, energy-linked reactions in chloroplasts and mitochondria, and intracellular movement of metabolites. Lecture, two hours; laboratory, two hours. Prereq: CHE 236 or 232; BIO 530 or consent of instructor.

BIO 740 MAMMALIAN RADIATION BIOLOGY. (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. Prereq: Must have consent of instructor, BIO/RM 540 or RM 546 or equivalent background. (Same as RM 740.)

BIO 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

BIO 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

BIO 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

BIO 770 SEMINAR IN ZOOLOGY. (1)
Discussions of current research in zoology. Prereq: Graduate standing in biological sciences.

BIO 771 SEMINAR IN BOTANY. (1)
Reports and discussions on various topics in botany. May be repeated five times for a maximum of six hours.

BIO 772 SEMINAR IN MICROBIOLOGY. (0-1)
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national and international scientific and professional societies and symposia. Required of all graduate students. Two hours per week. May be repeated nine times for a maximum of 10 credits. (Same as MI 772.)

BIO 773 SEMINAR IN PLANT PHYSIOLOGY. (1)
Reports and discussions on various topics in plant physiology. May be repeated for a maximum of eight credits. (Same as AGR 773.)

BIO 774 SEMINAR IN GENETICS. (1)
Review of current literature in genetics; presentation of papers on research in progress or on assigned topics; reports on meetings of scientific societies. Required of all graduate students in genetics. May be repeated to a maximum of 10 credits. Prereq: ASC 562 or consent of instructor.

BIO 782 ADVANCED VIROLOGY. (3)
Current trends in virology. Typical topcis include DNA tumor viruses, RNA tumor viruses, persistent virus infections, and interference. Emphases of molecular mechanisms. Prereq: BIO 582. Adequate biochemistry and genetics strongly recommended, or consent of instructor.

BIO 795 RESEARCH IN ZOOLOGY. (1-6)
Independent research work under direction with conferences on objectives, principles, materials, methods, analysis of data and conclusion. Progress reports required at intervals. May be repeated indefinitely at discretion of department. Type of research to be enclosed in parentheses, e.g. (genetics), (ecology), (embryology). Prereq: Undergraduate degree in biological sciences.

BIO 796 RESEARCH,IN BOTANY. (1-6)
May be repeated indefinitely at the discretion of the department. Type of research to be enclosed in parentheses, e.g., (plant morphology), (mycology), (systematic botany), (cytogenetics), etc.

BIO 797 RESEARCH IN BACTERIOLOGY. (3-6)
Laboratory, 10 hours. May be repeated to a maximum of 12 credits.

BIO 798 RESEARCH IN MICROBIOLOGY. (1-9)
May be repeated to a maximum of 24 credits. Prereq: Consent of instructor. (Same as MI 798.)

MB 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams. (Same as MI 749.)

MB 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours. (Same as MI 768.)

MB 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (1-12)
May be repeated indefinitely. (Same as MI 769.)

BIOMEDICAL ENGINEERING

BME 530 BIOMEDICAL INSTRUMENTATION. (3)
Transducers, amplifiers for physiological measurements, biopotential measurements, and selected topics in biomedical instrumentation. Some of the topics include pressure, flow, ultrasonic and nuclear instrumentation and scanning and imaging devices. Lecture, two hours; laboratory, three hours per week. Prereq: EE 305 or equivalent.

BME 540 BIOLOGICAL SIGNAL PROCESSING I. (3)
Signal concepts, characteristics of biological signals, A/D and D/A conversion, data representation and transformation, power spectra, statistical signal analysis, auto and cross correlations, orthogonal transformation. Prereq: PGY 502 and EE 305 or equivalent.

BME 610 BIOLOGICAL SYSTEM ANALYSIS. (3)
Homeostatic mechanisms, input-output analysis, steady state and transient response, feedback concepts, system identification and simulation from actual operating data. Prereq: PGY 502 and ME 440 or equivalent.

BME 640 BIOLOGICAL SIGNAL PROCESSING II. (3)
Digital image characterization; ultrasonic, X-ray and NMR imaging concepts. Two-dimensional transforms, image enhancement and restoration techniques, review of available image enhancement procedures for biomedical applications. Prereq: BME 540 or equivalent.

BME 650 MUSCULOSKELETAL BIODYNAMICS. (3)
Study of the mechanical and electrical properties and viscoelastic nature of the musculoskeletal system and its components. Engineering analysis of system's dynamic response to stress. Mathematical modeling of system and components. Prereq: PGY 502, EE 305, or consent of instructor.

BME 652 BIOMECHANICS OF TRAUMA. (3)
Engineering analysis of human response to impact; vibration and sustained acceleration; analysis of energy management applied to vehicle occupant restraint systems and protective equipment for sports. Prereq: BME 650.

BME 660 BIOMEDICAL APPLICATIONS OF ULTRASOUND. (3)
Acoustic waves, transmission and radiation, absorption and attenuation, radiation fields, ultrasonic transducers, biological effects of ultrasound, diagnostic and therapeutic applications of ultrasound. Prereq: PGY 502, EE 305.

BME 685 BIOFLUID MECHANICS. (3)
Rheological concepts, general classification of biological fluids, blood rheology, engineering analysis of circulatory processes, rheology of the microcirculation, pulsatile flow in small and large blood vessels, rheological aspects of disease. Lecture, three hours with lab demonstrations. Prereq: PGY 502, ME 330, or consent of instructor.

BME 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

BME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

BME 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

BME 781 SPECIAL PROBLEMS IN BIOMEDICAL ENGINEERING. (3)
Discussion of advanced and current topics in biomedical engineering. Individual work on research problems of current interest. May be repeated to a maximum of nine credits. Lecture/laboratory hours, variable. Prereq: Approval of instructor.

BLACK STUDIES

BLK 200 INTRODUCTION TO BLACK STUDIES. (3)
An interdisciplinary course which establishes the intellectual context for an examination of the Black experience; it introduces students to the various approaches scholars use to analyze that experience. This course employs a topical framework which permits focus on issues reflecting the diversity and richness of Black experience across geographic boundaries.

BUSINESS ADMINISTRATION

BA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

BA 762 RESEARCH METHODOLOGY. (3)
Examines fundamental concepts in design, control, and measurement for social science research with emphasis on: reliability, internal and external validity, and causality. Prereq: Admission to DBA program and prior completion of or concurrent enrollment in a graduate level course on the general linear model.

BA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

BA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

BA 800 PROFESSIONAL INTERNSHIP IN BUSINESS ADMINISTRATION. (3)
The professional internship in business administration will allow MBA students the opportunity to undertake an internship in a business, assume professional responsibilities, and establish linkages between their academic preparation and actual business operations. Internship hours, 320 per semester. Prereq: Completion of first two semesters (24 hours) of MBA course work.

BUSINESS AND OFFICE TECHNOLOGY

(See also Vocational Education.)

BUS 110 INTRODUCTION TO OFFICE TECHNOLOGY. (1)
Overview of the field of office technology and related careers and expected qualifications; development of basic communications competencies.

BUS 112 THEORY AND PRINCIPLES OF SHORTHAND. (3)
A study of the theory and principles of shorthand (Gregg) with emphasis upon development in reading, in writing, and in establishing basic foundations for transcription. Prereq or concur: ENG 101.

BUS 116 KEYBOARDING. (1)
Development of keyboarding skills for operating typewriters, CRT's, and equipment with keyboards; emphasis on touch system for accuracy and control of alphabetic, numeric, symbol, and command keys. (No credit for those with previous typewriting instruction.)

BUS 117 TYPEWRITING. (2)
Principles and techniques of typewriting are integrated with a thorough study of form, style, and arrangement of typewritten materials. Prereq: BUS 116 or equivalent.

BUS 118 ADVANCED TYPEWRITING. (3)
A study of advanced principles and techniques of typewriting with emphasis upon planning and organizing a wide range of business communications media and upon meeting production standards essential to the operation of modern offices. Prereq: BUS 117 or equivalent.

BUS 209 OFFICE ACCOUNTING PRINCIPLES AND APPLICATIONS. (4)
A study of accounting systems for the professions, small businesses, and institutions. Special applications and practice sets will be utilized. Prereq: Consent of instructor.

BUS 212 ACCELERATED SHORTHAND. (3)
Reinforcement of shorthand principles and theory; development of dictation speeds and transcription skills. Prereq: BUS 112 and 117, or consent of instructor.

BUS 315 ADMINISTRATIVE OFFICE PROCEDURES. (3)
Development of knowledge and understanding of office procedures including filing rules, mailing operations, machine transcription, reprographic techniques, telephoning, and machine calculation for the administrative support staff. Prereq: BUS 110 (grade of C or higher) and 117, or consent of instructor.

BUS 316 OFFICE SIMULATION. (3)
Time management, workflow, priority setting, and decision making in a simulated environment; development of specialized terminology, operations, and procedures in areas such as medical, legal and/or technical offices. Prereq: BUS 315.

BUS 317 BUSINESS DATA PROCESSING FOR THE OFFICE. (3)
Study of the electronic approach to information/data processing. Overview of computer parts and applications with "hands on" microcomputer proficiency; use of software programs and BASIC programming with business education applications. Prereq: BUS 117; one accounting course.

BUS 318 PRINCIPLES OF INFORMATION PROCESSING FOR THE OFFICE. (3)
Study of principles of information processing in electronic offices and in word processing centers; development of formatting styles and production rates as well as measurement and evaluation processes in information processing. Prereq: BUS 118 and 315.

BUS 395 INDIVIDUAL WORK IN BUSINESS AND OFFICE EDUCATION. (1-6)
Individually supervised study in one or more specialized topics or problems in business and office education not covered in regular courses. Independently designed projects may also be selected. Open to seniors in business education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

BUS 445 OFFICE ADMINISTRATION AND SERVICES. (3)
A study of the theory, principles, and techniques of modern office administration and services with emphasis on information handling, planning and budgeting for operational procedures, office design and layout, human resources, and work procedures. Prereq: BUS 315 and 209.

BUS 460 SEMINAR IN BUSINESS AND OFFICE TECHNOLOGY (Subtitle required). (3-6)
A study of advanced or special topics of interest to office administrators and administrative secretaries. May be repeated up to a maximum of six credits. May not be repeated under same subtitle. Prereq: Majors or consent of instructor.

BUS 519 RECORDS MANAGEMENT. (3)
The underlying principles and procedures of records management; information storage and retrieval systems; integration and control of records sytems and programs. Prereq: BUS 118.

BUS 556 BUSINESS REPORTS AND COMMUNICATIONS. (3)
Written and oral communication relating to current problems in business investigated by various research procedures with major emphasis placed upon sources of data, compilation and arrangement of data, documentation, bibliography, and effective presentation. Prereq: BUS 315.

CHEMICAL ENGINEERING

CME 002 THE ENGINEERING PROFESSION (FRESHMAN). (0)
A continuation of CME 001. This course may be repeated indefinitely.

CME 101 INTRODUCTION TO CHEMICAL ENGINEERING. (1)
An introduction to the chemical engineering profession including: problem-solving techniques, use of computers, computer problems and lectures by practitioners.

CME 205 PROCESS PRINCIPLES I. (2)
A first course in material and energy balances, units, conversions, tie elements, recycle, bypass, gas laws and equations of state, heat effects, phase transitions, first law of thermodynamics. Prereq: CHE 115, C grade or better in MA 113, C average or better in CHE 105 and CHE 107, CS 221; prereq or concur: MA 114, PHY 231.

CME 210 PROCESS PRINCIPLES II. (2)
A second course in material and energy balances. Applications to separation operations, processes involving equilibrium reactions, and energy exchange. Process design problems are selected from contemporary case studies. Prereq: CME 205.

CME 320 ENGINEERING THERMODYNAMICS. (3)
Fundamentals of thermodynamics, review of first law, second and third laws, phase equilibria and chemical equilibria. Prereq: CME 210; prereq or concur: MA 213, PHY 232.

CME 395 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (1-3)
Individual work on some selected problems in the field of chemical engineering. May be repeated one time. Prereq: Engineering upper division status and approval of the chairperson of the department.

CME 412 STAGED MASS TRANSFER PROCESSES. (2)
Mass transfer processes described by the equilibrium stage concept, including distillation, gas absorption, and extraction. Design problems are conceived to require computer-aided modeling and analysis. Prereq: C grade average in CME 205 and CME 220.

CME 420 PROCESS MODELING IN CHEMICAL ENGINEERING. (3)
Applications of principles of material and energy balances, thermodynamics, heat and mass transfer, physical chemistry and numerical methods to problems in separation and transport processes and reactive systems. Prereq: MA 214, ME 330 and prereq or concur: CME 412, CME 425.

CME 425 HEAT AND MASS TRANSFER. (4)
Fundamental principles of conduction and convective heat transfer, and diffusional and convective mass transfer. Design applications to heat exchanges and packed bed absorbers. Prereq: ME 330, CME 205 and CME 320 and prereq or concur: CME 412.

CME 431 CHEMICAL ENGINEERING LABORATORY I. (2)
A laboratory course emphasizing experimental work in fluid flow, heat transfer, evaporation, mass transfer, and chemical reaction kinetics. Special consideration is given to mathematical and statistical data treatment, measurement techniques, report writing, and design applications of experimental results. Laboratory, six hours. Prereq: ME 325, ME 330, CME 412, CME 422, CS 221; and prereq or concur: CME 550 and engineering upper division status.

CME 432 CHEMICAL ENGINEERING LABORATORY II. (2)
Continuation of CME 431, including diffusional operations such as distillation, absorption, and drying. Laboratory, six hours. Prereq: CME 422, 431 and engineering upper division status.

CME 455 CHEMICAL ENGINEERING PROCESS DESIGN I. (3)
A lecture and problem-solving course devoted to the study of chemical engineering economics as it applies to the design of chemical process units and systems. Prereq: CME 412, CME 422, ME 325, ME 330, CS 221 and engineering upper division status.

CME 456 CHEMICAL ENGINEERING PROCESS DESIGN II. (4)
A lecture and problem-solving course intended to combine the principles of chemical engineering with optimization as they apply to the design of chemical processes. Results of each design case studied will be presented by both oral and written reports. Prereq: COM 199, CME 455, CME 550 and engineering upper division status.

CME 462 PROCESS CONTROL. (3)
Basic theory of automatic control devices and their application in industrial chemical plants is emphasized. Identification of control objectives, appropriate measurements and manipulations, and possible loops between these, requires integration of the control system with the original process design. Interactions between process units are analyzed using well-known analytical tools and design strategies. Prereq: Consent of instructor.

CME 470 PROFESSIONALISM, ETHICS AND SAFETY. (1)
Detailed lectures and supervised discussions on standards of ethics and safety as they relate to the engineering profession. Emphasis will be on safety in plant design and safety practice in the laboratory and plant. Sociologic problems inherent with air, water and waste management and professional ethics will be addressed. Prereq: Engineering upper division status.

CME 471 SEMINAR. (1)
Students carry out literature searches on assigned topics in engineering, prepare for and deliver formal and informal talks at least every two weeks, and submit written summaries of these presentations. Lecture, two hours per week. Prereq: COM 199 and engineering upper division status.

CME 505 ANALYSIS OF CHEMICAL ENGINEERING PROBLEMS. (3)
The application of numerical methods, differential equations, and transforms to complex chemical engineering problems. Prereq: MA 432G or consent of instructor.

CME 515 AIR POLLUTION CONTROL. (3)
Kinetics and equilibria of photochemical and "dark" atmospheric reactions. Atmospheric statics and dynamics including lapse rates, inversions, and vertical and horizontal air motion. Single and area source diffusion. Stack meterology. Prereq: CME 220 or ME 220.

CME 530 TRANSPORT I. (3)
A unified study of physical rate processes in liquids and vapors, including: mass, energy, and momentum transport, transport in chemically reacting systems, and similarities.

CME 550 CHEMICAL REACTOR DESIGN. (3)
A lecture and problem course dealing with interpretation of rate data and development of performance equations for single and multiple reactor systems. A design problem will be selected for an industrially important chemical reaction system requiring computer solution. Prereq: CS 221, CME 422, ME 325, engineering upper division status, or consent of instructor.

CME 552 POLYMERIC MATERIALS. (3)
Relating properties to structure; properties of polymer materials, mechanical, electrical and thermal properties of amorphous and crystalline polymers, molding and fabrication, polymers as additives, biomedical application, selection of polymers, design. Prereq: CHE 230 or CHE 236, or consent of instructor. (Same as MSE 552.)

CME 554 CHEMICAL AND PHYSICAL PROCESSING OF POLYMER SYSTEMS. (3)
Theory related to the chemical and physical processing of polymer systems, polymer chemistry, non-Newtonian flow behavior, stress and strain tensors, polymer processing operations and technology. Prereq: CHE 232 and ME 325, or consent of instructor. (Same as MSE 554.)

CME 570 CHEMICAL SEPARATION AND MEASUREMENT FOR CHEMICAL ENGINEERS. (4)
An engineering-oriented survey of modern topics in chemical measurement to include discussions of liquid extraction; liquid and gas chromatography; absorption spectroscopy; electrochemical processes; acid-base and complexation equilibria; operational amplifiers. Lecture, three hours; laboratory; three hours per week. Prereq: CME 220, CHE 440G, engineering upper division status or consent of instructor.

CME 580 DESIGN OF RATE AND EQUILIBRIUM PROCESSES FOR WATER POLLUTION CONTROL. (3)
The design of chemical and physical processes for the removal and concentration of organic, inorganic, and particulate pollutants from aqueous solution/suspension: adsorption, destabilization, disinfection, membrane processes, thermal processes, flow through beds of solids, etc. Prereq: CHE 440G, CME 422 and prereq or concur: CME 550 or consent of instructor.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics, and mathematics. For major work, a candidate must hold a bachelor's degree in chemical engineering or its equivalent.

CME 606 MICROMETEOROLOGY AND ATMOSPHERIC TRANSPORT. (3)
A study of the transport processes occurring at the earth-atmosphere boundary with emphasis on geophysical turbulent diffusion. Included are equations of change in the atmosphere, atmospheric spectral dynamics, models of atmospheric turbulent flow and models of atmospheric dispersion. Prereq: ME/CE 529 or CME 530 or consent of instructor.

CME 615 ADVANCED AIR POLLUTION CONTROL. (3)
Principles and techniques of the control of atmospheric pollution, including process design for the removal of gaseous and particulate pollutants from air streams. Legal and administrative aspects of control. Prereq: CME 515 or consent of instructor.

CME 620 EQUILIBRIUM THERMODYNAMICS. (3)
The criteria for physical and chemical equilibria, including: predictive equations, solution theory, chemical activity, coupled chemical equilibria, and external constraints. Emphasis may be on vapor-liquid equilibrium, chemical reaction equilibrium, or complex ionic equilibria in dilute aqueous solutions and suspensions. Prereq: CHE 440G and CME 220 or consent of instructor.

CME 621 NONEQUILIBRIUM THERMODYNAMICS. (3)
An introductory course in the thermodynamics of irreversible processes, including: phenomenological equations relating flows and forces, Onsager's law, and entropy production in continuous processes. Prereq: CME 520, or ME 620, or consent of instructor.

CME 625 PROPERTIES OF GASES AND LIQUIDS. (3)
Development, discussion and application of intermolecular force laws as they apply to gases, liquids and mixtures: Chapman-Enskog kinetic theory, virial theorem, Buckingham (6-exp) potential, and theoretical and semitheoretical predictive equations. Estimation of thermodynamic and transport properties. Prereq: CME 520 and CME 530, or consent of instructor.

CME 631 TRANSPORT II. (3)
A continuation of Transport I. Interphase transport of mass, energy, and momentum is discussed. Boundary Layer theory is applied to combined transport and chemical reaction. Theories of turbulent transport are examined. Prereq: CME 530 or consent of instructor.

CME 635 STAGED MASS TRANSFER OPERATIONS. (3)
Design and performance of vapor-liquid or liquid-liquid, and solid-liquid systems, particularly for multicomponent mixtures. Emphasis will depend upon student interest. Prereq: CME 422.

CME 637 BIOLOGICAL TRANSPORT PHENOMENA. (3)
Selected topics concerning momentum and mass transfer in the cardiopulmonary system. Prereq: CME 530 or consent of instructor.

CME 642 ADVANCED PROCESS CONTROL I. (3)
Linear and nonlinear automatic control theory, dynamics of chemical process systems, design of systems. Prereq: CME 462.

CME 650 ADVANCED CHEMICAL REACTOR DESIGN. (3)
Rate expressions for heterogeneous reaction kinetics; energy and mass transport within and external to reacting porous catalysts; design equations for fixed, moving and fluidized-bed reactors. Prereq: CME 530 and CME 550 or consent of instructor.

CME 671 BASIC ELECTRODE PROCESSES IN ELECTROCHEMICAL ENGINEERING. (3)
Provides engineers with an introduction to electrochemical theory and measurement techniques, including relaxation methods. Selected topics in equilibrium electrochemistry, generalized theory of reversibility, double layer structural effects on charge transfer rates, organic redox reactions, chemical power systems, and biomedical engineering. Prereq: CME 520 or consent of instructor.

CME 680 BIOCHEMICAL ENGINEERING. (3)
Principles and design of processes involving biochemical reactions, including aerobic and anaerobic respirations and fermentations, and involving pure and mixed cultures. Energy considerations, heat and mass transfer, biochemical kinetics, and application to biological waste treatment. Prereq: CME 530, 550 and CHE 442G, or consent of instructor.

CME 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

CME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

CME 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)

CME 771 SEMINAR. (0)
Review of current literature in the field of chemical engineering, general discussion and presentation of papers on departmental research. Lecture, one hour per week. Required for all graduate students in chemical engineering.

CME 780 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (1-3)
Independent study, design, or research in chemical engineering topics. May be repeated to a maximum of 12 credits. Prereq: Approval of the departmental director of Graduate Studies.

CHEMISTRY

CHE 101 CHEMISTRY: A CULTURAL APPROACH I. (3)
This course is for nonscience majors and deals with the relationship between chemistry and other areas of learning.

CHE 102R PREPARATION FOR GENERAL CHEMISTRY. (2)
This course is remedial in nature and covers material commonly covered in high school chemistry and is offered on a pass-fail basis. This course is not available for credit to students who have received credit in any other chemistry course. Credit will not be given on the basis of Special Examination. Three hours lecture per week for last two/thirds of semester. Prereq: Composite score above ACT 25 percentile (College Bound Norms), or one semester of college work.

CHE 103 CHEMISTRY: A CULTURAL APPROACH II. (3)
This course is a continuation of CHE 101 and is for nonscience majors and deals with the relationship between chemistry and other areas of learning. Normally a terminal course. Lecture/discussion, two hours; laboratory, two hours. Prereq: CHE 101.

CHE 104 ELEMENTS OF COLLEGE CHEMISTRY I. (3)
A study of the principles of chemistry and their applications in inorganic, organic and biochemistry. In CHE 104 the emphasis is on stoichiometry, structure, physical principles and the reactivity of inorganic compounds. Intended for students with interests in the health sciences, nutrition and related disciplines. Credit is not given for students who already have credit for CHE 105 or 107. This course satisfies the prerequisites only for CHE 106 and CHE 115. Other advanced chemistry courses require CHE 105 and CHE 107 as prerequisites. Prereq: A working knowledge of algebra such as is acquired in two years of high school algebra, or MA 108R, or a composite ACT score of 20 or above.

CHE 105 GENERAL COLLEGE CHEMISTRY I. (3)
The principles of chemistry and the properties and reactions of the more important elements and their compounds. Prereq: Math ACT of 19 or above, or MA 109, or CHE 102R. Only 6 total hours of the 12 hours of CHE 104, 105, 106, 107 are permitted for credit toward a degree.

CHE 106 ELEMENTS OF COLLEGE CHEMISTRY II. (3)
A continuation of CHE 104. A study of the principles of chemistry and their applications in inorganic, organic and biochemistry. In CHE 106 the emphasis is on organic chemistry, biochemistry, buffers, acids, bases, equilibrium and nuclear chemistry. Credit is not given for those who already have credit in CHE 107. This course satisfies the prerequisites only for CHE 115 and CHE 236. Other advanced chemistry courses require CHE 105 and CHE 107 as prerequisites. Prereq: CHE 104 or CHE 105.

CHE 107 GENERAL COLLEGE CHEMISTRY II. (3)
A continuation of CHE 105. The principles of chemistry and the properties and reaction of the more important elements and their compounds. Prereq: CHE 105 or CHE 106. Only 6 total hours of the 12 hours of CHE 104, 105, 106, and 107 are permitted for credit toward a degree.

CHE 115 GENERAL CHEMISTRY LABORATORY. (3)
An introductory laboratory course dealing with chemical and physical properties; qualitative analysis and an introduction to quantitative analysis. Lecture, one hour; laboratory, four hours. Prereq or concur: CHE 106 or 107.

CHE 226 ANALYTICAL CHEMISTRY. (3-5)
An introduction to the theory and practice of quantitative analysis. Lecture, two hours; laboratory, three to six hours. Prereq: CHE 107 and 115.

CHE 230 ORGANIC CHEMISTRY. (3)
Fundamental principles and theories of organic chemistry. Prereq: CHE 107 and 115.

CHE 231 ORGANIC CHEMISTRY LABORATORY. (1-2)
Laboratory for CHE 230. Laboratory, three or six hours per week. Prereq or concur: CHE 230.

CHE 232 ORGANIC CHEMISTRY. (3)
A continuation of CHE 230. Prereq: CHE 230.

CHE 233 ORGANIC CHEMISTRY LABORATORY. (2)
Laboratory for CHE 232. Laboratory, six hours per week. Prereq: CHE 231. Prereq or concur: CHE 232.

CHE 236 ORGANIC CHEMISTRY. (4)
An elementary course for nonprofessional students. Lecture, three hours; laboratory, three hours. Prereq: CHE 107 and 115.

CHE 395 INDEPENDENT WORK IN CHEMISTRY. (1-3)
May be repeated to a maximum of nine credits. Prereq: Major and a standing of 3.0 in the department.

CHE 410G PRINCIPLES OF INORGANIC CHEMISTRY. (3)
An intermediate course dealing in detail with descriptive chemistry of the elements and their compounds (excepting the hydrocarbons and their derivatives), including necessary and/or appropriate theoretical and structural concepts. Prereq: CHE 226.

CHE 440G PHYSICAL CHEMISTRY. (3)
The fundamental principles of physical chemistry are studied with emphasis upon the application fo these in the correlation of natural phenomena. Prereq: CHE 107 and 115; MA 213; PHY 232.

CHE 441G PHYSICAL CHEMISTRY LABORATORY. (2)
Laboratory studies in physical chemistry to accompany CHE 440G or 444G. Laboratory, six hours. Prereq: CHE 440G or 444G.

CHE 442G PHYSICAL CHEMISTRY. (3)
A continuation of CHE 440G. Prereq: CHE 440G.

CHE 443G PHYSICAL CHEMISTRY LABORATORY. (3)
A continuation of CHE 442G. Laboratory studies in physical chemistry to accompany CHE 442G with emphasis upon the proper treatment of data. Laboratory, six hours; recitation, one hour. Prereq or concur: CHE 442G.

CHE 444G PHYSICAL CHEMISTRY. (4)
A one-semester course in the principles of physical chemistry. Lecture, three hours; recitation, one hour per week. Prereq: CHE 107; PHY 213 or 217; MA 113 or 132; prereq or concurrent: MA 114 or 224.

CHE 510 ADVANCED INORGANIC CHEMISTRY. (3)
A course dealing with the concepts of inorganic chemistry with emphasis on atomic structure, periodicity, nomenclature, bonding, chemistry of the nontransition elements and acid-base theories. Prereq: CHE 107 or 226.

CHE 512 INORGANIC CHEMISTRY LABORATORY. (3)
Preparative techniques of inorganic chemistry to include: the use of liquefied gases, aqueous and nonaqueous solutions, anhydrous and oxygen-free systems, and the handling of highly reactive materials. Lecture, one hour; laboratory, six hours. Prereq: CHE 510.

CHE 520 RADIOCHEMISTRY. (3)
Applications of radionuclides in chemistry with emphasis on principles of radioactive decay, interactions of radiation with matter, use of isotopic tracers, activation analysis, isotope dilution analysis, hot atom chemistry and nuclear dating methods. Prereq: CHE 107, or 226.

CHE 521 RADIOCHEMISTRY LABORATORY. (1-2)
Introductory radiochemistry laboratory. Emphasis is on nuclear radiation detection and radiochemical techniques including activation analysis, isotope dilution, liquid scintillation counting, hot-atom chemistry, X-ray florescence, nuclear spectroscopy, and radiochemical separations. Three or six (laboratory and discussion) hours per week. Prereq: CHE 520.

CHE 522 INSTRUMENTAL ANALYSIS. (4)
The theory and application of instrumental methods of analysis. Lecture, two hours; laboratory, six hours. Prereq or concur: CHE 442G or 444G.

CHE 532 SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS. (2)
Problems involving the use of nuclear magnetic resonance, ultraviolet and infrared spectroscopy, mass spectrometry and differential chemical reactivity in determining the structure of organic compounds. Discussion of chemical and physical methods for separation of mixtures of organic compounds. Prereq: CHE 231 and CHE 232.

CHE 533 QUALITATIVE ORGANIC ANALYSIS LABORATORY. (2)
The identification of unknown organic compounds using nuclear magnetic resonance, ultraviolet and infrared spectroscopy, mass spectrometry and traditional chemical techniques. Separation techniques are also emphasized. Laboratory, six hours. Prereq: CHE 532.

CHE 538 PRINCIPLES OF ORGANIC CHEMISTRY. (3)
A general survey of the field of organic chemistry. Lecture, three hours. Prereq: CHE 232.

CHE 547 ADVANCED PHYSICAL CHEMISTRY I. (3)
An introduction to quantum chemistry and spectroscopy, emphasizing applications to chemical bonding, atomic and molecular spectroscopy, and magnetic resonance. Lecture, three hours. Prereq: CHE 442G, MA 214.

CHE 548 ADVANCED PHYSICAL CHEMISTRY II. (3)
Fundamental principles of classical physical chemistry, including the kinetic theory, thermodynamics, statistical thermodynamcis, and chemical kinetics. Prereq: CHE 440G.

CHE 550 PHYSIOLOGICAL CHEMISTRY. (4)
A study of the chemistry of living processes. Lecture, three hours; laboratory, three hours. Prereq: CHE 226, 231 and 232.

CHE 552 PHYSIOLOGICAL CHEMISTRY. (4)
A continuation of CHE 550. Prereq: CHE 550.

CHE 572 SEMINAR. (1)
Reports and discussions on recent research and current chemical literature. May be repeated to a total of two credits.

CHE 580 TOPICS IN CHEMISTRY. (1-3)
A detailed investigation of a topic of current significance in chemistry. May be repeated to a maximum of six credits. Lecture and/or laboratory: variable. Prereq: CHE 232 and 440G or 444G, or consent of instructor.

CHE 602 SHORT TOPICS IN CHEMISTRY. (1-3)
Three topics of current research significance in chemistry are investigated over a period of five weeks each. Students may register for topics A, B, or C for one credit hour for each topic. May be repeated to a maximum of six credits but no more than one credit may be earned under the same title. Prereq: Consent of instructors.

CHE 610 CHEMISTRY OF THE TRANSITION METALS. (3)
A detailed treatment of the chemistry of the transition elements, lanthanides and actinides, including the structure of coordination complexes, bonding, reaction mechanisms and preparations. Prereq: CHE 510.

CHE 612 INORGANIC CHEMISTRY OF THE NONMETALS. (3)
A detailed treatment of the inorganic chemistry of the nonmetals. Topics include theories of bonding, spectral characteristics, reaction mechanisms, preparations, physical methods of characterization and structural determination, and applications. Prereq: CHE 510.

CHE 614 ORGANOTRANSITION METAL CHEMISTRY. (3)
A detailed treatment of the organometallic chemistry of the transition metals, including lanthanides and actinides. Topics include synthesis, structure, bonding theories, reactions, characterization by physical methods, and applications in organic chemistry and catalysis. Prereq: CHE 232, CHE 410G or 510, and CHE 442G or 444G; or equivalent courses; or permission of instructor.

CHE 616 NUCLEAR CHEMISTRY. (3)
An advanced study of nuclear chemistry and topics related to nuclear and radiochemistry. Prereq: CHE 443G and 520.

CHE 620 ELECTROCHEMICAL METHODS OF ANALYSIS. (3)
An intensive study of the fundamental theories and principles of electochemistry, and their practical applications for physical and quantitative analytical measurements. Topics will include potentiometric, voltametric, amperometric, and coulometric methods. Lecture: two hours; laboratory: three hours per week. Prereq: CHE 442G, 522 or 548.

CHE 625 OPTICAL METHODS OF ANALYSIS. (3)
An intensive study of the theory, instrumentation, and analytical applications of modern atomic and molecular spectrometric methods. Lecture, two hours; laboratory, three hours per week. Prereq: CHE 522.

CHE 626 ADVANCED ANALYTICAL CHEMISTRY. (3)
An advanced study of the theory and practice of quantitative analysis.

CHE 633, 635 ADVANCED ORGANIC CHEMISTRY. (3 ea.)
Fundamental organic chemistry as interpreted by modern theory. Prereq: CHE 538.

CHE 646 CHEMICAL KINETICS. (3)
Studies of chemical reactions from the standpoint of velocity and mechanism. Prereq: CHE 442G.

CHE 710 TOPICS IN INORGANIC CHEMISTRY. (2-4)
Discussion of topics of recent interest in inorganic chemistry, including physical methods, syntheses, and structural theories. May be repeated to a maximum of 12 credits. Prereq: CHE 610 or 612.

CHE 736 TOPICS IN ORGANIC CHEMISTRY. (2-4)
Selected topics which may include heterocyclic organic compounds, natural and synthetic dyes, carbohydrates, nitrogen compounds, and recent advances in the field of organic chemistry. May be repeated to a maximum of 12 credits.

CHE 743 MOLECULAR STRUCTURE. (3)
Applications of quantum theory to chemical problems, theories of chemical bonding, structure and spectra of molecules. Prereq: CHE 547.

CHE 746 TOPICS IN PHYSICAL CHEMISTRY. (2-4)
Selected topics which may include photochemistry, structure of crystals, molecular spectra, nature of the chemical bond, and other recent advances in the field of physical chemistry. May be repeated to a maximum of 12 credits. Prereq: CHE 442G.

CHE 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

CHE 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

CHE 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

CHE 776 GRADUATE SEMINAR. (1)
Reports and discussions on recent research and current literature. Required of all graduate students. May be repeated for a total of eight credits.

CHE 780 INDIVIDUAL WORK IN CHEMISTRY. (1-5)
Selected library and laboratory problems in conformance with the student's interest will be attacked and pursued under the direction of a suitable staff member who is proficient in the area under investigation.

CHE 790 RESEARCH IN CHEMISTRY. (1-12)
Work may be taken in the following fields, subject to the approval of the Departmental Graduate Committee: analytical chemistry, industrial chemistry, inorganic chemistry, organic chemistry, radiochemistry, or physical chemistry. May be repeated indefinitely.

CIVIL ENGINEERING

CE 101 THE CIVIL ENGINEERING PROFESSION. (1)
An introduction to the civil engineering profession and a discussion of the prerequisites for entering the profession. Discussion of the conception, design, construction, and operation sequence, introduction to the equipment and facilities used by the civil engineer including calculators, computers, libraries and laboratories.

CE 106 COMPUTER GRAPHICS AND COMMUNICATION. (3)
Introduction to the use of scale, dimensioning, and orthographic projections. Graphical solution of spatial problems. Integrated application of computer graphics. Lecture, two hours; laboratory, four hours per week. Prereq: High school algebra and trigonometry or equivalent.

CE 110 PLANE SURVEYING. (3)
Principles, field practice and calculation. General use and care of surveying instruments. Lecture, two hours; laboratory, three hours. Prereq: proficiency in trigonometry (by examination in class) and prereq or concur: MA 113.

CE 121 INTRODUCTION TO CIVIL ENGINEERING SYSTEMS. (3)
An introduction to the civil engineering profession from a systems point of view and the use of computer hardware and software in CE systems analysis and design. Discussion of the conception, design, construction and operation processes. Concepts will be illustrated by use of small projects in transportation, structural, foundation and water resources systems using existing computer software packages and spreadsheets.

CE 199 TOPICS IN CIVIL ENGINEERING (Subtitle required). (1-4)
An experimental, topical, departmental, or interdisciplinary course devoted to a special topic of current interest to civil engineering and approved by the chairperson of the department of civil engineering and the dean of the college. May be repeated to a maximum of eight credits, but not more than four credits may be earned under the same title. Prereq: Consent of instructor.

CE 206 DESCRIPTIVE GEOMETRY. (2)
The graphical solution of spatial problems. Drawing room, six hours. Prereq: ME 105; high school algebra and trigonometry or equivalent.

CE 215 ROUTE, CONTROL AND TOPOGRAPHIC SURVEYING. (4)
Given at the Surveying Camp. Theory, field and office practice in route, control and topographic surveys. Applications of aerial photographs, hydrographic surveys, topographic maps and property survey plats including the precise measurement of all required values. Lecture, 17.5 hours; laboratory, 44 hours. Prereq: CE 106, CE 110, PHY 231 and approval of chairperson of department.

CE 250 TECHNOLOGY AND THE ENVIRONMENT. (3)
An introduction to the issues associated with environmental pollution and the role of technology in the solution to environmental problems. Topics to be discussed include air pollution, water treatment, water pollution sources and control measures, environmental concerns arising from the use of nuclear and fossil fuels, solid and hazardous waste management, and economic and regulatory constraints. This course may not be taken by CE majors.

CE 303 INTRODUCTION TO CONSTRUCTION ENGINEERING. (3)
The study of the planning, administration, and management of construction projects and an introduction to the methodology utilized in executing specified designs. Emphasis is placed on the organization of construction firms, development of construction documents, theory of estimating and quantity take-offs, contractual and management systems, scheduling project administration, and inspection of construction operations.

CE 330 FLUID MECHANICS. (3)
Fundamental principles of fluid flow. Prereq: EM 221 (or consent of instructor), ME 220 or CME 220, and MA 214.

CE 331 TRANSPORTATION ENGINEERING. (3)
An introduction to transportation engineering. Development of transportation systems in the United States. Route geometrics and design. Traffic flow characteristics and control. Planning financing and economic analysis of transport facilities. Prereq: CE 215.

CE 341 FLUID MECHANICS I. (3)
Fundamental principles of fluid flow. Includes fluids at rest (hydrostatics) and fluids in motion. Continuity, momentum and energy relations, ideal and viscous fluids. Emphasis on incompressible fluids (liquids). Prereq: ME 220.

CE 351 HYDRAULICS APPLICATIONS AND EXPERIMENTS. (2)
Applications of basic fluid mechanics principles to hydraulic systems important to civil engineering practice including pipe network analysis, open channel analysis and design, and culvert flow. Lectures with in-class problem solving and laboratory experiments and demonstrations. Lecture, one hour; exercise and laboratory, two hours. Prereq: CE 330.

CE 381 CIVIL ENGINEERING MATERIALS. (3)
A study of the microscopic and macroscopic structures and properties of materials used in civil engineering construction with emphasis on the relationships of their basic physical and mechanical properties to engineering design and application. Prereq: EM 302.

CE 382 STRUCTURAL MECHANICS. (3)
Analysis of statically determinate and statically indeterminate structures including beams, trusses, cables, arches and frames. Prereq: EM 302.

CE 395 INDEPENDENT WORK IN CIVIL ENGINEERING. (1-6)
Individual work on some selected problem in the field of civil engineering. May be repeated for a maximum of six credits. Prereq: Engineering upper division status, consent of department chairperson and the instructor.

CE 401 SEMINAR. (1)
A study of current engineering literature as related to civil engineering; assigned reading and reports. Round-table conferences for two hours. Prereq: Engineering upper division status and senior classification.

CE 403 CONSTRUCTION METHODOLOGY. (3)
A study of the methodology utilized in the construction of residential, building, heavy engineering, and industrial projects. Emphasis is placed on the selection of proper materials, equipment, and construction methods in order to execute the designs economically and according to specification limits. Prereq: CE 303, CE 381, engineering upper division status.

CE 405 CONSTRUCTION COST ENGINEERING. (3)
Construction cost estimating and analysis; resource determination; use of computers and data bases; types of estimates; General Provisions; financial risk evaluation and bidding strategies; and applications for construction management. Prereq: CE 403 and engineering upper division status; prereq or concur: CE 421.

CE 421 CIVIL ENGINEERING SYSTEMS ANALYSIS. (3)
An introduction to systems analysis and operations research, with applications in civil engineering. Economics analysis, search methods, linear and nonlinear programming network analysis and dynamic programming, probability and statistics, regression analysis and simulation. Emphasis on setting up mathematical models to analyze civil engineering systems. Prereq: CS 221, CE 382 and engineering upper division status.

CE 441 FLUID MECHANICS II. (3)
Application of basic fluid mechanics to problems of importance to civil engineering practice. This includes pipe flow (pipe networks), open channel flow, culvert flow, flow through meters, pumps, and turbines. Prereq: CE 341, CS 221.

CE 451 WATER QUALITY ENGINEERING. (3)
Survey of water resources field with emphasis upon water, sewage and industrial waste treatment theory and practices. Prereq: CE 341 or consent of instructor.

CE 461G HYDROLOGY. (3)
A study of the factors affecting the occurrence, movement and utilization of water including meteorological considerations, evaporation, transpiration, runoff relationships, hydrograph analysis, and ground water management. Prereq: CE 341, engineering upper division status or consent of instructor.

CE 471G SOIL MECHANICS. (3)
A study of the strength, deformation and hydraulic properties of soils and their relationship to settlement, stress distribution, earth pressure, bearing capacity and slope stability. Lecture, two hours; laboratory, three hours. Prereq or concur: GLY 240, EM 302.

CE 482 ELEMENTARY STRUCTURAL DESIGN. (3)
Application of principles of solid mechanics to the design of steel, timber, and reinforced concrete members and structures. Emphasis on basic ideas and their application to practical design of relatively simple structures according to the building code. Credit may not be used to satisfy technical elective degree requirements if credit is earned in CE 485G or CE 487G or CE 492G. Prereq: CE 382 and engineering upper division status.

CE 485G DESIGN OF TIMBER STRUCTURES, FORMWORK AND FALSEWORK. (3)
Behavior and design of structural components in timber; design of connections; design of complete timber structures, formwork for concrete, and falsework for support in construction and mining operations. Prereq: CE 382, engineering upper division status or consent of instructor.

CE 486G REINFORCED CONCRETE. (3)
Theory and design of beams, slabs, girders and columns as related to building frames and bridges. Introduction to pre-stressed concrete, elastic design and ultimate strength design. Prereq: CE 382 and engineering upper division status or consent of instructor.

CE 487G STEEL STRUCTURES. (3)
Design criteria and methods. Behavior and design of structural steel beams, columns, beam-columns, and bolted and welded connections. Analysis and design of composite steel/concrete beams. Torsion of open and closed sections. Considerations of instability of beams, columns, and plates in design. Plastic analysis and design of continuous structures. Introduction to computerized structural analysis and design. Prereq: CE 382 and engineering upper division status or consent of instructor.

CE 505 CONSTRUCTION PROJECT PLANNING AND MANAGEMENT. (3)
A study of the planning process and fundamental management procedures for construction projects. Special attention given to: planning of methods and resources; use of schedules; monitoring time; managing cash flow and costs; and overall project administration and record keeping. Prereq: CE 405 and engineering upper division status; or consent of instructor.

CE 506 THE ENGINEER, THE LAW, AND THE ENVIRONMENT. (3)
The impact of engineering activities on the environment and the resulting legal implications. The interrelationships between engineering and law as they affect such areas as water quality and pollution, air quality and pollution, noise pollution, visual pollution, land use planning and energy considerations and the conservation and (or) preservation of natural resources. Prereq: Engineering upper division status, or consent of instructor.

CE 511 PHOTOGRAMMETRY. (3)
Fundamentals of the photogrammetric method including geometry of the single photographs and terrestrial photographs; planning the photographic mission and ground control for mapping and an introduction to analytic photogrammetry, stereo-phogrammetric plotting instruments, photo interpretation and remote sensing. Applications to problems in engineering. Geography, geology and other disciplines are emphasized. Lecture, two hours; laboratory, three hours per week. Prereq: MA 113, engineering upper division status and consent of instructor.

CE 517 BOUNDARY LOCATION PRINCIPLES. (3)
Procedures for locating or relocating the boundaries of real property; records searching, technical aspects of field work, preparation of descriptions and survey reports, land data systems, legal aspects, special problems. Prereq: CE 215, engineering upper division status or consent of instructor.

CE 518 ADVANCED SURVEYING. (3)
Principles of precise survey procedures in triangulation, trilateration, traverse and leveling; adjustment computations; theory and practice of electronic distance measurement; basic geodesy and state plant coordinate sytems; applications to the horizontal and vertical control of engineering projects: review of modern land surveying problems and procedures. Lecture, two hours; laboratory, three hours per week. Prereq: MA 214, CE 215 and engineering upper division status.

CE 521 ENGINEERING ECONOMY. (3)
Economic evaluation and financial analysis of engineering alternatives in which the goal of economic efficiency is applied to engineering design. Prereq: Engineering upper division status.

CE 531 TRANSPORTATION SYSTEMS OPERATIONS. (3)
Analysis of transportation infrastructure problems through diagnostic study of existing transportation systems operations with emphasis on capacity and safety objectives. Engineering practice oriented toward open-ended solutions. Prereq: CE 215, CE 331, engineering upper division status.

CE 533 RAILROAD FACILITIES DESIGN AND ANALYSIS. (3)
Principles of railroad location, construction, rehabilitation, maintenance, and operation with emphasis on track structure design and analysis, bridges and bridge loading, drainage considerations, track geometry effects, and operating systems analysis. Prereq: CE 331, CE 381, CE 382; concur: CE 471G and engineering upper division status.

CE 534 PAVEMENT ANALYSIS AND DESIGN. (3)
Pavement types and wheel loads; stresses in flexible and rigid pavements; effect of climate and subgrade soils on pavement performance; evaluation of strength and other properties of soils, base courses, and paving materials; structural design of flexible and rigid pavements; pavement performance. Prereq or concur: CE 331, 471G and engineering upper division status.

CE 539 TRANSPORTATION SYSTEMS DESIGN. (4)
Introduction to processes and procedures for transportation systems design. Policy design, functional design and sizing, operation and schedule design, locational and geometric design, supporting structures design as they individually and collectively affect the efficacy of transportation systems. Lecture, three hours; laboratory, three hours per week. Prereq: CE 215 and CE 331.

CE 541 HYDRAULIC STRUCTURES. (3)
Structural and hydraulic analysis required for the design of concrete and earth dams and appurtenant structures. Prereq: CE 549, engineering upper division status or consent of instructor.

CE 542 APPLIED FLUID MECHANICS. (3)
Continuation of ME 330. Problem solving for ideal and viscous flows for design and research oriented purposes. Development and application of basic equations to engineering problems with emphasis on numerical modeling using computers. Prereq: CE 341, CS 221, engineering upper division status or consent of instructor. (Same as ME 529.)

CE 549 ENGINEERING HYDRAULICS. (3)
Analysis of flow in closed conduits and natural and artificial open channels. Design of hydraulic structures. Prereq: CE 341, CE 441 and engineering upper division status.

CE 552 WATER QUALITY CONTROL LABORATORY I. (3)
Lectures and laboratory practice in principles, application and interpretation of analytical tests used in water quality control research and process control. Lecture, two hours; laboratory, three hours. Prereq: Engineering upper division status and consent of instructor.

CE 556 SOLID AND HAZARDOUS WASTE MANAGEMENT. (3)
Study of the generation and management of solid and hazardous wastes. Application of engineering principles to the collection, transport, processing, resource recovery and ultimate disposal of these wastes. Prereq: CE 471G, CE 521 or consent of instructor.

CE 559 WATER QUALITY CONTROL FACILITIES DESIGN. (3)
Application of theoretical principles to the functional and hydraulic design of water quality control facilities. Prereq: CE 341, CE 441, CE 451 and engineering upper division status.

CE 561 URBAN HYDROLOGY. (3)
Application of general hydrologic and hydraulic principles in the design of urban stormwater management systems. Consideration of both water quality and quantity impacts on the urban environment. Design of storm sewers, detention basins and appurtenant structures. Prereq: CE 441, CE 461G.

CE 569 WATER RESOURCES SYSTEM DESIGN. (4)
Application of principles of hydrology, hydraulics, and environmental engineering in the planning, design, and analysis of a comprehensive water resource project. Emphasis on basic ideas and their application to the practical design of water supply, distribution, collection, and treatment facilities. Lecture, three hours; laboratory, three hours per week. Prereq: CE 441, CE 451, CE 461G.

CE 579 GEOTECHNICAL ENGINEERING. (3)
Application of the principles of soil mechanics and structural mechanics to the design of retaining walls, bracing for excavations, footings, mat and pile foundations and to the analysis of the stability of earth slopes. Prereq: CE 471G and engineering upper division status.

CE 582 ADVANCED STRUCTURAL MECHANICS. (3)
Approximate methods of frame analysis, energy methods, plastic analysis, matrix methods of plane structures, arches, nonprismatic members, flexible supports, influence lines for statically indeterminate structures, use of available computer programs for structural analysis and matrix operations. Prereq: CE 382 and engineering upper division status.

CE 586 PRESTRESSED CONCRETE. (3)
Fundamental basis and underlying principles for the analysis and design of prestressed concrete. Working stress and ultimate strength design methods, full and partial prestressing. Design for shear and torsion, deflection, crack control, and long-term effects, and prestress losses. Composite beams, continuous beams, slabs, short and slender columns, precast structures and their connections. Prereq: CE 486G and engineering upper division status.

CE 589 DESIGN OF STRUCTURAL SYSTEMS. (4)
Design loads and structural systems. Systems concepts in planning, analysis, design, and construction of structures. Buildings, bridges, special structures and foundations. Computer aided design and drafting (CADD) utilizing microcomputers and the mainframe computer. Lecture, three hours; laboratory, three hours per week. Prereq: CE 487G and CE 486G and engineering upper division status or consent of instructor; Coreq: CE 579.

CE 599 TOPICS IN CIVIL ENGINEERING (Subtitle required). (1-4)
A detailed investigation of a topic of current significance in civil engineering such as: design of small earth dams, man and the environment, drilling and blasting, scheduling construction operations, construction equipment and methods, traffic safety, optimum structural design, environmental impact analysis, systems analysis in civil engineering, motor vehicle noise and its control. May be repeated to a maximum of eight credits, but only four credits can be earned under the same title. A particular topic may be offered at most twice under the CE 599 number. Prereq: Variable; given when topic is identified; plus engineering upper division status.

PREREQUISITE FOR GRADUATE WORK: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in civil engineering or its equivalent.

CE 612 TERRAIN ANALYSIS. (3)
Techniques of terrain analysis for civil engineering purposes through the use of air photo interpretations (quantitative and qualitative) and other sources of pedologic, geologic and topographic information. Lecture, two hours; laboratory, three hours. Prereq: GLY 240.

CE 630 TRANSPORTATION ADMINISTRATION, ECONOMICS AND FINANCE. (3)
A study of highway administration, economics and finance; including organization of highway departments, sources and types of revenue, road costs, environmental values, classification of roads, benefits from improvements, systems analysis, and program planning. Prereq: CE 331 or consent of instructor.

CE 631 URBAN TRANSPORTATION PLANNING. (3)
A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Prereq: CE 531 or equivalent and STA 381, or STA 681 or equivalent statistics course. (Same as GEO 643.)

CE 632 TRAFFIC LAWS, ORDINANCES AND CONTROLS. (3)
Principles of controlling the development, application and revision of traffic laws, ordinances and control devices; historical perspective, current status, and future needs relative to traffic safety and capacity; behavioral (expressive self-testing) constraints on uniform application of traffic control theory. Prereq: CE 331 and CE 531 or consent of instructor.

CE 633 AIR TRANSPORT ENGINEERING. (3)
Planning location and design of airports, STOL ports, and heliports. Air traffic operations, peformance and control as related to facility requirements. Role of governmental agencies. Prereq: CE 531 or consent of instructor.

CE 634 TRAFFIC CHARACTERISTICS. (3)
Vehicle operating characteristics; driver, pedestrian and roadway characteristics as they individually, and collectively as traffic stream characteristics, are related to the planning design and operation of highway facilities. Prereq: CE 331.

CE 636 OPERATIONAL EFFECTS OF GEOMETRICS IN TRANSPORTATION. (3)
Operational effects of the geometry of transportation facilities includes capacity, safety, and economic considerations prompting current and impending changes in geometric design of intersections, interchanges, horizontal and vertical alignment, clearances, cross section elements and interfaces between elements of the transportation system. Prereq: CE 331.

CE 637 TRANSPORTATION SYSTEMS MODELING. (3)
Systems modeling applied to transportation problems. Modeling methods and techniques applied for the synthesis, analysis and evaluation of transportation systems. Transportation systems prediction models: service models, equilibrium models, resource models, activity shift models, demand models. Prereq: CE 331 and CE 531 or consent of instructor.

CE 638 MULTIDISCIPLINARY ACCIDENT INVESTIGATION AND RECONSTRUCTION. (3)
National Highway Traffic Safety Administration and Multidisciplinary Accident Investigation Protocol; analysis of human, vehicle and environmental factors associated with traffic accidents; uses and limitations of accident data; reconstruction of accidents from photographic evidence; current research and development needs. Prereq: B.S. degree in engineering or any other B.S. or B.A. degree plus EM 313 or equivalent.

CE 641 MECHANICS OF LIQUID FLOW IN PIPES. (3)
Steady and unsteady one-dimensional pipe flow. Water hammer and surge tank analysis. Steady two-dimensional pipe flow. Digital and analog computer applications. Prereq: CE 549.

CE 642 OPEN CHANNEL FLOW. (3)
The hydraulics of free surface flow including such topics as uniform flow, varied flow, unsteady flow, the hydraulic jump flow transitions, spillways and channel delivery. Prereq: CE 341.

CE 651 FUNDAMENTALS OF WATER QUALITY CONTROL I. (3)
Theory and practices of water and wastewater treatment with emphasis on physical and chemical processes for municipal and industrial wastewater treatment. Prereq: CE 451 or consent of instructor.

CE 652 FUNDAMENTALS OF WATER QUALITY CONTROL II. (3)
Theory and practices of wastewater treatment with emphasis on biological treatment processes for municipal and industrial wastewater treatment. Prereq: CE 451 or consent of instructor.

CE 653 WATER QUALITY IN SURFACE WATERS. (3)
Water quality requirements for various beneficial uses. Analysis of dispersion, advection, evaporation, natural aeration, biological oxidation and photosynthesis; their effects on the physical, chemical and biological quality of waters in streams, lakes, reservoirs, estuaries and other surface waters. Eutrophication. Prereq: MA 214 and CE 451, or consent of instructor.

CE 661 ADVANCED HYDROLOGY. (3)
Study of the mathematical models of hydrologic processes taking place in a watershed. Theory of flood wave propagation in stream channels. Theory of overland flow and its kinematic wave approximation. Equations of saturated and unsaturated subsurface flow on a hillside. Numerical solutions. Prereq: CE 341 and CE 461G or consent of instructor.

CE 662 STOCHASTIC HYDROLOGY. (3)
Hydrologic random variables and probability distributions. Statistical measures, development and use of Monte Carlo simulations in the generation of precipitation fields. Statistical tests of hydrologic data. Point frequency and regional frequency analysis. Analysis of hydrologic time series. Long-term trend, harmonic analysis of periodicity, autocorrelation, spectral analysis. Correlation and regression analysis. Linear stochastic models. Introduction to stochastic processes in hydrology, real-time hydrologic forecast (Kalman filter), pattern recognition, and stochastic differential equations. Prereq: MA 214, CE 461G or equivalent.

CE 664 WATER RESOURCES PLANNING. (3)
Introduction to federal water policy. Presentation of techniques for evaluating water resources projects to meet economic, environmental and social objectives. Planning, development and operation of river basin systems. Prereq: CE 665.

CE 665 WATER RESOURCES SYSTEMS. (3)
Application of systems analysis, mathematic modeling, and optimization in water resources management and design. Solution of engineering problems found in water supply, water quality, urban drainage, and river basin development and management by use of linear, nonlinear, and dynamic programming models. Prereq or concur: CE 421 and CE 569 or consent of instructor.

CE 667 STORMWATER MODELING. (3)
Introduction to deterministic and parametric modeling approaches for mathematically simulating stormwater runoff and quality. Emphasis on modeling concepts and model formulation. Analysis of deterministic component models and their linkage. Formulation of existing parametric models. Presentation of methods for parameter optimization and regionalization. Demonstration of linkage between the two approaches with illustrative examples. Prereq: CE 341 and CE 461G, or consent of instructor.

CE 671 ADVANCED SOIL MECHANICS. (3)
Detailed study of soil behavior. Specific topics include soil classification and structure, strength and deformational behavior, compaction, consolidation, and stress distribution in earth masses. Prereq: CE 471G or consent of instructor.

CE 673 FINITE ELEMENT APPLICATIONS IN ENGINEERING. (3)
Applications of the finite element method in the various fields of engineering. Specific topics include: stress distribution in soils and rocks, plates or rafts on elastic foundations, steady and unsteady groundwater flow, and nonlinear material problems encountered in engineering practice. Prereq: CE 382, CE 471G, or consent of instructor.

CE 676 GROUNDWATER AND SEEPAGE. (3)
Permeability and capillary flow in soils, mathematical theory of flow through porous media. Flow through anisotropic, stratified and composite sections. Solution by flow net, conformal mapping and numerical methods. Seepage toward wells. Dewatering and drainage of soils. Prereq: CE 471G or consent of instructor.

CE 679 SOIL-STRUCTURE DYNAMICS AND EARTHQUAKE ENGINEERING. (4)
Dynamic and earthquake response of soils and structures using standard analysis and design techniques. Time discretization topics include fast Fourier transforms, central differences, Newmark's method and Rayleigh-Ritz modal decomposition. Elastic wave propagation and measurement methods for obtaining the dynamic properties of soils and structures are considered. Earthquake terminology, analysis and design methods. Prereq: CE 579 and CE 582.

CE 682 ADVANCED STRUCTURAL ANALYSIS. (3)
Theory and application of energy principles for plane and space frames; shear wall structures; geometric and material nonlinear formulations; and nonlinear solution strategies. Solution techniques for the analysis of large complex structures. Introduction to plane stress/strain, axisymmetric and plate bending finite element analysis. Prereq: CE 582 or consent of instructor.

CE 683 EXPERIMENTAL STRUCTURAL ANALYSIS. (3)
Theory and practice of model analysis to facilitate the solution of unusual problems in structural engineering. Dimensional analysis, similitude requirements, materials, fabrication, loading and instrumentation of models, and interpretation of results. Lecture, one hour; laboratory, six hours per week.

CE 684 SLAB AND FOLDED PLATE STRUCTURES. (3)
Design and analysis of reinforced concrete floor slabs and folded plate roofs. Elastic and inelastic methods. Prereq: CE 582, EM 531, or consent of instructor.

CE 686 ADVANCED REINFORCED CONCRETE THEORY. (3)
Background and origin of modern reinforced concrete design procedures and codes. Comparison of American and foreign methods of analysis. Review of current research and projection of anticipated future changes in design and construction practices. Prereq: CE 486G, EM 531 or consent of instructor.

CE 687 ADVANCED METAL STRUCTURES. (3)
Background and origin of modern structural steel design procedures and codes. Applications of various methods to structural buckling problems. Instability of beams, columns, frames, and plates. Considerations of buckling and interaction of buckling modes in design. Post-buckling analysis and design of cold-formed steel, and other metal structures. Plastic analysis and design of steel frames. Factors related to metal structural design. Prereq: CE 582, EM 531, or consent of instructor.

CE 699 TOPICS IN CIVIL ENGINEERING (Subtitle required). (1-4)
An advanced level presentation of a topic from one of the major areas of civil engineering such as hydraulics, geotechnics, structures, transportation, surveying, or water resources. May be repeated to a maximum of eight credits, but not more than four credits may be earned under the same subtitle. Course with a given subtitle may be offered not more than twice under this number. Prereq: Variable; given when topic identified; graduate standing.

CE 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

CE 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

CE 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)

CE 772 EXPERIMENTAL METHODS IN SOIL MECHANICS. (3)
A comprehensive study, including literature review, and experimentation of the instrumentation, methods, and problems associated with the measurement of the behavior and the properties of soil. Laboratory and field methods used in research and practice. Lecture and recitation, two hours, laboratory, three hours. Prereq or concur: CE 671 or consent of instructor.

CE 779 ADVANCED GEOTECHNICAL ENGINEERING. (3)
Application of the principles of soil mechanics to the design and analysis of foundations and earth structures. Prereq: CE 579 and CE 671 or consent of instructor.

CE 782 DYNAMICS OF STRUCTURES. (3)
Review of methods of analysis of simple structural systems. Effects of wind, earthquake, traffic and machinery loads. Matrix methods for complex dynamic structural systems. Random vibrations of structures. Prereq: EM 513 and CE 682 or consent of instructor.

CE 784 SHELL STRUCTURES. (3)
Design and analysis of reinforced concrete shell structures, including domes, barrel shells, hyperbolic paraboloids and cylindrical tanks. Prereq: CE 684 or consent of instructor.

CE 789 ADVANCED COMPUTER AIDED STRUCTURAL ANALYSIS AND DESIGN. (3)
Finite element methods. Two- and three-dimensional stress analysis. Plate bending and shell elements. Geometric modeling techniques. Solution techniques and computer aided design methodology. Introduction to computer graphics. CAD systems—hardwares and softwares. Use and development of CAD systems. Analysis and design of large complex structures using CAD systems. Prereq: CE 694 or consent of instructor.

CE 790 SPECIAL RESEARCH PROBLEMS IN CIVIL ENGINEERING. (1-6)
Individual work on some selected problems in one of the various fields of civil engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Consent of the chairperson of the department.

CE 791 SPECIAL DESIGN PROBLEMS IN CIVIL ENGINEERING. (1-6)
Individual work on some selected problems in one of the various fields of civil engineering. Laboratory, six hours. May be repeated to a maximum of nine credits. Prereq: Consent of the chairperson of the department.

CLASSICAL LANGUAGES AND LITERATURES

COURSES IN ENGLISH
(No knowledge of Greek or Latin expected.)

CLA 131 MEDICAL TERMINOLOGY FROM GREEK AND LATIN. (3)
Latin and Greek roots, prefixes, and suffixes as found in medical terminology. Primarily for pre-medical, pre-dental, pre-nursing and pre-veterinary students, but others will be admitted for help in vocabulary building.

CLA 210 THE ART OF GREECE AND ROME. (3)
A survey of the major forms of art in ancient Western Asia, Greece, and Rome, with emphasis on the comparative typology and cultural significance of the monuments.

CLA 229 THE ANCIENT NEAR EAST AND GREECE TO THE DEATH OF ALEXANDER THE GREAT. (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the ancient Near East and Greece to the conquest of Greece by Philip of Macedon. (Same as HIS 229.)

CLA 230 THE HELLENISTIC WORLD AND ROME TO THE DEATH OF CONSTANTINE. (3)
Covers the conquests of Alexander the Great, and the main features of the Hellinistic World, the Roman Republic and the Roman Empire to the death of Constantine. (Same as HIS 230.)

CLA 235 CLASSICAL MYTHOLOGY. (3)
The Greek myths studied both from the standpoint of their meaning to the Greeks and Romans and from the standpoint of their use in later literature and in everyday life.

CLA 261 LITERARY MASTERPIECES OF GREECE AND ROME. (3)
A survey of major Greek and Roman literary works. Attention will be focused on the various genres of Classical literature, and the course will include comparative analysis of Greek and Latin literary pieces.

CLA 311 GREECE: FROM THE DARK AGES INTO HISTORY. (3)
Study of the art and architecture of Greece from about the 11th through the 6th century B.C. Emphasis on the development of social and philosophical traditions as expressed in art and material culture. (Same as A-H 311.)

CLA 312 THE ART OF CLASSICAL GREECE. (3)
Study of the art and architecture of Greece in the 5th and 4th centuries B.C. in their historical context. The contributions of Greece to the art of the Roman Republic and Empire will also be considered. (Same as A-H 312.)

CLA 390 ROMAN, JEW AND GREEK: BACKGROUNDS TO CHRISTIANITY. (3)
A survey of the development of Christian literature in the first four centuries. Attention will be focused on the efforts of the Christian community to achieve its own identity and to resolve the conflicts which it faced with Judaism, with the Graeco-Roman world and within itself.

CLA 424G GREEK LITERATURE IN TRANSLATION. (3)
Extensive reading in the most important works. Discussion of the significance of the works in their own and later times to the present. Graduate students within the Department of Classics hereafter will be unable to take the course for graduate credit.

CLA 425G THE HEROIC IDEAL: GREEK AND ROMAN EPIC. (3)
A study of the epic genre as developed in the works of major Greek and Latin writers. Attention will be focused on the cultural background of each author and his contribution to the genre as a whole. In addition to Homer and Virgil, the course will normally include the study of Apollonius and Lucan.

CLA 426G CLASSICAL DRAMA: TRAGEDY AND COMEDY IN GREECE AND ROME. (3)
A study of the development of tragedy and comedy in the ancient world. Attention will be focused on the cultural dimension of each form and the contributions made by individual authors. Emphasis will be placed on Greek tragedy and Roman comedy.

CLA 509 ROMAN LAW. (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. Prereq: A course in ancient history, or classics, or consent of instructor. (Same as HIS 509.)

COURSES IN LATIN

CLA 101 ELEMENTARY LATIN. (4)
An introduction to the study of classical Latin. Emphasis is placed on learning to read the language. Some attention is given to Latin literature and Roman civilization.

CLA 102 ELEMENTARY LATIN. (4)
A continuation of CLA 101. Prereq: CLA 101 or the equivalent.

CLA 201 INTERMEDIATE LATIN. (3)
Review of grammatical principles together with readings from Latin prose and poetry. Selections from a wide range of authors will be included in order to demonstrate the diversity and appeal of Latin literature. Emphasis is placed on developing reading ability. Prereq: CLA 102 or two years of high school Latin or equivalent.

CLA 202 INTERMEDIATE LATIN. (3)
A continuation of CLA 201. Prereq: CLA 201 or three years of high school Latin or equivalent.

CLA 301 LATIN LITERATURE I. (3)
An introduction to the literature of Republican Rome with selected readings of complete works from the major Latin authors. Lectures and class discussions on the various genres, styles, and themes of Latin literature. Prereq: CLA 202 or equivalent.

CLA 302 LATIN LITERATURE II. (3)
An introduction to the literature of Imperial Rome with selected readings of complete works from the major Latin authors. Lectures and class discussions on the various genres, styles, and themes of Latin literature. Prereq: CLA 202 or equivalent.

CLA 522 ROMAN REPUBLICAN PROSE (Subtitle required). (3)
A study of one or more works selected from prose writings from the beginnings of Roman literary history to 31 B.C. Authors include Cicero, Caesar, Sallust, and others; genres include history, philosophy, rhetoric and oratory, letters, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to a maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

CLA 523 ROMAN REPUBLICAN POETRY (Subtitle required). (3)
A study of one or more works selected from poetry from the beginnings of Roman literary history to 31 B.C. Authors include Plautus, Terence, Lucretius, Catallus, and others; genres include drama, lyric poetry, didactic poetry, satire, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to a maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

CLA 526 ROMAN IMPERIAL PROSE (Subtitle required). (3)
A study of one or more works selected from prose writings from approximately 31 B.C. to the end of the Western Empire. Authors include Livy, Petronius, Tacitus, Pliny, Suetonius, Seneca, Quintilian, Augustine, and others; genres include history, philosophy, biography, letters, fiction, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

CLA 527 ROMAN IMPERIAL POETRY (Subtitle required). (3)
A study of one or more works selected from poetry from approximately 31 B.C. to the end of the Western Empire. Authors include Vergil, Horace, Propertius, Tibullus, Ovid, Juvenal, Martial, and others; genres include epic, lyric, elegiac, satire, pastoral, and others. Textual analysis is emphasized, with lectures and class discussion on the literary milieu. Topics vary every time the course is offered. May be repeated to a maximum of nine credits under a different subtitle. Prereq: CLA 301 or equivalent.

CLA 603 STUDIES IN LATIN LITERATURE OF THE REPUBLIC (Subtitle required). (3)
Intensive study of an author, a literary form, or a problem in the period of the Roman Republic. Considerable attention to secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

CLA 604 STUDIES IN LATIN LITERATURE OF THE EMPIRE (Subtitle required). (3)
Intensive study of an author, a literary form, or a problem in the period of the Roman Empire. Considerable attention to secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

COURSES IN GREEK

CLA 151 ELEMENTARY GREEK. (3)
An introduction to the study of Classical Greek. Emphasis is placed on learning to read the language. Some attention is given to Greek literature and civilization.

CLA 152 ELEMENTARY GREEK. (3)
A continuation of CLA 151. Prereq: CLA 151 or equivalent.

CLA 153 GREEK GRAMMAR AND COMPOSITION. (1)
This course is designed as a supplement to CLA 151, Elementary Greek, in which the emphasis is placed on learning to read the language. CLA 153 will involve special study of the morphology and syntax of classical Greek; composition (the translation of English into Greek) will be a major element in the course. Prereq: To be taken concurrently with CLA 151.

CLA 154 GREEK GRAMMAR AND COMPOSITION. (1)
This course is designed as a supplement to CLA 152, Elementary Greek, in which the emphasis is placed on learning to read the language. CLA 154 will involve special study of the morphology and syntax of classical Greek; composition (the translation of English into Greek) will be a major element in the course. Prereq: To be taken concurrently with CLA 152.

CLA 251 INTERMEDIATE GREEK. (3)
Review of grammatical principles together with readings from Greek prose and poetry. Selections from a wide range of authors will be included in order to demonstrate the diversity and appeal of Greek literature. Emphasis is placed on developing reading ability. Prereq: CLA 152 or equivalent.

CLA 252 INTERMEDIATE GREEK. (3)
The reading of Greek prose and poetry. Textual and literary analysis of selections from classical authors and the New Testament. Prereq: CLA 251 or equivalent.

CLA 552 GREEK EPIC AND LYRIC POETRY. (3)
A study of the two genres as exemplified in Homer, Hesiod, the Homeric Hymns and the early Greek Lyricists. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 553 GREEK PHILOSOPHICAL LITERATURE. (3)
A study of Greek philosophical literature as exemplified in Plato, Aristotle and other philosophical writers. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 556 GREEK DRAMATIC LITERATURE. (3)
A study of the Greek drama through selected plays of the major tragic and comic writers. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 557 GREEK HISTORICAL LITERATURE. (3)
A study of the Greek historiographical tradition as exemplifed in Herodotus, Thucydides and other Greek historians. Emphasis on textual analysis with lectures and class discussions on the authors' literary milieu. Prereq: CLA 252 or equivalent.

CLA 601 STUDIES IN GREEK LITERATURE I (Subtitle required). (3)
Intensive study of an author, a literary form or a problem in the period from Homer through the Fifth Century, B.C. Considerable attention will be focused on secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

CLA 602 STUDIES IN GREEK LITERATURE II (Subtitle required). (3)
Intensive study of an author, a literary form or a problem in the period from the Fourth Century, B.C. through the Third Century, A.D. Considerable attention will be focused on secondary sources; students will write papers and present oral reports in class. May be repeated to a maximum of nine hours.

CLASSICS IN GENERAL

CLA 511, 512 STUDIES IN ROMAN PHILOLOGY (3 ea.)
Courses to meet the needs of students in various areas of Roman philology, e.g., in Latin literature, in Roman civilization, in Latin linguistics, etc. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

CLA 530 THE TEACHING OF LATIN. (3)
The place of Latin and the classical humanities in general education. Objectives, materials, and methods. The reading approach to learning Latin. Evaluation of textbooks and other materials. Prereq: Senior standing.

CLA 561, 562 STUDIES IN GREEK PHILOLOGY. (3 ea.)
Courses to meet the needs of students in various areas of Greek philology, e.g., in Greek literature, in Greek civilization, in Greek linguistics, etc. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

CLA 580 INDEPENDENT WORK IN CLASSICS. (3)
Courses to meet the needs of the student, including those who wish to study Medieval and/or Renaissance Latin, will be arranged in various areas. May be repeated to a maximum of 12 credits. Prereq: Major standing of 3.0 in the department or consent of instructor.

CLA 600 BIBLIOGRAPHY OF CLASSICAL SCHOLARSHIP. (3)
An introduction to the bibliography of classical scholarship and to research methods. Prereq: Reading knowledge of Greek and Latin and of German or French or consent of instructor.

CLA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

CLA 790 RESEARCH IN THE TEACHING OF CLASSICAL LANGUAGES. (3)
Problems in the teaching of Latin and/or Greek in secondary and/or higher education. Objectives, methods, preparation of materials, development of curricula, or the history of the field. Prereq: CLA 530 or the equivalent.

CLINICAL NUTRITION

CNU 590 GNOTOBIOTIC METHODOLOGY. (2)
A practical course for students who wish to learn how to conduct gnotobiotic experiments. In this type of work animals are maintained either in absence or in association with known microbial contaminants. Prereq: BIO 276 or equivalent and consent of instructor. (Same as BIO 590.)

CNU 601 CLINICAL NUTRITION. (4)
An analysis of the process by which man ingests, assimilates and utilizes all of the constituents of food in health and disease. Relationship of biochemical and physiological factors to the nutrient requirements of the human body. Evaluation of dietary status and rationale of dietary management. Course to be taught by lectures, clinical rounds, conferences and written and oral case studies. Prereq: PGY 502, 503; consent of instructor. BCH 501 to be taken concurrently.

CNU 602 CURRENT TOPICS IN CLINICAL NUTRITION. (1)
This course is designed to develop in students independent thinking and critical analysis related to various clinical nutrition issues. These skills will be developed through reading assignments related to clinical nutrition. Prereq: CNU 601.

CNU 603 NUTRITIONAL IMMUNOLOGY. (1-2)
Theories and mechanisms of immunity will be introduced. The effects of nutrition on immunity will be discussed from experimental and clinical perspectives. Lecture, two hours per week. Prereq: PGY 412G and CNU 601, or consent of instructor.

CNU 604 LIPID METABOLISM. (1-2)
Emphasis on factors influencing the absorption of fats and fatty acids, distribution and incorporation of fatty acids into body tissues, the biosynthesis of and catabolism of fatty acids, as well as cholesterol, bioactive eicosanoid production and the involvement of fats in the disease process. Lecture, two hours per week. Prereq: BCH 401G, PGY 412G and CNU 601 or consent of instructor.

CNU 701 ADVANCED CLINICAL NUTRITION. (3)
A course dealing primarily with the clinical application of the principles of nutrition, e.g., gastrointestinal disease and nutrition, nutrition and cancer, electrolytes and acid-base balances, drug-nutrient interactions, nutrition in the burn patient and pediatric nutrition. Prereq or concur: CNU 601.

CNU 702 ADVANCED CLINICAL NUTRITION INTERNSHIP. (4)
An internship designed to foster the team concept of patient care. The effects of metabolic diseases on nutritional requirements will be considered as well as the interaction of therapeutic drugs. Other efforts will be directed toward laboratory data interpretations, patient education and the coordination with other health professionals. A major portion of the above described activities is associated with daily clinical rotations through various medical services, e.g., surgery, pediatrics. Prereq: CNU 701, admission to CNU graduate program.

CNU 780 CLINICAL NUTRITION RESEARCH. (1-5)
This course is designed to expose students to scientific research methods, including library research, laboratory experience, data preparation and analysis, etc., utilizing a project of mutual interest to the student and instructor. One semester required, credits to be arranged. May be repeated to a maximum of five credits.

CNU 781 CLINICAL NUTRITION SEMINAR. (1)
Seminar presentations on current topics of interest in clinical nutrition.

CNU 782 INDEPENDENT STUDY. (1)
Student will investigate a particular aspect of clinical nutrition with appropriate presentation.

CNU 800 APPLIED NUTRITION FOR THE HEALTH PROFESSIONS: FUNDAMENTALS OF NUTRITION SCIENCE IN NORMAL LIFE CYCLES. (1)
An interdisciplinary approach to applied nutrition and its role in primary, secondary, and tertiary health care delivery. Covers the fundamental principles and concepts of nutrition science as applied to the human life cycle. Prereq: Currently enrolled in the College of Medicine, Nursing, Dentistry, Pharmacy, or Allied Health Professions. Completion of at least one semester of physiology; one semester of organic chemistry or biochemistry, and preferred, clinical exposure. Special examination credit is possible for this course.

CNU 801 APPLIED NUTRITION FOR THE HEALTH PROFESSIONS: NUTRITIONAL IMPLICATIONS IN DISEASE. (1)
An interdisciplinary approach to applied nutrition and its role in primary, secondary, and tertiary health care delivery. Focuses on nutritional implications in the disease process and the significance of intervention to prevent disease and complications. Prereq: CNU 800.

CLINICAL PASTORAL COUNSELING

CPC 501 PERSPECTIVES IN RELIGION AND HEALTH. (3)
An interdisciplinary study of significant religious components in health. Prereq: Consent of instructor.

COMMUNICATION

COM 101 INTRODUCTION TO COMMUNICATIONS. (3)
An introduction to the process of communication as a critical element in human interaction and in society. Designed to enhance effective communication and informed use of the mass media.

COM 181 BASIC PUBLIC SPEAKING. (3)
A course designed to give the student platform experience in the fundamentals of effective speaking.

COM 184 INTERCOLLEGIATE DEBATING. (1)
Preparation for and participation in intercollegiate debating. May be repeated to a maximum of two credits.

COM 199 PRESENTATIONAL COMMUNICATION SKILLS. (1)
Introduces students to fundamental oral communication skills needed to prepare and present messages effectively. **Note:** This course will not substitute for the three-credit course COM 181, Basic Public Speaking. It will count toward partial completion of the oral communication skills component of the University Studies Program.

COM 249 MASS MEDIA AND MASS CULTURE. (3)
An examination of the interplay between the technology and content of the mass communications media and culture. Prereq: COM 101 or SOC 101 or its equivalent. (Same as SOC 249.)

COM 252 INTRODUCTION TO INTERPERSONAL COMMUNICATION. (3)
Examines basic verbal and nonverbal elements affecting communication between individuals in family, peer group, and work contexts. Course requires participation in activities designed to develop interpersonal communication skills. Topics include: strategy development, relationship and conversation management, effective listening, conflict management, defensive communication, communication anxiety, cultural/sex differences in communication style.

COM 280 SMALL GROUP DISCUSSION. (3)
A study of communication processes in small group situations including participation in the various forms of discussion.

COM 283 ARGUMENTATION AND DEBATE. (3)
A course in the theory of argument, with practice in the several forms of debate.

COM 284 INTERCOLLEGIATE DEBATING. (1)
Preparation for and participation in intercollegiate debating. May be repeated to a maximum of four credits.

COM 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as EDS 285.)

COM 287 PERSUASIVE SPEAKING. (3)
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages.

COM 288 ORAL INTERPRETATION. (3)
An analysis of prose and poetry for oral interpretation. Helpful to those who plan to teach literature.

COM 319 WORLD MEDIA SYSTEMS. (3)
A comparison of the communications media in different countries of the world and the theories used to justify them. How various political and social systems affect the media amd how the media affect the societies in which they exist. Prereq: COM 101, TEL 101 or consent of instructor. (Same as TEL 319.)

COM 325 BUSINESS AND INDUSTRIAL COMMUNICATION. (3)
Reviews the principles of communication in organizations. The most common organizational communication variables are reviewed, e.g., communication distortion, conflict, power, managerial leadership style, roles, interviewing, information overload and underload. Emphasis is on application of the principles reviewed to the organizational setting. Simulations, exercises, case studies, and visits to organizations are used to accomplish this goal. **Enrollment priority given to College of Communications majors.**

COM 350 LANGUAGE AND COMMUNICATION. (3)
An introductory survey course covering syntactic, semantic and pragmatic aspects of language as they relate to communication. Language learning, sign typologies, psycholinguistics, and the nature of meaning are selected topic areas. Emphasis is on a behavioral, communication approach. Prereq: COM 101.

COM 395 INDEPENDENT WORK. (1-3)
Research and study of special topics in communication. The student proposes the specific study to be undertaken and formally contracts with a faculty supervisor for guidance and evaluation. Ordinarily, projects will require the production of written materials as a basis for the evaluation. May be repeated to a maximum of six credits. Prereq: Either a major and a standing of 3.0 in COM courses or consent of instructor.

COM 399 INTERNSHIP IN COMMUNICATION. (1-3)
Provides field experiences in communication through work in industry, government, education, etc. Normally limited to juniors and seniors. Offered on pass/fail basis only. (Three hours can be counted toward Communication major requirements.) Required: learning contract filed with Experiential Education. May be repeated to a maximum of six credits. Prereq: Consent of department required.

COM 519 INTERNATIONAL AND INTERCULTURAL COMMUNICATION. (3)
Studies interpersonal and media communication systems and policies of various cultures within and across nations. Considers the social, economic, and political implications of advances in communication technology.

COM 525 ORGANIZATIONAL COMMUNICATION. (3)
This course reviews theories and research relevant to an understanding of the organizational communication process. Emphasis is on communication in an organization at the interpersonal, small group and whole organizational level. Prereq: COM 325 or consent of the instructor.

COM 549 SOCIAL PROCESSES AND EFFECTS OF MASS COMMUNICATION. (3)
The relationship between the organization of modern society and its communication media. Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: SOC/COM 249 or its equivalent. (Same as SOC/EDC 549.)

COM 550 INTRODUCTION TO COMMUNICATIONS RESEARCH. (3)
To introduce undergraduate students to the philosophy of research—particularly as it applies to communications; and to study the principle types of communications research so that the student will be able to do simple projects and interpret research findings in his field.

COM 551 THE INDIVIDUAL AND THE COMMUNICATION PROCESS. (3)
Considers the communications process and effects of communications on the individual. Draws upon research in these areas from the fields of communication, political science, psychology, sociology, and journalism.

COM 552 STUDIES IN INTERPERSONAL COMMUNICATION. (3)
Examines current theory and research on the nature and development of interpersonal communication ability. Topics include: foundations of communicative development, development of strategic communicative skills, relational communication, conversation analysis, cultural and institutional influences on the development of interpersonal communication ability. Prereq: COM 352 or equivalent.

COM 553 MASS COMMUNICATION AND SOCIAL ISSUES. (3)
A course devoted to the examination of criticism of the mass media and an evaluation of the relationship of mass communication to contemporary social issues.

COM 554 SEMINAR IN COMMUNICATIONS. (3)
Intensive study of a communication topic in professional, theoretical and research (methodology) areas. May be repeated to a maximum of six credits.

COM 581 COMMUNICATION PROCESSES IN SMALL GROUPS. (3)
A study of the communication processes in small group discussions; emphasis on empirical research findings concerning leadership, interpersonal relations and the logical and psychological aspects of group problem-solving.

COM 582 PERSUASION. (3)
The principles and methods of persuasion. Of particular benefit to teachers, lawyers, business majors, and other persons whose work is concerned with motivating human conduct.

COM 583 STUDIES IN ARGUMENTATION. (3)
A study of the theories of argumentation and debate as derived from rhetorical, philosophical and psychological sources; critical examination of representative examples of oral argument.

COM 584 TEACHING OF SPEECH COMMUNICATION. (3)
An analysis of the field of speech education as related to the teacher of speech.

GRADUATE COURSES

CJT 601 PROSEMINAR IN COMMUNICATION. (3)
Introduction to graduate study; theory and systems, research strategies. Prereq: Graduate standing in communications or consent of instructor.

CJT 607 EVALUATING AND COMMUNICATING INFORMATION. (3)
A study of the communication systems with which students will work, of the effect of the communications systems on public decisions, and of the means by which students work efficiently with communications systems.

CJT 608 MASS COMMUNICATIONS AND SOCIETY. (3)
A study of the ways in which the communications media play their roles in contemporary society with special attention to the major functions, rights, and responsibilities of media and individuals.

CJT 614 INFORMATION STORAGE AND RETRIEVAL SYSTEMS. (3)
Examines information storage and retrieval systems and theories; including classification, indexing and abstracting. The structure of retrieval languages and vocabulary control, question negotiation and search strategy and measurement and evaluation of information retrieval performances are examined. (Same as LIS 635.)

CJT 615 INFORMATION SYSTEMS DESIGN. (3)
Principles and problems of information systems: systems analysis applied to information systems. Design of information systems with particular attention to equipment, training of personnel and evaluation. Prereq: CJT 601 or consent of instructor.

CJT 631 PROSEMINAR IN INTERPERSONAL COMMUNICATION. (3)
An intensive examination of theories, methods of investigation, and current developments in the area of interpersonal communication. Prereq: Graduate standing.

CJT 650 SIGNS AND SIGN BEHAVIOR. (3)
A study of syntactic, semantic and pragmatic aspects of language and their relation to communication. Specific topics are covered by the individual student with an outlook toward the reseach report-proposal. Prereq: ANT 514 or equivalent or consent of instructor.

CJT 651 COMMUNICATIONS THEORY. (3)
Major theories of the communications process and review of experiments and field studies on communications. Readings, discussion, and student experiments testing theoretical propositions about communications. Prereq: Course in statistics or in design of social research.

CJT 665 COMMUNICATIONS RESEARCH METHODS. (3)
The scientific method. Communications research as a part of social science research. Study and practice of advanced behavioral research techniques which apply to communications. Prereq: A behavioral research course and permission of instructor.

CJT 681 COMMUNICATIONS HISTORIOGRAPHY. (3)
A seminar designed primarily to examine approaches to the study of communications history, to consider various historical methods and their applicability to communications problems, and to allow each participant to complete a research paper on a selected topic in communications history. Prereq: Graduate standing.

CJT 696 INTERNSHIP IN COMMUNICATIONS. (3)
Field experience for candidates for the M.A. degree in any field of communications through work in industry, government, education, research or business agencies. Laboratory, 12 hours per week. Prereq: Admission to M.A. program and 18 hours of graduate work. Consent of DGS required.

CJT 700 DIRECTED READING IN COMMUNICATION. (1-3)
Individual reading study on some communications aspects not treated in depth in a regular course or of topical interest. Advance consultation regarding reading list and examination procedure required. May be repeated to a maximum of 12 credits. Prereq: Graduate standing in Communications or consent of instructor.

CJT 701 SEMINAR IN COMMUNICATION PERSPECTIVES. (3)
Study of selected topics important to viewing in perspective the development of communication theories and problems. May be repeated to a maximum of six credits. Prereq: Graduate standing in Communications or consent of instructor.

CJT 705 SEMINAR: INFORMATION SCIENCES. (3)
An investigation of the parameters of the information sciences from an interdisciplinary approach. Investigation and analysis of the literature of communications, management science, cybernetics, information theory to identify the similarities and differences. From this investigation, both qualitative and quantitative concepts of the directions of information science will be derived. Prereq: CJT 601 or consent of instructor.

CJT 721 SEMINAR IN INTRAPERSONAL COMMUNICATION. (3)
The investigation of a single category of theoretical approaches to communication processing within a single organism. May be repeated. Prereq: Graduate standing in communications or consent of instructor.

CJT 725 SEMINAR IN ORGANIZATIONAL COMMUNICATION: (Subtitle required). (3)
This course is concerned with theory and research relevant to organizational communication and related areas of interest. Special attention is given to various topics relevant to a specific subtitle. May be repeated to a maximum of six credits under a different subtitle.

CJT 730 SEMINAR IN MASS MEDIA AND PUBLIC POLICY. (3)
The role of mass communications media in making public policy and the effects of public policies on the mass media. One subject area will be investigated each semester; typical topics are (1) political campaign communications; (2) censorship; (3) controversial public issues; (4) rights; (5) international and world agreements. Prereq: Graduate standing.

CJT 731 SEMINAR IN INTERPERSONAL COMMUNICATION. (3)
Consideration of special problems in interpersonal communication with emphasis on emergence of theory and implications for further research. May be repeated once. Prereq: Graduate standing in communications or consent of instructor.

CJT 741 SEMINAR IN MULTI-ACTIONAL COMMUNICATION. (3)
Intensive comparative analysis of communication theories accounting for the behavior of multi-actional systems, including experience in theory building and the derivation of hypotheses. May be repeated once. Prereq: Graduate standing in communications or consent of instructor.

CJT 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

CJT 765 COMMUNICATION RESEARCH DESIGN. (3)
An intermediate course in the design of communication studies. Prereq: CJT 665 or the equivalent.

CJT 767 QUALITATIVE METHODS IN COMMUNICATION RESEARCH. (3)
This seminar treats the underlying assumptions and methodological techniques of qualitative study in communication research. May be repeated to a maximum of six credits. Prereq: Graduate standing and CJT 665 or equivalent.

CJT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

CJT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely. Prereq: Satisfactory completion of Qualifying Examination (third year).

CJT 780 SPECIAL TOPICS IN COMMUNICATION (Subtitle required). (3)
Professors will conduct research seminars in topics or problems in which they have special research interests. May be repeated to a maximum of six credits. Prereq: At least one year of graduate study in communication.

CJT 781 DIRECTED STUDY IN COMMUNICATION. (1-6)
To provide advanced students with an opportunity for independent work to be conducted in regular consultation with the instructor. May be repeated to a maximum of six credits. (To be used for independent work.) Prereq: Consent of instructor.

CJT 790 RESEARCH PROBLEMS IN COMMUNICATION. (1-6)
Intensive study in communications with qualified staff members. Research paper is required. May be repeated to a maximum of 12 credits. Prereq: Satisfactory completion of Preliminary Examination (second year) and consent of instructor.

COMMUNITY HEALTH

CH 241 HEALTH AND MEDICAL CARE DELIVERY SYSTEMS. (3)
Review of the wellness-illness spectrum and the societal response in terms of health services. Topics to be covered include the nature and functions of health services agencies and professionals, and the impact of social, political, economic, regulatory, and technological forces. Also includes a discussion of major health problems and related health care programs.

CH 242 ADMINISTRATIVE PERSPECTIVES OF MEDICAL SERVICES. (2)
Introduction to medical problem-solving methods and technologies employed by health care clinicians in the prevention and treatment of disease. Review of alternative intervention strategies for health promotion and illness care.

CH 250 INTRODUCTORY EPIDEMIOLOGY. (3)
An introduction to the science of epidemiology as the study of the distribution and determinants of health and disease. Prereq: Area I Mathematics requirement; BIO 110.

CH 260 INTRODUCTION TO HEALTH ADMINISTRATION. (1)
Introduction to administrative roles, functions, settings and requirements through interviews with practicing administrators, site visits, discussion, and case studies.

CH 351 HEALTH SERVICES ADMINISTRATION. (3)
Theories and practices of administration in health care institutions with special emphases on organizational behavior and analyses of various administrative processes and techniques. Prereq: CH 242, CH 260, or consent of department.

CH 352 COMMUNITY AND INSTITUTIONAL PLANNING FOR HEALTH SERVICES DELIVERY. (3)
Theoretical foundations for health planning. History of health planning and regulation. Specific attention will be given to integration of institutional planning with community health planning. Prereq: CH 241 or consent of department.

CH 353 ETHICS IN HEALTH CARE ORGANIZATIONS. (2)
A study of the biomedical and related ethical issues relevant to the health care administrator. Topics will include both those ethical dilemmas confronted by the health care administrator as well as those major bioethical problems experienced by those health professionals with whom he or she works.

CH 354 HEALTH LAW. (2)
Introduction to concepts of administrative and tort law applicable to health care settings. Topics to be considered include governance, patient rights, informed consent, medical/moral problems, malpractice, tax laws, contracts, labor law, regulation and institutional liability.

CH 355 FINANCIAL MANAGEMENT OF HEALTH CARE INSTITUTIONS. (3)
A review of financial management practices in health care institutions. Course will analyze regulatory and third party reimbursement for financial management, financial management practices, impact of financing mechanisms and practices on health services decision making. Prereq: ACC 201, ACC 202, CH 351, ECO 260 AND ECO 261 or consent of department.

CH 450 HOSPITAL AND HEALTH SERVICES: INTERORGANIZATIONAL RELATIONSHIPS. (3)
Environment of interacting organizations in the health industry is considered. Attention given to multi-hospital organizations and other forms of interorganizational relationships. Prereq: CH 351, 352 or consent of department.

CH 451 TOPICS IN HEALTH ADMINISTRATION (Subtitle required). (1-6)
Readings, projects, lecture and/or discussion in seminar format to illuminate current topics of special interest or concern in health administration. May be repeated to a maximum of six hours. Prereq: Consent of department.

CH 453 HEALTH ADMINISTRATION, PLANNING AND MANAGEMENT TECHNIQUES. (3)
Review of quantitative and nonquantitative techniques used in health care settings for planning, implementation and control. Emphasis will be placed on health service area delineation, patient origin studies, research methods, management information systems such as PAS, HAS, I.C.D.A., and quality assessment systems. Prereq: CH 351, 352, and STA 291 or 370 or consent of department.

CH 502 ORGANIZATION AND SUPERVISION IN HEALTH CARE DELIVERY. (3)
An analysis of the structure, functions and operations of systems for health care delivery. Emphasis is placed upon interrelationships among health care agencies; the role of the health care professional in supervision; human relations in health care delivery; and recent developments and trends in health care delivery. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

CH 510 ORGANIZATION OF THE LONG-TERM CARE SECTOR. (3)
This course examines the structure and function of the long-term care sector with emphasis on nursing homes and the role of noninstitutional alternatives. Analysis focuses on the impact of changes in reimbursement and regulatory policy, interorganizational relations, newly emerging treatment modalities, and the influence of the external organizational, economic, and political environment. Prereq: A course in health care delivery systems or permission of instructor.

CH 511 INDEPENDENT STUDY IN COMMUNITY HEALTH. (1-3)
Directed independent library and/or community health study. May be repeated to a maximum of six hours. Prereq: Major in community health and/or consent of department chairperson.

CH 600 EPIDEMIOLOGY. (3)
A study of the natural history of disease.

CH 601 OVERVIEW OF THE HEALTH CARE DELIVERY SYSTEM. (3)
An introduction to the health care delivery system in the United States, including its composition, functioning, the interrelationships of organizations and professional groups within the system in various settings, health care terminology, and major problems and issues in the delivery of health services. Prereq: Consent of instructor. (Same as PA 671.)

CH 621 HEALTH ECONOMICS. (3)
A study of the application of general economic theory to the health care system: the health care market, the costs of health services, financing and payment mechanisms, the application of cost-benefit and cost-effectiveness analysis to health problems, and major economic issues in health service provision. Prereq: or concurrent, CH 601 or consent of instructor. (Same as ECO/PA 636.)

CH 622 HEALTH PROGRAM PLANNING AND EVALUATION. (3)
A study of the tools necessary for planning and evaluating health programs: planning systems, needs assessment methodologies, data analysis skills, the epidemiologic method, effectiveness and efficiency evaluation. An overview of trends and requirements leading to increased emphasis on planning and program accountability. Prereq: or concurrent, CH 601 or consent of instructor. (Same as PA 656.)

CH 631 HEALTH POLICY DEVELOPMENT. (3)
An analysis of the development and implementation of health policy on a national, state, local and organizational level. The course will focus on issue and policy analysis, formal and informal processes of policy development and the issues, values, and political and community factors affecting policy development and program implementation. Prereq: CH 601 and one of the following courses: CH 611, CH 621, CH 622 or consent of instructor. (Same as PA 673.)

CH 637 HEALTH FINANCE. (3)
This course applies general principles of finance to the financial management of health care institutions. The major financial incentives which dictate how health care is delivered are studied and proposals to change these incentives are explored. Prereq: ACC 201, 202 or equivalent; PA 632 or equivalent; and consent of instructor. (Same as FIN/PA 637.)

CH 775 SPECIAL TOPICS IN HEALTH ADMINISTRATION. (2-3)
An analysis of selected issues with special significance for health administration. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as PA 775.)

CH 785 INDEPENDENT STUDY IN HEALTH ADMINISTRATION. (1-3)
Supervised individual research on a topic related to health administration selected by the student. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as PA 785.)

CH 842 SEMINAR IN HEALTH ADMINISTRATION: PRE-PRACTICUM. (1)
Preparatory seminar for the field practicum in health administration. Will cover such topics as self assessment, interviewing skills, forms of organizational behavior, consultation skills, time management, and documentation. Prereq: CH 351, 355; Majors only with permission of department.

CH 843 HEALTH ADMINISTRATION PRACTICUM. (1-12)
Application of theoretical concepts in practice settings selected by faculty under the supervision of a preceptor and on-campus faculty. Includes in-depth study of an applied problem in health administration. Must be repeated to a maximum of 12 credits. Laboratory: one 40-hour week equals one credit hour. Prereq: Majors only—with permission of department.

CH 844 SEMINAR IN HEALTH ADMINISTRATION: POST-PRACTICUM. (1)
Review of practicum experiences and an integration of theoretical concepts of health administration with the practice environment. Prereq: CH 843—majors only—with permission of department.

COMPARATIVE LITERATURE

CLT 300 SEMINAR: COMPARATIVE LITERATURE METHODOLOGY. (3)
A study of the philosophy and methodology of comparative literature.

CLT 395 INDEPENDENT STUDY. (3)
Open to comparative literature majors only. May be repeated to a maximum of six credits. Prereq: Standing of 3.0 in major required.

CLT 562 COMPARATIVE LITERATURE: 17TH THROUGH 19TH CENTURY. (3)
A study in English of major works of continental European literature written in modern languages, especially French, German, Spanish, Italian, Russian, from mid-17th century to end of 19th century. (Same as ENG 562.)

CLT 563 COMPARATIVE LITERATURE: 20TH CENTURY. (3)
Masterpieces and examples of 20th century Western World literature, in English translation, with emphasis on the emergence of new forms and techniques invented to express the complexity of modern life. The course will study novels, poems, and plays in their traditional development and in experimental and divergent forms. (Same as ENG 563.)

COMPUTER SCIENCE

CS 101 INTRODUCTION TO COMPUTING I. (3)
An overview of computer organization. Introduction to problem solving on a computer using a simple, high-level language. Basic programming techniques. Not open to students who have received credit for CS 121 or CS 221.

CS 121 COMPUTER SCIENCE I. (4)
Fundamentals of computer science including algorithm design and testing, specification, control structures, lists, simple searching and sorting algorithms, recursion, record and file structures, and simple applications. A high-level procedural language is presented. This is the usual first course for students wishing to study computer science above the freshman level.

CS 122 COMPUTER SCIENCE II. (4)
A continuation of CS 121 which presents basic machine organization, representations of elementary data types, external file processing, and list processing. Simple data structures are presented for trees, queues, and lists. This course is a prerequisite for most upper level computer science courses. Prereq: CS 121.

CS 221 FIRST COURSE IN COMPUTER SCIENCE FOR ENGINEERS. (2)
Characteristics of a procedure-oriented language; description of a computer as to internal structure and the representation of information; introduction to algorithms. Emphasis will be placed on the solution of characteristic problems arising in engineering. Prereq: MA 113. Not open to students who have received credit for CS 150.

CS 245 INTRODUCTION TO LOGIC AND DISCRETE COMPUTER MATHEMATICS. (3)
Introduction to basic mathematical and logical concepts which form the foundation of computer science. Main topics of the course include: propositional and predicate calculi, set theory (including the theory of relations and functions), Boolean algebra, introduction to the logic programming, and introduction to combinatorics. Prereq: CS 121.

CS 250 COMPUTER ORGANIZATION. (3)
Number systems, memory organizations, addressing schemes. Representation of data and instructions. Machine language, assembler languages, macros and basic input/output. Prereq: CS 121 or CS 221.

CS 270 FILE PROCESSING. (3)
Data management techniques for sequential, direct, and linked access; file structures; list structures; design of large programming systems. Prereq: CS 122.

CS 321 INTRODUCTION TO NUMERICAL METHODS. (3)
Floating point arithmetic. Numerical linear algebra: elimination with partial pivoting and scaling. Polynomial and piecewise polynomial interpolation. Least squares approximation. Numerical integration. Roots of nonlinear equations. Ordinary differential equations. Laboratory exercises using software packages available at computer center. Prereq: (1) MA 213 and (2) CS 221 or equivalent. A knowledge of Fortran is essential. (Same as MA 321.)

CS 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE. (3)
Topics include permutations, combinations and partitions; inclusion-exclusion principle; generating functions and recurrence relations; elementary algorithms concerning graphs and trees; generation of random combinatorial and graphical examples; Boolean algebra, Boolean functions, switching circuits and mathematical logic; introduction to algebraic coding theory. Prereq: CS 245 and CS 270. Restricted to computer science, electrical engineering and mathematics majors. Others by permission. (Same as MA 340.)

CS 370 DATA STRUCTURES. (3)
Basic data structures and associated algorithms. Arrays, stacks and queues, linked lists, trees, graphs, and sorting algorithms. Prereq: CS 250 and CS 270. Restricted to computer science and electrical engineering majors. Others by permission.

CS 395 INDEPENDENT WORK IN COMPUTER SCIENCE. (2)
A course for computer science majors only. A problem, approved by the chairperson of the department, provides an opportunity for individual research and study. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department and consent of instructor.

CS 415G GRAPH THEORY. (3)
Theory of linear undirected graphs, including definitions and basic concepts, trees, connectivity, traversability, factorization, planarity and matrices. In addition, algorithm for finding spanning trees, testing connectivity, finding Euler trails, finding a maximum matching in a bipartite graph, and testing planarity will be presented at appropriate times. Applications of algorithms to operations research, genetics and other areas. About 55 percent of the course will be on general theory of graphs, 30 percent on algorithms and 15 percent on applications of these algorithms. Prereq: Consent of instructor. (Same as MA 415G.)

CS 416G PRINCIPLES OF OPERATIONS RESEARCH I. (3)
The course is an introduction to modern operations research and includes discussion of modeling, linear programming, dynamic programming, integer programming, scheduling and inventory problems and network algorithms. Prereq: MA 213 or 217 or equivalent. (Same as MA 416G.)

CS 420G COMPILERS FOR ALGORITHMIC LANGUAGES. (3)
The techniques of processing, specifying, and translating high level computer languages are studied. Topics include finite stat machines and lexical analysis, context-free grammars for language specification, attributed translation grammars, language parsing, and automatic generation of compilers by SLR, LALR, and other methods of analyzing context-free grammars. Other topics may include code optimization, semantics of programming languages and top-down parsing. Prereq: CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

CS 422 NUMERICAL SOLUTIONS OF EQUATIONS. (3)
Linear equations: Gaussian elimination, special linear systems, orthogonalization, eigenproblem, iterative methods. Nonlinear equations: solutions of equations in one variable, solutions of systems of nonlinear equations. Optimization. Prereq: CS/MA 321 and MA 322; or consent of instructor. (Same as MA 422.)

CS 440 FOUNDATIONS OF COMPUTING. (3)
An introduction to the theoretical foundations of computing via automata and formal language models of computation such as Turing machines, finite automata, push down machines, regular sets, and context free grammars. Applications to programming, compiling, and computing systems. Prereq: CS 340. Restricted to computer science and electrical engineering majors. Others by permission.

CS 450G FUNDAMENTALS OF PROGRAMMING LANGUAGES. (3)
An intensive study of fundamental programming concepts exhibited in current high level languages. Concepts include recursion, iteration, coroutines, multiprocessing, backtracking, pattern-matching, parameter passing methods, data structures, and storage management. Typical languages studied are SNOBOL, LISP, PASCAL, and APL. Prereq: CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

CS 460G IMMIGRATION INTO COMPUTER SCIENCE. (3)
This course is intended for new computer science graduate students whose undergraduate major was in other fields, but who have had some programming experience (CS 121 and CS 250, or equivalent). Topics covered include top-down program design and structured programming, searching, searching and sorting, lists and trees, AVL and B-trees for searching and analysis of algorithms. Programming will be performed in a high-level procedural language such as PASCAL or PL/I. Classroom participation and presentations are expected of all students. Prereq: Consent of Director of Graduate Studies. Restricted to computer science and electrical engineering majors. Others by permission.

CS 461G MINICOMPUTERS. (3)
Concepts and techniques employed by minicomputers are discussed. Topics include machine architecture, languages, and operation; utility programs; interrupts and input/output processing; file management; and applications. Prereq: CS 460G or CS 250 and EE 480G. Restricted to computer science and electrical engineering majors. Others by permission.

CS 470G SYSTEMS SOFTWARE. (3)
A study of the use and construction of system software, including assemblers, macro-processors, linkers, loaders, interrupt handlers, and elementary operating systems. Software appropriate for use on small mini/micro computer systems will be emphasized. Prereq: CS 370 or CS 250 and EE 480G. Restricted to computer science and electrical engineering majors. Others by permission.

CS 505 DATABASE MANAGEMENT SYSTEMS. (3)
This course is primarily concerned with the definition, organization, and manipulation of a database. An overview of the goals of database management is examined. The database management process is broken down into its four constituent parts: data definition, data manipulation, data retrieval, and report generation. Attempts toward standardization in database management are presented with emphasis on the CODASYL activities. The concept of shared files and the deadlock problem are presented. A number of general database management systems are surveyed, and at least one case study is examined in detail. Prereq: CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

CS 510 DISCRETE COMPUTER MATHEMATICS I. (3)
Basic material and selected topics on combinatorial mathematics will be covered. This includes: distribution of distinct and nondistinct objects, inversion formulas, generating functions and recursions, combinatorial identities, partitions, enumeration theorems, Latin squares, and block designs. Also, there will be a brief introduction to graph theory and algebraic coding theory. Prereq: CS 340, CS 370. Restricted to computer science and electrical engineering majors. Others by permission.

CS 522 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA I. (3)
Review of basic linear algebra from a constructive and geometric point of view. Factorizations of Gauss, Cholesky and Gram-Schmidt. Determinants. Linear least squares problems. Rounding error analysis. Stable methods for updating matrix factorizations and for linear programming. Introduction to Hermitian eigenvalue problems and the singular value decomposition via the QR algorithm and the Lanczos process. Method of conjugate gradients. Prereq: MA 322. (Same as MA 522.)

CS 532 FINITE PRECISION ARITHMETIC. (3)
A careful discussion of the finite representation and processing of numerical data in the computer, and of the difficulties to which these representations lead. Implications of these difficulties for programming system and computer design. Prereq: CS 250. Restricted to computer science and electrical engineering majors. Others by permission.

CS 537 NUMERICAL ANALYSIS. (3)
Floating point arithmetic. Direct methods for the solution of systems of linear algebraic equations. Polynomial and piecewise polynomial approximation, orthogonal polynomials. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Basic methods for initial value problems for ordinary differential equations. The emphasis throughout is on the understanding and use of software packages for the solution of commonly occurring problems in science and engineering. Prereq: CS/MA 321 or equivalent or graduate standing or consent of instructor. Knowledge of Fortran programming is essential. (Same as EGR/MA 537.)

CS 538 NUMERICAL ANALYSIS II. (3)
A continuation of CS/EGR/MA 537. Roots of a nonlinear equation and minimization of a function of a single variable. Linear difference equations. Numerical methods for ordinary differential equations: initial value problems, and elementary techniques for two-point boundary value problems. Prereq: A grade of B or better in CS/MA 321 or CS/EGR/MA 537 or equivalent. (Same as MA 538.)

CS 540 SYSTEMS SIMULATION. (3)
Computer simulation techniques including building and utilizing deterministic and stochastic models for digital computers, Monte Carlo. Prereq: CS 121 and a course in statistics or probability. Restricted to computer science and electrical engineering majors. Others by permission.

CS 541 ADVANCED COMPILER DESIGN I. (3)
A study of the theory and practice of implementing compilers for high-level languages with emphasis on the use of compiler-compilers for automatic generation of compiler systems. Topics include specification of languages by grammars, LR, SLR, LALR, and LL parsing algorithms, lexical analysis, syntax directed translation, code optimization and generation, and data flow analysis. Prereq: CS 420G or CS 580 or CS 575. Restricted to computer science and electrical engineering majors. Others by permission.

CS 545 COMPUTER GRAPHICS. (3)
The problems of representing and manipulating graphical information in computers are discussed. An overview of the hardware and software techniques is presented for using refresh, storage, and raster scanning devices. Two-dimensional transformations, clipping, and windowing algorithms are developed. The use of display files, graphical databases, and input devices is covered. Three-dimensional graphics is included to present painting algorithms, solid models, and shading. Prereq: MA 213 and CS 370, or consent of instructor. Restricted to Computer Science and Electrical Engineering majors. Others by permission.

CS 550 INTRODUCTION TO CODING THEORY. (3)
An introduction to the principles, techniques, and development of algebraic coding theory with particular emphasis on its use and applicability to computer science. Prereq: CS 340 and a course in linear algebra. Restricted to computer science and electrical engineering majors. Others by permission.

CS 560 ARTIFICIAL INTELLIGENCE. (3)
This course is primarily concerned with general problem-solving methods: production systems, searching of graphs, and automated theorem-proving methods, in particular the resolution method and its variants. Topics include methods of heuristics, games on trees, and minimax methods, as well as a study of various knowledge-representation schemes such as frames, prototypes, predicate logic and basic methodology of expert systems. Prereq: CS 245, CS 340, and CS 370.

CS 570 OPERATING SYSTEMS DESIGN. (3)
Concurrent processes, resource management, protection, file management, deadlocks, and memory management. Prereq: CS 470. Restricted to computer science and electrical engineering majors. Others by permission.

CS 575 THEORETICAL ASPECTS OF COMPUTING. (3)
Theoretical considerations in computer science. Topics include computability, unsolvability, automata and formal language theory, verification, and computational complexity. Prereq: CS 340. Restricted to computer science and electrical engineering majors. Others by permission.

CS 580 ALGORITHM DESIGN. (3)
The design of efficient algorithms on data structures such as lists, trees, sets and graphs. Topics include: sorting, searching and pathfinding by techniques such as divide-and-conquer, back tracking and the greedy method. Prereq: CS 370 and 440. Restricted to computer science and electrical engineering majors. Others by permission.

CS 585 INTERMEDIATE TOPICS IN COMPUTER SCIENCE (Subtitle required). (3)
Topics to be selected by staff. May be repeated to a maximum of six credits, but only three credits may be earned by a student under the same topic. Prereq: Restricted to computer science and electrical engineering majors. Others by permission.

CS 587 MICROCOMPUTER SYSTEMS DESIGN. (3)
A course in the design of microcomputer systems for hardware engineers which includes the following topics: use of uncommitted logic arrays in instruction set design; hardware support for operating systems and programming languages; customizing microcomputers for specific execution environments; and control of concurrency. Prereq: EE 581 and EE 583, or consent of instructor. (Same as EE 587.)

CS 605 ADVANCED INFORMATION PROCESSING. (3)
Linked allocation, doubly-linked lists, trees, multi-linked structures, dynamic stored allocation, list processing languages, processing of game trees. Prereq: CS 370, 510 or equivalent.

CS 612 INDEPENDENT WORK IN COMPUTER SCIENCE. (1-3)
Reading course for graduate students in computer science. May be repeated to a maximum of nine credits. Prereq: Overall standing of 3.0, and consent of instructor.

CS 615 COMPUTER ARCHITECTURE AND MICROPROGRAMMING. (3)
Machine architecture versus machine organization. Examination of several current architectures: addressing, instruction sets, general purpose registers, processor status words, memory management registers. Machine organization as an implementation of architecture. Hardware implementation versus microprogrammed implementation. Advantages and disadvantages of user microprogrammability. Applications of user microprogramming: emulation, firmware, language implementation, monitoring. Prereq: CS 461G or equivalent.

CS 620 NUMERICAL APPROXIMATION AND CURVE-FITTING. (3)
Design of computer programs to approximate given functions to within a specified tolerance according to a specified norm. Curve- and surface-fitting, spline approximation. Smoothing. Optimization techniques. Prereq: CS/MA 538.

CS 622 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA II. (3)
Numerical solution of matrix eigenvalue problems and applications of eigenvalues. Normal forms of Jordan and Schur. Vector and matrix norms. Perturbation theory and bounds for eigenvalues. Stable matrices and Lyapunov theorems. Nonnegative matrices. Iterative methods for solving large sparse linear systems. Prereq: MA 522 or equivalent. (Same as MA 622.)

CS 635 IMAGE PROCESSING. (3)
The course outlines applications of image processing and addresses basic operations involved. Topics covered include image perception, transforms, compression enhancement, restoration, segmentation, and matching. Prereq: Graduate standing and consent of instructor. (Same as EE 635.)

CS 636 COMPUTER VISION. (3)
Topics of human visual system will be discussed first. Then approaches to implementation of visual processes by computers will be described. Prereq: CS/EE 635.

CS 641 ADVANCED COMPILER DESIGN II. (3)
Optimization, special purpose languages, compiler-compiler, industrial compiler practice. Prereq: CS 541 or consent of instructor.

CS 650 PROBLEM SEMINAR. (3)
A seminar on the identification, analysis, formulation and solution of problems amenable to computer solution. Presupposes knowledge of calculus and programming. Prereq: Consent of instructor.

CS 655 DESIGN OF PROGRAMMING LANGUAGES. (3)
A study of techniques for designing programming languages and implementing processors for them. Emphasis is placed on programming languages exhibiting powerful and high level features such as nondeterminism and pattern-directed procedure invocation. The course includes the writing of actual processors. Prereq: CS 575 or CS 580.

CS 660 TOPICS IN ARTIFICIAL INTELLIGENCE (Subtitle required). (3)
Advanced topics chosen from the following: knowledge representation, knowledge acquisition, problem solving, very high-level programming languages, expert systems, intelligent and deductive databases, automated theorem proving. May be repeated to a maximum of six credits, but only three credits may be earned under the same topic. Prereq: CS 505 and CS 560 or consent of instructor.

CS 670 NATURAL LANGUAGE PROCESSING. (3)
A study of computer processing of natural languages (principally English), with special emphasis on systems, such as question-answering systems, which perform complete syntactic and semantic analyses of input text and which use inference in making a response. Prereq: CS 575 or CS 420G.

CS 680 SEMINAR IN COMPUTER SCIENCE. (2)
May be repeated to a maximum of four credits. Prereq: Consent of instructor, or two 500-level computer science courses.

CS 682 SWITCHING THEORY. (3)
Application of the symbolic logic of Boole and Schroeder to the design of switching systems. Topics include Boolean algebra, Boolean analysis, the solution of logic equations, the minimization of Boolean formulas, and the diagnosis of failures in digital systems. Prereq: EE 480G or consent of instructor. (Same as EE 682.)

CS 683 FINITE-STATE MACHINES. (3)
Analysis and synthesis of sequential machines via state-tables and regular expressions. Equivalence, minimization and decomposition of machines. Partitions and structure-theory. Identification and diagnosis of finite-state machines by means of input-output experiments. Linear, finite-memory, and information-lossless machines. Prereq: EE 480G. (Same as EE 683.)

CS 685 SPECIAL TOPICS IN COMPUTER SCIENCE (Subtitle required). (3)
Topics to be selected by staff. May be repeated to a maximum of six credits but only three credits may be earned under the same topic. Prereq: Consent of instructor or two 500-level computer science courses.

CS 687 SPECIAL TOPICS IN SOFTWARE (Subtitle required). (3)
Topics to be selected by staff. May be repeated to a maximum of six credits but only three credits may be earned under the same topic. Prereq: Consent of instructor or two 500-level computer science courses.

CS 690 OPERATING SYSTEMS THEORY. (3)
An advanced study of operating systems theory including cooperating sequential processes, processor scheduling, paging systems, and memory management. Prereq: CS 570.

CS 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

COOPERATIVE EDUCATION

CEP 399 COOPERATIVE EDUCATION. (1)
A course designed for undergraduate students who, through the appropriate cooperative education office, secure full-time, salaried, career-related positions under the supervision of a sponsoring employer. Enrollment in the course constitutes full-time status. Course may be taken on a pass-fail basis only and may be repeated on a rotational basis to a maximum of six credit hours. Prereq: Prior approval from the director of co-op education in participating academic unit.

COOPERATIVE EXTENSION

CEX 501 PRINCIPLES OF COOPERATIVE EXTENSION. (3)
Philosophy, history and development of cooperative extension service; evaluation of instructional techniques; leadership training; and practice in use of extension methods. Open to junior, senior and graduate students.

DECISION SCIENCE AND INFORMATION SYSTEMS

DIS 300 QUANTITATIVE ANALYSIS IN OPERATIONS MANAGEMENT. (3)
A study of quantitative approaches to operations management, including decision support systems in decision making applications and efficiency considerations in both service and manufacturing operations. Prereq: CS 101, ACC 202, ECO 261, STA 291, MA 113 or MA 123, 162.

DIS 320 MANAGEMENT INFORMATION SYSTEMS. (3)
An introduction to information systems for management. Includes basic systems concept, methodology of systems analysis, and implementation of management information systems. Also provides an introduction to decision support systems, database management concepts and design methods, with emphasis on managerial problems related to these systems. Prereq: CS 101.

DIS 350 QUANTITATIVE ANALYSIS IN MANAGEMENT. (3)
An introduction to quantitative techniques in management decisions. Includes basic linear programming, Monte Carlo, and waiting line theory. Prereq: MA 113 (or MA 162 and 123), STA 291 (or STA 292, 293, 294).

DIS 406 PRODUCTION AND INVENTORY CONTROL. (3)
This course covers advanced topics in inventory and production control including forecasting, planning horizon issues, dynamic lot sizing, reorder point determination, optimal periodic and continuous review policies, multiproduct and multifacility inventory problems, multistage shop scheduling, flow-shop scheduling. Prereq: DIS 300, 350, ECO 391.

DIS 407 OPERATIONS DESIGN AND PLANNING. (3)
This course covers advanced topics in operations design and planning including long-range capacity planning, location, layout, maintenance, line balancing, and aggregate planning. Prereq: DIS 300.

DIS 506 PRODUCTIVITY AND QUALITY CONTROL. (3)
This course covers advanced topics in productivity and quality control including acceptance sampling, manufacturing control, process control, reliability, product design and process selection, job design, work measurement, and time and motion studies. Prereq: DIS 300, ECO 391.

DIS 520 ADVANCED BUSINESS DATA PROCESSING AND INFORMATION. (3)
An examination of the use of computers as an aid to business and economic decision making, information, and related problems in business and economics. Prereq: DIS 320 or equivalent, DIS 350.

DIS 600 PRODUCTION MANAGEMENT. (3)
This course exposes the MBA generalist to the functional area of production in both manufacturing and service sectors. Topics include tactical decisions in production and operative relationships with corporate strategy. The course emphasizes operations planning and control. Prereq: Graduate standing; MGT 611, ECO 610, ACC 628, DIS 650, ECO 611, FIN 600, DIS 651, MKT 600.

DIS 650 DATA ANALYSIS FOR DECISIONS. (3)
Data Analysis for Decisions is designed to provide four objectives for the MBA student: 1) develop a rigorous foundation for problem solving through structured analysis, 2) provide an introduction to data processing and information environment of managerial decision making, 3) provide the skills necessary to write and run simple programs, 4) provide prospective managers with the skills necessary to use information processing and database management techniques. Prereq: Graduate standing and MA 123 or equivalent.

DIS 651 QUANTITATIVE ANALYSIS FOR DECISIONS. (3)
This course has the following objectives: 1) develop an appreciation for the needs for information in decision making; 2) integrate data processing and analysis in a decision framework; 3) integrate model building and information systems; 4) provide an understanding of the basic anatomy of a decision model, introduce satisfying models and approximation. Prereq: Graduate standing, DIS 650.

DIS 750 MANAGEMENT SCIENCE I. (3)
Application of mathematical analysis in business decision making. Includes linear programming, total value analysis, incremental analysis, and other phases of operations research. Prereq: MA 113, and DBA student or permission of instructor.

DIS 751 MANAGEMENT SCIENCE II. (3)
Continuation of MGT 651 to include dynamic programming, game theory, Bayesian Decision Theory, and Monte Carlo techniques. Prereq: DIS 651 or equivalent.

DIS 752 TOPICS IN OPTIMIZATION. (3)
A study of optimization tools employed in decision making in the business and economic setting. Emphasis on characterization and computation of optima with particular attention to modeling. Topics include linear, nonlinear, dynamic, and integer programming, as well as further study of the method of Lagrange, Kuhn-Tucker theory, optimal control theory and sensitivity analysis. Prereq: Consent of instructor.

DIS 753 SEMINAR IN MANAGEMENT SCIENCE. (3-6)
Each semester some topic in management science such as simulation, queuing theory, stochastic processes, numerical methods, and Bayesian Decision Theory will be studied intensively. Prereq: DIS 751, 752.

DIPLOMACY AND INTERNATIONAL COMMERCE

DIP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

DIP 777 RESEARCH PROBLEMS IN INTERNATIONAL RELATIONS. (3)
This seminar focuses on research strategies that can be utilized in dealing with problems in international relations. May be repeated once with consent of instructor. Prereq: PS 674 or consent of instructor. (Same as PS 777.)

DIP 795 SPECIAL PROBLEMS IN DIPLOMACY AND INTERNATIONAL COMMERCE. (3)
Specially designed independent study course taken under the supervision of various instructors. May be repeated to a maximum of six credits. Prereq: Permission of instructor.

ECONOMICS

ECO 101 CONTEMPORARY ECONOMIC ISSUES. (3)
A basic course in the analysis of contemporary economic issues with emphasis on current economic topics such as inflation, poverty and affluence, urban congestion, and environmental pollution. (Credit will not be given for this course to students who have received prior credit in ECO 201 and/or 202, and/or ECO 260 and/or 261.)

ECO 201 PRINCIPLES OF ECONOMICS I. (3)
The study of the allocation of scarce resources from the viewpoint of individual economic units. Topics include household and firm behavior, competitive pricing of goods and resources, and monopoly power. (Credit will not be given for this course to students who have received credit in ECO 261.)

ECO 202 PRINCIPLES OF ECONOMICS II. (3)
A study of how society's needs are satisfied with the limited resources available. Topics include contemporary issues such as inflation, unemployment, economic growth, international dependencies, and how public policy deals with them. (Credit will not be given for this course to students who have received credit in ECO 260.) Prereq: ECO 201 or equivalent.

ECO 391 ECONOMIC AND BUSINESS STATISTICS. (3)
A survey of statistical techniques relevant to modern economics and business, with major emphasis on correlation and regression, Bayesian decision theory, index numbers, time series analysis, and forecasting models. Prereq: STA 291 or equivalent.

ECO 395 INDIVIDUAL WORK IN ECONOMICS. (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

ECO 400 SEMINAR IN ECONOMICS (Subtitle required): (1-3)
Readings, research and discussion in a seminar format to illuminate problems of historical and contemporary interest in areas of special faculty competence. May be repeated to a maximum of nine credits, but may not be repeated under the same subtitle. Prereq: ECO 202 or equivalent.

ECO 460 MANAGERIAL ECONOMICS. (3)
The course develops those elements of microeconomic theory that deal with the business firm, then illustrates the usefulness and application of economic analysis in managerial decisions. The topics covered include: risk analysis and decision theory; demand theory and estimation; production and cost theory and empirical cost analysis; pricing decisions; and capital budgeting. Graduate credit will not be given for both ECO 460 and ECO 610. Prereq: ECO 202 or equivalent, and ECO 391.

ECO 461G MARKET STRUCTURE AND ANTI-TRUST POLICY. (3)
A study of the relationship between industry performance and market structure, and the role and effect of the government's anti-trust policies. Prereq: ECO 202 or equivalent.

ECO 463G ANALYSIS OF BUSINESS CONDITIONS. (3)
A study of economic factors causing fluctuations in aggregate economic activity and the methods of forecasting business activity. Prereq: ECO 202 or equivalent, and ECO 391.

ECO 464G ECONOMICS OF REGULATED INDUSTRIES. (3)
A study of economic principles and regulatory procedures related to regulated industries. The study includes an analysis of particular regulated industries, such as electric, gas, communications and transportation. Prereq: ECO 202 or equivalent. (Same as TEL 464G.)

ECO 465G COMPARATIVE ECONOMIC SYSTEMS. (3)
This course deals with the theoretical underpinning of the major economic systems in existence today. The classical model of competitive market capitalism is reviewed first, followed by the Marxian and neo-Marxian (Leninist) critique of capitalism. Next, the contemporary Keynesian and the neo-Keynesian models are analyzed. This course concludes with a review of the Lange model of decentralized (market) socialism. Prereq: ECO 202 or equivalent.

ECO 467G AMERICAN ECONOMIC HISTORY. (3)
The development of the American economy will be examined within the general framework of economic theory. Major emphasis will be given to the long-run process of economic growth of the economy from the colonial period to the present. Prereq: ECO 202 or equivalent.

ECO 469G HISTORY OF ECONOMIC THOUGHT. (3)
A study of several of the great ideas in the history of economic thought with special emphasis on the works of Adam Smith, T.R. Malthus, David Ricardo, Karl Marx, and Thorstein Veblen. Prereq: ECO 202 or equivalent.

ECO 470G INTERNATIONAL ECONOMIC POLICY. (3)
An intensive study of problems relating to foreign trade and international finance in the light of economic theory. Prereq: ECO 202 or equivalent.

ECO 471G INTERNATIONAL ECONOMICS. (3)
The basic exchange model is the most important topic in this course. The exchange model is used to illustrate the gains from trade, the role of opportunity costs, and the properties of relative prices. Production considerations, the concept of comparative advantage, and the resulting factor rewards are introduced. Trade distortions are introduced and studied from the point of view of protectionism and its consequences. Fixed and flexible exchange rates and the concept of balance of payments are also covered. Prereq: ECO 202 or equivalent.

ECO 473G ECONOMIC DEVELOPMENT. (3)
A comparative study of economic progress in selected countries; growth patterns, theories of development and capital formation, interaction of social and economic change. Prereq: ECO 202 or equivalent.

ECO 475G THE LATIN AMERICAN ECONOMIES. (3)
This course will provide a clear understanding of the Latin American economies using economic theory to analyze problems and their potential solutions. Prereq: ECO 202 or equivalent.

ECO 477G LABOR ECONOMICS. (3)
Application of economic principles to analyze the operation of labor markets. Topics covered include: theories of labor movements, comparative analysis of unionism in different economies, labor supply, labor demand, human capital, collective bargaining, public policy and the operation of labor markets. In addition, selected topics such as female and minority employment, social security, and industrial conflict will be covered. Prereq: ECO 202 or equivalent.

ECO 479G PUBLIC FINANCE. (3)
A study of public receipts; public expenditures, the principles of taxation with special reference to their application to the tax systems, federal and state. Prereq: ECO 202 or equivalent.

ECO 481G COLLECTIVE BARGAINING. (3)
The principles and procedures of bargaining and dispute settlement studied in detail. Includes a review of the content of labor contracts and provisions for administration. Union and management techniques are considered. Prereq: ECO 477G or consent of instructor.

ECO 485G MONETARY ECONOMICS. (3)
A detailed discussion of the financial sector of basic static macroeconomic models, including the views of both the monetarist and neo-Keynesian schools. Institutional aspects of the financial system are discussed. The course stresses problems of economic stabilization. Prereq: ECO 202 or equivalent.

ECO 487G INTERMEDIATE MACROECONOMIC THEORY. (3)
National income concepts, the determination of aggregate income and employment, the theory of money and inflation and problems of economic growth. Prereq: ECO 202 or equivalent.

ECO 488G INTERMEDIATE MICROECONOMIC THEORY. (3)
An analysis of the behavior of consumers and firms, price determination, various market structures, and income distribution. Prereq: ECO 202 or equivalent.

ECO 492G ECONOMIC MODELING AND DATA ANALYSIS. (3)
To provide the student with a firm foundation in the concepts and procedures for the design, estimation, and analysis of economic models. Emphasizes the structure and utilization of economic models, the availability of economic information, and consideration of computer systems available for data base management. Prereq: ECO 391, 487G or consent of instructor.

ECO 590 INTRODUCTION TO QUANTITATIVE ECONOMICS I. (3)
An introduction to mathematical approaches to economic theory. Emphasis on linear models, constrained optimization, and techniques used in comparative statics. Prereq: ECO 488G; MA 113; or consent of instructor. (Same as AEC 590.)

ECO 610 MANAGERIAL ECONOMICS. (3)
Analysis of applications of economic theory to management decision making. Such problems as demand and cost determination, pricing, and capital budgeting are treated. Prereq: Graduate standing, MA 123 or its equivalent.

ECO 611 BUSINESS CONDITIONS ANALYSIS. (3)
Applied macroeconomics course that covers general economic conditions affecting organizations. Topics include national income accounts, price indices, and the determination of national income through IS-LM and aggregate supply and demand analysis. Additional problems studied include deposit creation, monetary aggregates, business cycles, stabilization policy, expectations, inflation, and unemployment. Prereq: Graduate standing, ECO 610, MGT 650.

ECO 626 TIME SERIES ANALYSIS. (3)
Time series and stochastic processes, auto-correlation functions and spectral properties of stationary processes; linear models for stationary processes, moving average, auto-regressive and mixed auto-regressive-moving average processes; linear nonstationary models, minimum mean square error forecasts and their properties; model identification, estimation and diagnostic checking. Prereq: STA 422G or its equivalent. (Same as STA 626.)

ECO 636 HEALTH ECONOMICS. (3)
A study of the application of general economic theory to the health care system: the health care market, the costs of health services, financing and payment mechanisms, the application of cost-benefit and cost-effectiveness analysis to health problems, and major economic issues in health service provision. Prereq or concurrent: PA 671 or consent of instructor. (Same as CH 621/PA 636.)

ECO 652 PUBLIC POLICY II: ECONOMIC ANALYSIS. (3)
Principles and practices of economical resource management in the governmental sector: tax and expenditure types, intergovernmental fiscal cooperation, debt financing, budgeting and financial planning. Prereq: MPA program status or consent of instructor. (Same as PA 652.)

ECO 660 ADVANCED MICROECONOMIC THEORY. (3)
An intensive course covering microeconomic theory and its various methodological and analytical techniques. Prereq: ECO 488G or consent of instructor.

ECO 661 MACROECONOMIC THEORY. (3)
National income and employment theory, theories of inflation, and problems of economic growth. Not open to those with credit in ECO 761. Prereq: ECO 487G or consent of instructor.

ECO 662 RESEARCH METHODS AND PROCEDURES IN ECONOMICS. (3)
The basic procedures and methods of research in economics are considered from the standpont of their applicability to problem solving and discovery of new scientific facts and generalizations in economics. Definition of the problem, statement of hypothesis, research design, data collection methods, and data analysis constitute the major topics. Attention is given to proper style and preparation of research reports in economics. Prereq: Second semester standing as a graduate student in economics.

ECO 665 HISTORY OF ECONOMIC THOUGHT I. (3)
The background and development of English political economy up to 1848.

ECO 666 HISTORY OF ECONOMIC THOUGHT II. (3)
Main lines of controversy, reconstruction and development in economics since 1848 with an emphasis on the bibliography.

ECO 670 ECONOMICS OF INTERNATIONAL FINANCIAL INSTITUTIONS. (3)
An in-depth study of financial markets, commercial banking, and business finance in an international setting. Prereq: ECO 471G, 485G.

ECO 671 INTERNATIONAL ECONOMICS SEMINAR I. (3)
History and analysis of theories of international trade; theories of international equilibrium and mechanisms of equilibrium adjustments; theory of economic integration. Prereq: ECO 471G.

ECO 674 AGRICULTURE AND ECONOMIC DEVELOPMENT. (3)
Analytical consideration of the role of agriculture in economic development in relation to overall development strategy at various stages of growth. Theoretical and policy issues of particular relevance to the agricultural development in underdeveloped agrarian economies with various resource, social, political and economic systems. Prereq: ECO 473G or consent of instructor. (Same as AEC 626.)

ECO 676 LABOR MARKETS AND WAGE DETERMINATION. (3)
Economic and social forces determining labor supply and demand, labor force, unemployment, labor mobility; economic and institutional forces determining wages, wage theories and impact of collective bargaining. Prereq: ECO 487G and 488G or consent of instructor.

ECO 679 SEMINAR IN PUBLIC ECONOMICS I. (3)
Positive and normative economic analyses of human activities in the areas where decentralized markets fail to perform the resource allocation function optimally and income redistribution must be taken into account explicitly. The concepts of social goods, externalities and optimal taxation, and the problems associated with them, the public utility pricing, and public choice models will be discussed. Individual research reports. Prereq: ECO 488G, 479G or consent of instructor.

ECO 683 ECONOMICS OF GROWTH AND DEVELOPMENT IN REGIONS AND URBAN AREAS. (3)
A macroeconomic study of regional-urban growth and development with primary emphasis on the construction of income determination and growth models for an open economy. Prereq: ECO 487G or equivalent.

ECO 684 ENVIRONMENTAL ECONOMICS, REGULATION AND POLICY. (3)
This course takes a balanced practitioner approach to the problems of the environment and environmental regulation. Efficiency aspects will be developed carefully, so as to provide a background for an extensive coverage of various available alternative policies. Prereq: MPA or economics program status or consent of instructor. (Same as PA 727.)

ECO 686 MONETARY ECONOMICS: THEORY. (3)
Demand and supply of money and other assets. The financial sector in macro-static and dynamic models of the economy. Prereq: ECO 760, 761 or consent of instructor.

ECO 687 MONETARY ECONOMICS: POLICY. (3)
Theory of public policy making. Central bank policy instruments and the effectiveness of monetary policy. Debt management and the term structure of interest rates. Econometric studies of the financial sector. Reforming financial institutions. Prereq: ECO 686 or consent of instructor.

ECO 688 OPTIMIZATION AND ECONOMIC THEORY. (3)
A study of the applications of intertemporal optimization techniques such as search theory, the calculus of variations, optimal control and dynamic programming to economics. Applied topics can include the analysis of economic growth, optimal behavior under uncertainty, and the modern theories of capital and inventory. Prereq: ECO 762.

ECO 691 INTRODUCTION TO ECONOMETRICS I. (3)
The first course in the introduction to econometrics. A comprehensive survey of the general linear regression, autocorrelation, errors in variables and distributed lag models. Prereq: STA 424G, STA 525 or consent of instructor.

ECO 692 INTRODUCTION TO ECONOMETRICS II. (3)
The second course in the introduction to econometrics. A comprehensive survey of identification, estimation and hypothesis testing in the context of simultaneous equations model. Prereq: ECO 691 or consent of instructor.

ECO 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ECO 760 NEOCLASSICAL MICROECONOMIC THEORY. (3)
The Neoclassical theory of consumer behavior, production, market equilibrium and imperfect competition. Prereq: ECO 448G, 590 or consent of instructor.

ECO 761 ADVANCED MACROECONOMIC THEORY. (3)
The rigorous development of a general equilibrium macroeconomic model in the context of the recent literature. Prereq: ECO 487G, 661 or consent of instructor.

ECO 762 GENERAL EQUILIBRIUM ANALYSIS AND WELFARE ECONOMICS. (3)
Existence, stability, efficiency and Pareto satisfactoriness of competitive equilibrium. Recent developments in general equilibrium and welfare theory. Prereq: ECO 488G, 590 or consent of instructor.

ECO 763 SEMINAR IN MACROECONOMIC THEORY. (3)
Recent developments and major issues in contemporary macroeconomic theory. Prereq: ECO 761.

ECO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ECO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ECO 771 INTERNATIONAL ECONOMICS SEMINAR II. (3)
Trade and economic development; determination of international payments equilibrium; econometric studies in world trade; computation of terms of trade; new developments in trade theory. Prereq: ECO 471G.

ECO 773 SEMINAR IN ECONOMIC DEVELOPMENT II. (3)
Comprehensive survey of the literature on specific aspects of economic development, including industrialization, foreign trade policy, foreign aid, foreign investment, demographic problems, and stimulation and mobilization of savings. Prereq: ECO 473G.

ECO 779 SEMINAR IN PUBLIC ECONOMICS II. (3)
Essentially a continuation of ECO 679. Individual research reports. Prereq: ECO 679, or consent of instructor.

ECO 786 SEMINAR IN MONETARY THEORY AND POLICY. (3)
A comprehensive and critical analysis of contemporary monetary theory and policy. Prereq: ECO 686 or consent of instructor.

ECO 788 MATHEMATICAL ECONOMICS. (3)
Advanced mathematical topics in economic theory. The specific areas of study may differ from one semester to the next, but will be selected from such subjects as general equilibrium theory, social choice, game theory, and mathematical models of growth. Prereq: ECO 688.

ECO 792 ECONOMETRICS I. (3)
The first course in the econometrics area of specialization. A comprehensive survey of general linear regression analysis; autocorrelation; errors in variables models; distributed lag models. Prereq: ECO 692 or consent of instructor.

ECO 793 ECONOMETRICS II. (3)
The second course in the econometrics area of specialization. A comprehensive survey of identification, estimation, and hypothesis testing in the context of the simultaneous equations model. Prereq: ECO 792.

ECO 796 SEMINAR. (1-6)
An extended original investigation of some specific topic with a view to giving training in methods of research and studying intensively a particular subject in the field of economics. May be repeated to a maximum of six credits.

ECO 797 RESEARCH PROBLEMS IN ECONOMICS. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits.

EDUCATION

EDF 101 THE TEACHER IN AMERICAN SCHOOLS.(2-3)
An introductory course in education for freshman and sophomore students. Considers basic information about the teaching profession and the role of the school in a democratic society. The student will begin to study individual differences, the learning process, the school program, the role of the teacher in the school, and current educational issues. Affords opportunity for planning individual programs of teacher education. (Offered in Community College System only.)

EDU 300 SPECIAL COURSE. (1-3)
This course is being proposed to provide an opportunity for offering experimental, topical or interdisciplinary courses on a one-time or two-time basis without creating a permanent course. The description will be submitted each time the course is offered. Prereq: Permission of instructor.

EDUCATION—ADMINISTRATION AND SUPERVISION

EDA 401 THE PROFESSIONAL TEACHER: LEGAL PERSPECTIVES. (1)
Study of legal concerns of public school teachers. Emphasizes legal rights and resonsibilities of teachers and pupils. Lecture, two hours per week for eight weeks. Prereq: Admission to the Teacher Education Program.

EDA 600 ORGANIZATION AND ADMINISTRATION OF AMERICAN EDUCATION. (3)
An analysis of the administration of local, state and federal education agencies and their relationships. A study of the administrative tasks in these agencies.

EDA 601 ADMINISTRATION OF EDUCATIONAL ORGANIZATIONS. (3)
A study of the historical development of educational administration, administrative processes, the application of theory and values in decision making and an introduction to modern management methods applied to education.

EDA 603 CONSTITUTIONAL AND LEGAL BASIS OF PUBLIC SCHOOL ADMINISTRATION. (3)
A study of court decisions to discover the legal principles involved in practical problems of school administration. Prereq: Admission to program in administration and supervision.

EDA 604 SCHOOL BUILDINGS AND EQUIPMENT. (3)
Measurement and evaluation of existing school building facilities, planning new buildings, determining suitable equipment, and financing the building program. Prereq: Admission to program in administration and supervision.

EDA 605 SCHOOL LAW FOR TEACHERS. (3)
Concepts that school teachers need to know about public school organization and law. Particular emphasis is given to the legal rights and responsibilities of Kentucky teachers and pupils.

EDA 608 INTERNSHIP IN EDUCATIONAL ADMINISTRATION AND SUPERVISION. (3)
Field experiences are provided for prospective administrators under the cooperative supervision of University personnel and principals, supervisors, and superintendents in Kentucky public school systems. May be repeated for a maximum of six credits. Prereq: Admission to program in administration and supervision.

EDA 629 THE PRINCIPAL. (3)
An analysis of the building unit as s sub-system within a larger complex organization. Special emphasis on the changes in the role of the principal as a result of changes in society and in the schools. Prereq: Admission to department program or consent of instructor.

EDA 633 ADMINISTRATION AND SUPERVISION OF INSTRUCTIONAL PROGRAMS. (3)
A study of the role of organizational leadership in the development of instructional goals, instructional programs, evaluation procedures and procedures for educational changes.

EDA 634 ADMINISTRATION OF EDUCATIONAL PERSONNEL. (3)
Consideraiton of the motivation and management of educational personnel with special emphasis on the professional in complex organizations. Attention is given to the theory and practice of collective bargaining in education.

EDA 635 BUSINESS ADMINISTRATION AND FINANCE OF PUBLIC EDUCATION. (3)
A course for prospective superintendents. Emphasizes school support, including state, local, and federal revenues; budgetary policy; procedures for purchasing, accounting, and reporting costs; management of funds, property, equipment, and supplies; payroll procedures, records and reports.

EDA 639 THE SUPERVISOR. (3)
A study of the role of the supervisor of instruction as part of administrative leadership in improving instructional programs with special emphasis on in-service education of staff. Prereq: Admission to program or consent of instructor.

EDA 641 ORGANIZATION AND ADMINISTRATION OF SCHOOL COMMUNITY RELATIONS. (3)
Examination of issues and responsibilities attendant to the organization and administration of a school community relations program at the school district and the school building level. Focus on administrative tasks, duties, and responsibilities and research supporting school community interactions. Prereq: Consent of the instructor.

EDA 649 THE SCHOOL SUPERINTENDENCY. (3)
A study of the work of the chief executive of a school district. Special emphasis upon the development and implementation of policy. Prereq: Admission to the program and consent of instructor.

EDA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EDA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDA 771 SEMINAR IN ADMINISTRATION. (1-3)
A variable topic seminar on selected problems in school administration. Activities designed to improve skill in planning, decision making, organizing, communicating, evaluating, negotiating, and resolving conflict will be provided as appropriate. Educational innovations and processes of implementing change may be analyzed. May be repeated to a maximum of six credits. Prereq: Admission to program or consent of instructor.

EDA 785 INDEPENDENT WORK IN SCHOOL ADMINISTRATION. (3)
Includes research on a practical problem in school administration. Open only to students with at least one semester of graduate work in education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

EDA 792 RESEARCH IN EDUCATIONAL ADMINISTRATION AND SUPERVISION. (3)
Critical examination of representative research studies in administration and related fields. Emphasis upon the students' defining and delimiting an appropriate problem in educational administration and supervision, generating a design appropriate to the problem and selecting appropriate techniques of analysis. Prereq: Admission to program.

EDUCATION—CURRICULUM AND INSTRUCTION

EDC 270 INTRODUCTION TO ART EDUCATION. (2)
A lecture-laboratory course investigating the theoretical, historical, psychological and sociological foundations of art education. Critical examination of individual and group activities currently offered in the elementary school art program. Lectures, curriculum design, evaluation of process and technique. Introduction to the visual arts through studio experiences. Lecture, one hour; laboratory, two hours per week. A-E 270 and A-E 272 together satisfy the state art requirement for general elementary teacher certification. Prereq: EDP 202. (Same as A-E 270.)

EDC 317 INTRODUCTION TO INSTRUCTIONAL MEDIA. (1)
An introductory instructional media experience including basic production and utilization techniques for media materials and operation of commonly used educational media equipment. Topics include graphic preservation, transparency production, audio materials, motion pictures, 35mm photographic techniques, and an introduction to videotape television. Prereq: Admission to a Teacher Education Program.

EDC 322 ELEMENTARY PRACTICUM. (1-3)
Planned and supervised practicum in teaching elementary science, reading, social studies, and mathematics. Observation, selecting objectives and materials, questioning strategies, learning centers, instructional units, and assessment techniques will be emphasized. May be repeated to a maximum of three credits. Lecture, one hour; laboratory, six to twelve hours per week. Prereq: Admission to Early Elementary TEP. Concur: EDC 323, EDC 326, EDC 328, EDC 337, and EDC 329.

EDC 323 CLASSROOM MANAGEMENT AND DISCIPLINE. (3)
This course is designed to strengthen students' understanding of the relationship between classroom environment and classroom behavior. Activities and readings will focus on effective decision-making in classroom management and on developing alternatives for preventing and dealing with management and discipline problems. Twenty hours of field experience are required in conjunction with EDC 322. Prereq: Admission to TEP. Concur: EDC 322 or consent of instructor.

EDC 324 TEACHING SCIENCE AND SOCIAL LEARNINGS IN THE ELEMENTARY SCHOOL. (2-4)
Content areas of social studies and science. Developing understandings and skills relative to unit teaching. Social skills and scientific concepts will be developed through professional laboratory experiences. Consideration will be given to organizing science and social learnings in the elementary school. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 325 TEACHING IN THE ELEMENTARY SCHOOL. (3)
A course designed to develop understandings relative to program planning, daily schedule, record keeping, evaluation, reporting to parents, professional organizations, and teacher ethics. The unit approach as a method of organizing learning experiences in the elementary school is introduced.

EDC 326 TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. (3)
A study of methods and materials for teaching social studies at the elementary level. The course will include a critical analysis of a variety of objectives, instructional materials and strategies, and evaluation techniques for elementary social studies. Consideration will be given to addressing the individual needs of a diverse student population. Special emphasis is placed on instruction in grades K-4. Twenty hours of field experience are required in conjunction with EDC 322. Prereq: Admission to TEP and 15 hours of social sciences. Coreq: EDC 322.

EDC 327 PRINCIPLES AND TRENDS IN EARLY CHILDHOOD EDUCATION. (3)
Introduction to the theoretical framework for early childhood programs, trends in program development, and prevailing issues. An analysis of early stimulation and intervention in lives of young children reflected in the literature and current research. Prereq: EDP 202, EDF 301, FAM 255, or equivalent; or consent of instructor; admission to the Teacher Education Program.

EDC 328 TEACHING SCIENCE IN THE ELEMENTARY SCHOOL. (3)
A critical analysis of a variety of objectives, instructional materials and evaluation techniques for teaching elementary school science, with a special emphasis on grades K-4. Consideration will be given to addressing the individual needs of a diverse student population. Twenty hours of field experience are required in conjunction with EDC 322. Prereq: Admission to TEP and 12 hours of science. Coreq: EDC 322.

EDC 329 TEACHING READING AND LANGUAGE ARTS. (3)
Development of competencies for the teaching of reading and other language arts to groups. Course will also provide an overview of the nature of reading and language arts development from grade K-8. Twenty hours of laboratory work in the schools are required. Prereq: Admission to Early Elementary Education TEP or Middle School TEP.

EDC 330 DESIGNING A READING AND LANGUAGE ARTS PROGRAM FOR THE MIDDLE SCHOOL. (3)
A study of materials and techniques useful in the diagnostic teaching of reading and other language arts with students in grades 5-8. The course will emphasize materials, techniques, and procedures which diagnose individual strengths and weaknesses, and prescriptive instruction based upon the diagnosis. Lecture, three hours; laboratory, one hour. Prereq: EDC 329 or consent of instructor; admission to the Teacher Education Program.

EDC 331 TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL. (3)
A study of children's interests in, and needs for mathematics; evaluation of practice and materials; organization of subject matter; activities involving mathematics; drill; problem solving; diagnosis and remedial instruction; and testing. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 334 ORAL AND WRITTEN LANGUAGE DEVELOPMENT IN THE ELEMENTARY SCHOOL. (3)
A study of language differences, methods for teaching children with language differences, ways to integrate oral language instruction with the total curriculum, ways to enhance students' expressive writing abilities, and ways to teach grammar, spelling, and handwriting through functional and creative writing activities. Prereq: EDC 329 and admission to the elementary teacher education program.

EDC 337 TEACHING MATHEMATICS IN ELEMENTARY SCHOOLS. (3)
Fundamental concepts of numbers, their relationships, geometry and other mathematics topics for children of grades K-4. Emphasis on use of concrete materials and the development of language, appropriate learning experiences, computational skills, and problem-solving abilities. Prereq: Admission to TEP and MA 202. Coreq: EDC 322.

EDC 338 SCIENCE AND SOCIAL STUDIES FOR YOUNG CHILDREN. (4)
An analysis of materials and methodologies appropriate for providing children ages 3-8 with experiences in science and social studies. Attention will be given to underlying theoretical considerations as well as practical implementation experiences in a laboratory setting. One laboratory hour per week. Lecture, four hours per week. Prereq: EDP 202, FAM 255, admission to Teacher Education Program and junior standing.

EDC 339 DESIGNING A READING AND LANGUAGE ARTS PROGRAM FOR THE ELEMENTARY SCHOOL. (3)
A study of materials and procedures for developing reading and language arts skills with elementary students, with an emphasis on grades K-4. Course will emphasize how to diagnose individual student skill strengths and weaknesses and build a prescriptive program based upon the diagnosis. Prereq: EDC 329; admission to the TEP or permission of instructor. Coreq: EDC 322.

EDC 341 MIDDLE SCHOOL CURRICULUM AND INSTRUCTION. (3)
This course is designed to acquaint teachers of early adolescents with the rationale behind the middle school concept, and, in particular, the techniques of teaching as an individual and as a member of an interdisciplinary team. The development of generic teaching skills such as planning, implementing, managing, and evaluating learning programs is emphasized. Prereq: Admission to Teacher Education Program.

EDC 342 STUDENT TEACHING IN ART. (3-12)
Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. The student works with children on all grade levels under the guidance of the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 343 THE EARLY ADOLESCENT LEARNER: PRACTICUM. (3)
This course is designed to extend and apply knowledge of the social, emotional, intellectual, and physical characteristics of the early adolescent learner through observation and interaction in school settings. The course format will include a weekly seminar and a supervised field placement in a middle school setting. Lecture, one hour; laboratory, six hours per week. Prereq: Admission to Teacher Education Program.

EDC 344 PRINCIPLES AND TECHNIQUES OF TEACHING IN THE SECONDARY SCHOOL. (3)
This course will include a survey of secondary school curriculum, development of teaching objectives, instruction in the development of the technical skills of teaching. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 345 TEACHING MATHEMATICS IN THE MIDDLE SCHOOL. (3)
A study of theoretical models and methodological strategies for teaching arithmetic, informal geometry, and introductory algebra at the middle school level. The course will include a critical analysis of a variety of objectives, instructional materials and strategies and evaluation techniques. Consideration will be given to addressing the individual needs of a diverse student population. Prereq: Admission to Teacher Education Program; 18 hours of undergraduate mathematics. Concur: EDC 330 and EDC 343.

EDC 346 TEACHING SOCIAL STUDIES IN THE MIDDLE SCHOOL. (3)
A study of theoretical models and methodological strategies for teaching social studies at the middle school level. The course will include a critical analysis of a variety of objectives, instructional materials and strategies, and evaluation techniques for middle school social studies. Consideration will be given to addressing the individual needs of a diverse student population. Prereq: Admission to TEP; completion of 24 hours in social studies. Concur: EDC 330 and EDC 343.

EDC 347 TEACHING ENGLISH AND COMMUNICATION IN THE MIDDLE SCHOOL. (3)
This course will explore various approaches to teaching English and communication in the middle school with special emphasis on the nature of language development. Prereq: Admission to the TEP and 24 hours in English/communication specialization. Concur: EDC 330 and 343.

EDC 348 TEACHING SCIENCE IN THE MIDDLE SCHOOL. (3)
A study of theoretical models and methodological strategies for teaching science at the middle school level. This course will include a critical analysis of a variety of objectives, instructional materials and strategies, and evaluation techniques for middle school science. Special needs of individuals in a diverse middle school population are emphasized. Prereq: Admission to TEP and 24 hours of science. Concur: EDC 330 and 343.

EDC 349 STUDENT TEACHING IN THE MIDDLE SCHOOL. (3-12)
This course is designed to give the student experience teaching within a middle school setting. Weekly seminars will be held to discuss issues relevant to the student teacher's experience. Offered on a pass-fail basis only. Lecture, 1 hour; laboratory, 30 hours per week. Prereq: Must meet published college requirements for student teaching.

EDC 353 STUDENT TEACHING IN ENGLISH. (3-12)
Observation and practice in teaching high school English. Included are objectives and content of English courses in high school, planning and methods of teaching, testing, textbook analysis, audio-visual material and equipment, and safety education. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 354 STUDENT TEACHING IN LANGUAGES. (3-12)
Aims and objectives, courses of study, materials, methods, and testing in French, Spanish, and Latin. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 355 STUDENT TEACHING IN THE SCIENCES. (3-12)
Aims and objectives, courses of study, methods, tests, equipment, general science, biology, physics, and chemistry. The course includes observation and practice, safety education, audio-visual aids, and planning conferences with the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 356 STUDENT TEACHING IN MATHEMATICS. (3-12)
Aims and objectives, course of study, materials, methods, and testing in algebra, geometry, and trigonometry. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 357 STUDENT TEACHING IN THE SOCIAL STUDIES. (3-12)
Includes a study of the development and present status of social studies programs, classroom methods and activities, teaching materials, testing and evaluation, professional aids to teachers, safety education, and observation and participation in actual classroom experiences. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 358 STUDENT TEACHING IN PSYCHOLOGY. (3-12)
Culminating in intensive half to full semester field experience in teaching psychology. Forty-hour laboratory per week. May be repeated to a maximum of 12 credits. Offered on a pass/fail basis only. Prereq: Completion of the academic and professional sequence required in social studies education prior to student teaching.

EDC 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Curriculum and Instruction. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDC 377 STUDENT TEACHING IN MUSIC. (3-12)
A course planned for teachers who expect to become either instructors or supervisors of music in the public schools. Observation, teaching, work on research problems, and conferences with the supervising teacher included. Offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION. (6-12)
Course designed to give students experience with supervised teaching at two levels, pre-primary and primary. Emphasis will be placed on observations and teaching (individual, small, and large group methods). One afternoon per week will be devoted to a discussion and analysis of problems in student teaching. Discussion, two hours; laboratory, 22 hours per week. Offered on a pass-fail basis only. Prereq: Completion of professional sequence and formal admission to student teaching; admission to the Teacher Education Program or permission of instructor. (Same as FAM 411.)

EDC 433 STUDENT TEACHING IN THE ELEMENTARY SCHOOL. (3-12)
A course designed to give the student experience with and practice in the program of an elementary school. Actual work with children in all learning situations is the basic part of the course. A required weekly seminar will include sessions on: beginning teacher internship, school law and students' rights, administrative organization, and professional development. Offered on a pass/fail basis only. Prereq: Must meet the published college requirements for student teaching.

EDC 500 CLINICAL AND LABORATORY TEACHING. (3)
The course focuses on generic teaching skills that can be used effectively in a range of school and clinical settings. Included are preparation of instructional objectives, teaching methodologies, materials selection and utilization, and assessment. Lecture, two hours; laboratory, two hours per week. Prereq: 12 hours of social and/or behavioral science and consent of instructor; NUR 814.

EDC 501 TEACHING INTERNSHIP. (1-12)
Supervised practice teaching under competent leadership. Observation, instruction, independent study which parallels field experience, and conferences with supervising instructor included. This course is designed primarily for students in allied health professions, education, library and information science, home economics, and social work. May be repeated to a maximum of 12 hours. Prereq: EDC 500 or consent of instructor.

EDC 511 SPECIAL TOPICS IN EARLY CHILDHOOD EDUCATION. (1-3)
A study of contemporary topics in the field of early childhood education. Number of credits awarded will vary depending on scope and depth of topic to be studied. Lecture, one-three hours; laboratory, zero-four hours per week. May be repeated to a maximum of six credits. Prereq: Consent of instructor; admission to the Teacher Education Program.

EDC 513 TEACHING ENGLISH AS A SECOND LANGUAGE. (3)
The course will examine the current theories and methods of teaching English as a second language. The course will include (1) language learning theory as it relates to other disciplines; (2) methods and techniques of contrastive analysis. Prereq: One course in linguistics or consent of instructor. (Same as ENG 513.)

EDC 514 TESL MATERIALS AND METHODS. (3)
An extension of ENG/EDC 513, this course will include examination and evaluation of published materials designed for teaching English to speakers of other languages. Students will create individualized teaching materials and gain practical experience in applying the methods and using their own materials. Prereq: ENG/EDC 513 or consent of instructor. (Same as ENG 514.)

EDC 521 MATERIALS AND METHODS IN TEACHING MATHEMATICS IN THE SECONDARY SCHOOL. (3)
A course emphasizing the methods and materials used in teaching secondary school mathematics, including simulated teaching of selected topics from arithmetic, algebra, geometry and upper level school mathematics. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 522 MATERIALS AND METHODS IN TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL. (3)
A course for prospective secondary school social studies teachers in the utilization of materials, resources, equipment and techniques appropriate for modern teaching strategies. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 524 MATERIALS AND METHODS FOR TEACHING SCIENCE IN THE SECONDARY SCHOOL. (3)
A course designed to provide practical experience in curriculum materials and methods for the development of teaching models in secondary school science. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 525 MATERIALS AND METHODS OF TEACHING ENGLISH IN THE SECONDARY SCHOOL. (3)
A course designed to develop frames of reference from which to make appropriate selection of materials and methods for the teaching of secondary school English. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 533 TEACHING READING IN THE SECONDARY SCHOOL. (3)
A study of current methods and materials useful in teaching reading in secondary schools with particular emphasis on the improvement of reading in the content areas. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 534 READING AND STUDY SKILLS IN ENGLISH. (3)
An introductory course for teachers of English. The emphasis is on developing competencies necessary for teaching reading and study strategies in the English and humanities curriculum, especially at the junior and senior high school levels. Lecture, three hours; laboratory, one hour. Prereq: Junior standing, admission to the TEP in English education, or consent of instructor.

EDC 538 ADVANCED ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL. (3)
Planned to give the elementary teacher an understanding of teaching methods involved in, and construction of, art activities which would enrich the classroom program. Prereq: Teaching certificate or permission of the instructor. (Same as A-E 538.)

EDC 542 CHILDREN'S LITERATURE. (3)
Planned to acquaint students with literature for children, kindergarten through grade 8. Review of interests at different ages. Discussion of types of literature—folklore, modern fairy tales, myths and legends, realistic stories, biography and poetry.

EDC 544 UTILIZATION OF EDUCATIONAL MEDIA. (3)
Surveys the broad area of educational media with an emphasis on utilization and the advantages and disadvantages of the various media. Provides experience in relating educational technology to productive learning activity.

EDC 545 PREPARATION OF INSTRUCTIONAL MATERIALS. (3)
Develops a basic pattern for the preparation of a wide variety of instructional materials. Laboratory practice is provided for the production of materials for projected and nonprojected use. Sources of free and inexpensive materials will be identified and evaluated. Lecture, two hours; laboratory, two hours.

EDC 547 MICROCOMPUTERS IN INSTRUCTION. (3)
An introduction to the roles and uses of microcomputers in instruction. Topics include instructional applications, as well as the selection and utilization of instructional computing hardware and software, and teacher utilities. Prereq: CS 101 and consent of instructor.

EDC 549 SOCIAL PROCESSES AND EFFECTS OF MASS COMMUNICATION. (3)
The relationship between the organization of modern society and its communication media: Special emphasis is given to the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: COM/SOC 249 or its equivalent. (Same as COM/SOC 549.)

EDC 550 TEACHING THE CULTURALLY DIFFERENT. (3)
A critical study of the concept of disadvantagement, relevant teaching practices, institutional programs, and curricula.

EDC 565 MODERN EDUCATIONAL PROBLEMS. (GENERAL CURRICULUM). (3)

EDC 575, 576 MODERN EDUCATIONAL PROBLEMS. (UNCLASSIFIED). (3 ea.)

EDC 580 INTRODUCTION TO GIFTED EDUCATION. (3)
This course reviews the historical development of and the theoretical and empirical support for differentiated educational programs for gifted and talented children. Specific issues addressed include defining and identifying giftedness, teacher competencies and training, providing differentiated curricula and program evaluation. (Same as EDP 580.)

EDC 600 WORKSHOP IN READING. (1-3)
An intensive workshop dealing with materials and techniques in teaching reading. Study of new techniques, examination of materials; lectures by specialists. (Class hours per week 1-3 weeks, 8 hours per day.) May be repeated for a maximum of three hours. Prereq: Undergraduate degree.

EDC 602 CURRICULA AND PROGRAMMING FOR THE GIFTED. (3)
Students in this course will examine and evaluate curricular models appropriate of gifted students, and will consider methods for adapting existing curricula to meet the needs of gifted students. The design, implementation and evaluation of program delivery models will be discussed. Prereq: EDC/EDP 580 and teacher certification, or consent of instructor.

EDC 606 INSTRUCTIONAL TELEVISION IN THE CLASSROOM. (3)
Emphasizes the classroom utilization of instructional television. Includes the psychology of listening; problems of evaluation; the writing, producing and scheduling of school telecasts; and the sources of telecasting for school use. Research studies in the area will be investigated.

EDC 607 BASIC INSTRUCTIONAL DESIGN. (1-3)
Develops basic skills in selecting, specifying and categorizing instructional objectives into a systematic approach to instructional design; those taking the course for three credit hours also write, test and validate a unit of programmed instruction. Research on instructional design is also emphasized.

EDC 608 APPLICATIONS OF INSTRUCTIONAL DESIGN. (3)
Briefly reviews currently popular approaches to systematic design of instruction. Provides supervised field experience in application of design techniques by teaming the student with an experienced teacher to design classroom instruction. Lecture, two hours; laboratory, two hours. Prereq: EDC 607 or consent of instructor.

EDC 610 DISCIPLINE AND CLASSROOM MANAGEMENT. (3)
The course is designed to examine the causes of and solutions to disruptive and noncompliant behavior and classroom management problems that are within the control of the classroom teacher. The course content is designed around two approaches: (1) identifying prevalent problems and exploring specific solutions to them; (2) presenting selected strategies and applying them to a variety of problems. In both cases, alternatives are considered in the light of relevant theory, law, research and experience. Prereq: Teacher certification and EDU 203.

EDC 618 ADVANCED STUDY IN THE TEACHING OF READING. (3)
An advanced course for classroom teachers which focuses on selection and implementation of reading assessment and instructional procedures. The theoretical bases of the reading process and the knowledge of research in reading will be related to the design of classroom instruction. This course is to become an option in Area 7 of both the Elementary and Secondary Standard Certification programs. Prereq: EDC 330 or 339 or 533 or equivalent.

EDC 619 ASSESSMENT OF READING GROWTH AND DEVELOPMENT. (3)
Clinical techniques for the diagnosis of reading disabilities. A course designed to develop both theoretical understandings and operational skills in clinical diagnosis of reading problems. Classroom application of the techniques is discussed. Lecture, two hours; laboratory, two hours. Prereq: EDC 330 or 533, or 534 or consent of instructor.

EDC 620 DESIGN AND IMPLEMENTATION OF READING INSTRUCTION. (3)
Clinical techniques used in the remediation of reading problems. A course designed to develop individualized procedures related to diagnosis. Classroom application of the instructional procedures is discussed. Lecture, two hours; laboratory, two hours. Prereq: EDC 619, or consent of instructor.

EDC 621 LINGUISTIC AND COGNITIVE FOUNDATIONS OF READING IN EARLY CHILDHOOD. (3)
A study of reading as a language-based process with an emphasis upon developing observational skills to assess the child's growth in oracy and literacy skills and upon designing a language learning environment to meet these needs. Prereq: EDC 339 or permission of instructor.

EDC 641 RESEARCH AND THEORY IN TEACHING READING IN THE ELEMENTARY SCHOOL. (3)
A systematic study of the research and theory and their application to the teaching of reading in the elementary school. Attention will be given to new developments in the field. Prereq: EDC 330 or consent of instructor.

EDC 642 RESEARCH AND THEORY IN TEACHING LANGUAGE ARTS. (3)
A systematic study of research and theory in oral and written language acquisition and the implications of this knowledge for facilitating the development of listening, speaking and writing in classroom settings. The interrelationships among all of the language arts (reading, writing, listening and speaking) will be stressed. Prereq: EDC 330, or 553, or 534, or consent of instructor.

EDC 643 RESEARCH AND THEORY IN TEACHING READING IN SECONDARY SCHOOLS. (3)
A systematic study of the research and theory and their application to the teaching of reading in the secondary schools. Attention will be given to new developments in the field. Prereq: EDC 533, EDC 534, or consent of instructor.

EDC 661 AFFECTIVE CURRICULUM STRATEGIES. (3)
Curriculum applications of strategies and a review of materials for the development of interpersonal skills and positive self-images. Prereq: EDP 600 or FAM 655.

EDC 662 INTEGRATING LEARNING EXPERIENCES IN EARLY CHILDHOOD EDUCATION. (2)
An analysis of research, theory, and materials for integrating content areas in early childhood education. Prereq: EDC 713.

EDC 670 ADVANCED STUDY IN THE TEACHING OF ELEMENTARY SCHOOL MATHEMATICS. (3)
New developments in modern elementary mathematics for teachers in the elementary schools will be reviewed. Special emphasis will be given to a study of new teaching methods, application of published research, techniques and trends in mathematics in elementary school. Prereq: Graduate standing.

EDC 676 PRACTICUM IN GIFTED EDUCATION. (3)
Supervised experience in the instruction of gifted children. Requires placement in an approved program designed for serving gifted children plus participation in a weekly supervisory seminar. Lecture, two hours; laboratory, nine hours per week. Prereq: EDP 580, EDC 602, EDP 612 or consent of instructor. (Same as EDP 676.)

EDC 710 ADVANCED TOPICS IN INSTRUCTIONAL DESIGN. (3)
An analysis of selected instructional design theories and procedures which have been recently developed or are in the formative stages. Emphasis will be placed on theory and procedures which have been or are being empirically tested. Prereq: EDC 608 and EDP 610, or consent of instructor.

EDC 712 THE ELEMENTARY SCHOOL. (3)
Recent research and modern trends in teaching the skills and content subjects in the elementary school. Planned for supervisors, superintendents, principals, and teachers for better understanding of a modern elementary school.

EDC 713 CURRICULUM TRENDS IN EARLY CHILDHOOD EDUCATION. (3)
A study of major curricular trends and issues in early childhood education. Several contemporary early childhood curriculum models and products, representing a variety of educational perspectives, will be examined and analyzed in terms of their appropriateness for specific populations. Prereq: K-3 certification.

EDC 714 THE SECONDARY SCHOOL. (3)
A course designed to acquaint the secondary teacher and the administrator with the nature and function of the secondary school.

EDC 724 ORGANIZATION AND SUPERVISION OF STUDENT TEACHING. (3)
A course designed for teachers preparing to become supervising teachers. The basic principles apply both to elementary and secondary education. Includes a presentation of the experiences deemed important in developing students into effective teachers.

EDC 730 PROBLEMS OF THE SCHOOL CURICULUM. (3)
Problems in the field of the school curriculum and in the preparation of instructional materials. Students enrolling in this course are required to leave on file with the College of Education a complete report of each problem studied. May be repeated once for a maximum of six credits.

EDC 732 PRINCIPLES OF CURRICULUM CONSTRUCTION. (3)
Study of basic principles of curriculum development. Relationship of social and psychological factors to curriculum change. Survey of current approaches to curriculum organization. Considerations of means of curriculum development in the school systems.

EDC 740 PRACTICUM IN TEACHING READING AND RELATED LANGUAGE ARTS. (3)
Supervised practicum in analyzing problems in reading and related language arts and providing remedial work. Requires six hours per week in practicum with individual children or groups, plus two hours per week in seminar. May be repeated to a maximum of six credits. Prereq: EDC 619, 620.

EDC 747 SEMINAR IN READING AND LANGUAGE. (3)
A seminar for advanced graduate students. Critical discussion of theory and research under investigation by graduate students and faculty. May be repeated once. Prereq: Permission of instructor.

EDC 748 PSYCHOLOGY OF READING AND LANGUAGE. (3)
A systematic examination of the psycholinguistic basis of the reading process. A study of psycholinguistic theory and research related to reading. Prereq: Consent of instructor.

EDC 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EDC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EDC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDC 777 SEMINAR IN CURRICULUM AND INSTRUCTION (Subtitle required). (1-3)
A critical analysis of recently developed materials and techniques in curriculum and instruction for precollege education. Includes analysis of evaluative research related to new materials and techniques. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

EDC 781 INDEPENDENT STUDY IN CURRICULUM AND INSTRUCTION. (1-3)
An independent study course for graduate students who have completed at least half of the program course requirements in clinical and college teaching, curriculum and instruction, early childhood education, elementary education, reading or secondary education. May be repeated to a maximum of nine credits. Prereq: Consent of the Director of Graduate Studies.

EDC 791 RESEARCH PROBLEMS IN CURRICULUM AND INSTRUCTION. (1-3)
A research problems course for graduate students who have completed at least half of the program course requirements in clinical and college teaching, curriculum and instruction, early childhood education, elementary education, reading or secondary education. May be repeated to a maximum of nine credits. Prereq: Consent of the Director of Graduate Studies.

EDUCATIONAL AND COUNSELING PSYCHOLOGY

EDP 202 HUMAN DEVELOPMENT AND LEARNING. (3)
Theories and concepts of human development, learning, and motivation are presented and applied to interpreting and explaining human behavior and interaction in relation to teaching across the developmental span from early childhood to adulthood. A field experience in a school or other educational agency is a required and basic part of the course. Prereq: PSY 100.

EDP 203 TEACHING EXCEPTIONAL LEARNERS IN REGULAR CLASSROOMS. (3)
An introduction to the characteristics and instructional needs of exceptional learners is presented with an overview of principles, procedures, methods, and materials for adapting educational programs to accommodate the integration of exceptional children in regular classrooms, when appropriate. A field experience in a school or other educational agency is a required and basic part of the course. Lecture, three hours per week; laboratory, two hours per week for a maximum of six weeks. Prereq: Successful completion of EDP 202 with an earned grade of C or higher.

EDP 518 MENTAL HYGIENE. (3)
A general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed. Not open to students who have had CH 520. Prereq: PSY 100 or 215, or EDP 202.

EDP 522 EDUCATIONAL TESTS AND MEASUREMENTS. (3)
Problems of measurement in the school program with special emphasis on standardized tests. General principles of test construction, teacher-made tests, examinations, criteria of evaluation and marking systems.

EDP 548 EDUCATIONAL PSYCHOLOGY. (3)
An introduction to the application of principles of psychology to classroom learning and teaching problems.

EDP 557 EDUCATIONAL STATISTICS. (3)
A study of the applications of statistical and graphical methods to educational data. Basic descriptive statistics, correlation, the normal distribution, and hypothesis testing will be covered.

EDP 570 INTRODUCTION TO PSYCHOLOGICAL SERVICES IN SCHOOLS. (3)
A review of the historical development and models of organization and administration in the field of school psychology and the relationship between school psychology and other educational and psychological specialties. Prereq: Admission to School Psychology Program or consent of instructor.

EDP 580 INTRODUCTION TO GIFTED EDUCATION. (3)
This course reviews the historical development of and the theoretical and empirical support for differentiated educational programs for gifted and talented children. Specific issues addressed include defining and identifying giftedness, teacher competencies and training, providing differentiated curricula and program evaluation. (Same as EDC 580.)

EDP 600 LIFE SPAN HUMAN DEVELOPMENT AND BEHAVIOR. (3)
A survey of human development across the life span of the individual from conception to death. Content includes changes in motor skills, biological growth and decline, learning behavior, language, social, emotional, moral, and intellectual development as well as the roles of the family, the school, peers, and work in relation to individual development. Critical evalution of current theories which describe human development. (Same as FAM 654.)

EDP 601 HUMAN SOCIAL DEVELOPMENT. (3)
Survey of current research and theory regarding motor skills, social development, imitation, dependency, aggression, affiliation, moral development and peer group behavior. Prereq: EDP 600 or consent of instructor.

EDP 603 HUMAN COGNITIVE DEVELOPMENT. (3)
Theory and research concerning the development of attitudes, motives, self-concept and other cognitive processes are presented and the educational implications explored. Prereq: EDP 548 or EDP 610 or EDP 600.

EDP 604 DEVELOPMENT OF PSYCHOLOGICAL SEX ROLES. (3)
An in-depth examination of theory measurement, research, and personal attitudes concerning the development of sex roles over the lifespan. Impact of these psychological sex roles on effective personal functioning in family, educational, and work-related settings. Prereq: EDP 600 and 601 or equivalent.

EDP 605 INTRODUCTION TO COUNSELING: TECHNIQUES I. (3)
A survey of counseling psychology, philosophy, procedures and practices. Consideration of the roles of the counselor in relation to counseling services in the community and educational settings. In-depth training in initial counseling skills, interviewing (listening) and relationship building skills.

EDP 606 PROFESSIONAL ISSUES IN COUNSELING PSYCHOLOGY. (2)
A first course in the graduate curriculum in counseling psychology. Addresses professional identity, A.P.A. ethical guidelines, legal aspects of psychological practice including licensing and confidentiality, historical perspectives, training issues, and current topics of professional concern in counseling psychology. Prereq: Enrollment in a post-master's program in counseling psychology.

EDP 610 THEORIES OF LEARNING IN EDUCATION. (3)
Consideration of the theoretical origins of learning within the context of education. Topics include major theories of learning, physiological bases for learning, relationships between learning theory and instruction, and major applications of learning theories in educational settings.

EDP 611 HUMAN COGNITIVE LEARNING. (3)
Major cognitive learning theories which explain thinking and problem-solving behavior are compared and contrasted, especially as they are applied to arrange for effective instruction. Prereq: EDP 610 or EDP 548 or PSY 507 or equivalent.

EDP 612 DEVELOPMENT OF CREATIVITY AND CRITICAL THINKING. (3)
Reviews the theoretical and empirical literature related to developing creativity and critical thinking and describes practical and effective methods of measuring and developing these cognitive abilities in gifted and nongifted students. Prereq: EDP 580 or consent of instructor.

EDP 620 TOPICS AND METHODS OF EVALUATION. (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and; to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as ANT/EPE 620/SOC 622.)

EDP 621 ADVANCED TOPICS AND METHODS OF EVALUATION. (3)
An advanced course in evaluation methods and techniques with an emphasis on quantitative methodology. State of the art ideas and methods of conducting evaluation studies and analyzing data from those studies are presented. The course is designed primarily for those who are conducting or will conduct evaluation studies. Prereq: A basic course in statistics or its equivalent; EDP/EPE/ANT 620; and consent of instructor. (Same as ANT/EPE 621.)

EDP 640 INDIVIDUAL ASSESSMENT OF COGNITIVE FUNCTIONING. (3)
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, two hours; laboratory, two hours. Prereq: PSY 535 or EDP 522 and PSY 532 or PSY 533 or equivalent and consent of instructor.

EDP 641 PSYCHOLOGICAL MEASURING INSTRUMENTS. (3)
A study in some depth of the principle objective tests of personality and vocational interests and values, and a survey of group tests of aptitudes and achievement. Practice in administering and interpreting tests and writing reports. Prereq: A course in statistics, and a course in testing (such as EDP 522 or PSY 535) or consent of instructor.

EDP 649 GROUP COUNSELING. (3)
An overview of the theoretical bases and practical procedures used in the organization, and effective use of group counseling in the facilitation of psychological and educational goals. Prereq: EDP 652 and EDP 661 or consent of instructor.

EDP 650 DIAGNOSIS AND COUNSELING IN COUNSELING PSYCHOLOGY. (3)
An advanced course in diagnosis and application of theories, techniques and tools in counseling psychology. Prereq: A graduate major in psychology or educational psychology and counseling and consent of instructor.

EDP 652 THEORIES OF COUNSELING. (3)
A survey of theories and methods in facilitating personality growth, character maturation, problem solving, decision making, crisis resolutions, and behavior change, through individual and group counseling. Prereq or concur: A course in child psychology or human development and PSY 533, PSY 535 or equivalent.

EDP 656 METHODOLOGY OF EDUCATIONAL RESEARCH. (3)
An introduction to research methods applicable to education; the scientific methods, research designs, measurement techniques, statistical analysis, and writing the research report.

EDP 658 PROBLEMS IN EDUCATIONAL PSYCHOLOGY. (1-3)
Special topics in psychological theories and research applicable to educational practices. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

EDP 659 ADVANCED EDUCATIONAL MEASUREMENT. (3)
Theory and application in educational measurement with emphasis on the appropriate selection, administration, and interpretation of standardized tests used in educational assessment. Prereq: EDP 522 or equivalent.

EDP 660 RESEARCH DESIGN AND ANALYSIS IN EDUCATION. (3)
A study of the research methodologies applicable in the several aspects of education. Emphasis is on the design of research and analysis of accumulated data. Prereq: EDP 557.

EDP 661 TECHNIQUES OF COUNSELING II. (3)
Practice in interviewing, simulated problems, observational techniques, role of the counselor. Study of films, tapes and transcripts of leading practitioners of several schools of counseling. Supervised practice with selected clients. Lecture, two hours; laboratory, two hours. Prereq: EDP 605 and consent of instructor.

EDP 665 PRACTICUM IN COUNSELING PSYCHOLOGY. (1-6)
Supervised experience in application of diagnostic and interviewing techniques in a counseling service. May be repeated to a maximum of 12 hours. Prereq: Master's candidacy in counseling and approval of departmental counseling committee, EDP 652 and 661.

EDP 666 PSYCHOLOGY OF CAREER COUNSELING. (3)
Tests of vocational interests and aptitudes. Collection and retrieval of occupational and educational information. Facilitation of sound decision-making. Prereq: EDP 652.

EDP 669 DIAGNOSTIC CLASSIFICATION IN IN SCHOOL PSYCHOLOGY. (3)
Review of theory and research related to individual differences in physical, intellectual, social, and emotional development of preschool and school-aged children and adolescents. Compares psychological and educational approaches to diagnostic classification of such differences. Prereq: PSY 533 or consent of instructor.

EDP 670 PSYCHOEDUCATIONAL STRATEGIES OF INTERVENTION. (3)
A general review of and development of basic competence in the major intervention strategies applicable to the amelioration of children's common learning and adjustment difficulties in the school setting. Prereq: EDP 640, EDP 669 and Admission to School Psychology Program.

EDP 671 SEMINAR IN PSYCHOEDUCATIONAL CONSULTATION IN SCHOOLS. (3)
A study of the rationale and techniques used in consultation with teachers, parents, administrators and other school personnel for the purpose of both preventing and alleviating the learning and adjustment difficulties of individual or groups of school-aged children. Prereq: Admission to School Psychology Program, advanced standing in a professional educational program or permission of the instructor.

EDP 675 PRACTICUM IN SCHOOL PSYCHOLOGY. (3-6)
Supervised experience in the application of psychoeducational, diagnostic, and remediation techniques, and consultation skills in a school psychology setting. Requires one full day or two half-days per week in on-site activity plus a one-hour weekly seminar. May be repeated to a maximum of six hours. Prereq: EDP 570, EDP 640, EDP 669, EDP 670 plus admission to School Psychology Program.

EDP 676 PRACTICUM IN GIFTED EDUCATION. (3)
Supervised experience in the instruction of gifted children. Requires placement in an approved program designed for serving gifted children plus participation in a weekly supervisory seminar. Lecture, two hours; laboratory, nine hours per week. Prereq: EDP 580, EDC 602, EDP 612 or consent of instructor. (Same as EDC 676.)

EDP 680 PARENT AND CHILD COUNSELING. (3)
Theories, methods, and techniques of counseling psychology as applied to planned interventions with parents and their children. Contemporary approaches to family and child dysfunctioning are studied within a framework of human development; applied practice utilizing simulated problems. Prereq: EDP 600, 652, and 661, or consent of instructor.

EDP 683 TOPICS IN COUNSELING PSYCHOLOGY. (1-3)
Counseling for special problems and with special methods. Topics vary from semester to semester. Lecture, one-three hours per week. May be repeated to a maximum of 12 credits. Prereq or coreq: EDP 652 and consent of instructor.

EDP 685 ISSUES AND TECHNIQUES IN THE COUNSELING OF WOMEN. (3)
The course is designed to improve students' knowledge of the special counseling needs of women and to facilitate students' development of highly skilled techniques for counseling with women. Skill and knowledge areas include such topics as rape, spouse abuse, mastectomy, career, assertiveness, single parenting, and sex discrimination. Prereq: EDP 661, 652, 604 and consent of instructor.

EDP 686 THEORY AND METHODS IN MARRIAGE AND FAMILY COUNSELING. (3)
A survey of theories and methods used in counseling based on human development and family relations. Designed to provide training and experiences in the knowledge and use of counseling techniques appropriate to marriage and family. Prereq: EDP 652 and 661; or FAM 653; and consent of instructor. (Same as FAM 686.)

EDP 690 ADVANCED STUDIES IN PSYCHOLOGICAL ASSESSMENT. (3-6)
A variety of advanced topics dealing with various tests and other assessment methods. Topics and credit vary. May be repeated to a maximum of nine credits. Prereq: PSY 501, 521, EDP/PSY 640 and 641 and EDP 657 or equivalent.

EDP 701 BEHAVIORAL COUNSELING. (3)
A comprehensive theoretical review and practical experience with behavioral techniques in counseling psychology within educational and community settings. Observation, strategy formation and evaluation procedures are applied to problems treated by behavioral counseling. Prereq: EDP 652 and 661 or consent of instructor.

EDP 702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES. (2-3)
Overview of theories of career development and current research. Emphasis on use of vocational assessment techniques in counseling and decision-making. (Same as EDV 702.)

EDP 703 SEMINAR IN CLINICAL SUPERVISION. (1-3)
An advanced seminar covering theories, issues, methods and techniques in supervision of counseling and psychotherapy. Seminar topics will vary depending on the interests of the professor and students. May be repeated to a maximum of six credits. Prereq: EDP 652, EDP 661, and EDP 665 or equivalent.

EDP 707 MULTIVARIATE ANALYSIS IN EDUCATIONAL RESEARCH. (3)
A study of several techniques for the analysis of educational outcomes utilizing multiple variables. Prereq: EDP 660 or equivalent.

EDP 708 INTERNSHIP IN EDUCATIONAL PSYCHOLOGY AND COUNSELING. (3-9)
Full-time practice in an operational setting such as a school or government agency, with on-site supervision provided by the host agency and with academic supervision provided by a University faculty member. May be repeated to a maximum of 12 credits. Lecture, three hours; laboratory, four hours per semester hour. Prereq: Completion of a minimum of one year of graduate study in the department and consent of instructor.

EDP 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EDP 762 ORGANIZATION AND OPERATION OF PUPIL SERVICES. (3)
A study of the professional roles among counselors, social and health workers, and school psychologists. Content includes supervision of these roles, community participation, in-service education, and evaluation of integrated pupil services. Prereq: Provisional credentials in a pupil services field or consent of instructor.

EDP 765 INDEPENDENT STUDY IN COUNSELING PSYCHOLOGY. (1-4)
Independent study course for advanced graduate students who desire to investigate special problems in counseling psychology. May be repeated to a maximum of six credits. Prereq: One year of graduate work in counseling psychology and consent of instructor.

EDP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EDP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDP 777 SEMINAR IN COUNSELING PSYCHOLOGY. (1-3)
Topical consideration of philosophical, technical and theoretical positions in counseling theory and practice. May be repeated to a maximum of six credits. Prereq: Doctoral standing, EDP 665, or consent of instructor.

EDP 778 SEMINAR IN EDUCATIONAL PSYCHOLOGY. (3)
Intensive study of selected topics in human learning and development. Particular emphasis on research topics. Students will design sample studies in their areas of interest. Prereq: Doctoral standing in the College of Education or consent of instructor.

EDP 782 INDEPENDENT STUDY IN EDUCATIONAL PSYCHOLOGY. (1-4)
Independent study course for advanced graduate students who desire to investigate special problems and conduct research in educational psychology. May be repeated to a maximum of six credits. Prereq: One year of graduate work in educational psychology and consent of instructor.

EDUCATION—EDUCATIONAL POLICY STUDIES AND EVALUATION

EPE 301 EDUCATION IN AMERICAN CULTURE. (3)
Critical examination of contending views, past and present, regarding the nature and role of educational institutions in American society as well as proposed purposes and policies for schools and other educational agencies.

EPE 395 INDEPENDENT WORK IN EDUCATIONAL POLICY STUDIES AND EVALUATION. (3)
An independent study experience for undergraduate students desiring to investigate a selected educational policy issue. May be repeated once for a total of six hours. Prereq: Permission of instructor and department chairperson. A departmental learning agreement must be completed and approved prior to registration.

EPE 454 CULTURE, EDUCATION AND TEACHING ABROAD. (2-4)
Introduction to the social, political, economic, and educational institutions of another country in preparation for student teaching in that country. The process and problems of adjusting to life in another culture will be included as well as instruction in the language of the host country as needed. Faculty from other departments in the University will be used as well as informants from the country involved. Lecture, three hours per week; laboratory, two hours per week for language practice. Prereq: Admission to a teacher education program.

EPE 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: Six hours of social science or consent of instructor. (Same as SOC 532.)

EPE 555 COMPARATIVE EDUCATION. (3)
Analytic and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs in non-Western countries. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations. Prereq: Junior, senior or graduate status, or consent of instructor.

EPE 601 PROSEMINAR. (1)
Introductory survey of the bibliographic parameters and research approaches to educational policy studies and evaluation. Graduate faculty resources and typical research problems are introduced. Emphasis upon significance and importance of thesis writing and dissertation in graduate studies. Required, first semester of study, for all degree students in the department. Prereq: Graduate standing or consent of instructor.

EPE 602 SOCIAL POLICY ISSUES AND EDUCATION. (3)
Study of philosophical, historical, and sociological dimensions of contemporary educational policy issues. Topical policy controversies, such as equality of educational opportunity, tuition tax credits, and religious education, will be examined.

EPE 603 EDUCATIONAL POLICY ANALYSIS: AN INTRODUCTION. (3)
Examination of the basic aspects of educational policy analysis. Emphasis upon major issues endemic to the pursuit of rational policy formulation in democratic politics. Prereq: Graduate standing or consent of instructor.

EPE 620 TOPICS AND METHODS OF EVALUATION. (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as ANT/EDP 620/SOC 622.)

EPE 621 ADVANCED TOPICS AND METHODS OF EVALUATION. (3)
An advanced course in evaluation methods and techniques with an emphasis on quantitative methodology. State of the art ideas and methods of conducting evaluation studies and analyzing data from those studies are presented. The course is designed primarily for those who are conducting or will conduct evaluation studies. Prereq: A basic course in statistics or its equivalent; EDP/EPE 620/SOC 622; and consent of instructor. (Same as ANT/EDP 621.)

EPE 623 ACTION RESEARCH. (3)
Utilization of action research methodology for improving school practices. Participants are required to conduct action research in their educational setting and to report upon the outcomes. May be repeated to a maximum of six credits. Prereq: EDP 656 or equivalent.

EPE 628 ETHICS AND EDUCATIONAL DECISION MAKING. (3)
Examination of ethical theories upon which educational evaluations are based and upon which they become the basis for educational policies. Theories considered include classical and rule utilitarianism, Rawlsian social justice, behavioristic, critical, and hermeneutic theories of value. Prereq: EPE 603 or consent of instructor.

EPE 629 FUTURISTICS AND EDUCATIONAL POLICY. (3)
Historical, literary, and scientifc prognostications of education in the future. Primary emphasis: methodologies of forecasting educational futures, using simulations, statistical projections, scenario inventions, and systems planning. Implications for educational planning and curriculum development will be examined. Prereq: Graduate level standing or consent of instructor.

EPE 640 PHILOSOPHY OF EDUCATION. (3)
The course is designed to enhance the professional educator's competence in analyzing and evaluating educational policies and programs. Theoretical frameworks, philosophical methods, and current educational debates are examined. May be repeated once to a maximum of six credits. Prereq: Twelve semester hours in education or permission of instructor.

EPE 642 KNOWLEDGE, IDEOLOGY AND SCHOOLING. (3)
An analysis of philosophical considerations as well as the nonrational forces of ideology, class and power with regard to what ought to count as knowledge in schools. Emphasis placed on appraising schema for organizing curricula with reference to the problem of knowledge and truth. Basic principles and criteria employed or assumed when people make knowledge claims are also evaluated. The selection of methods of teaching and learning that minimize ideological contamination of the knowledge acquisition process in schools is highlighted. Prereq: EPE 640 or consent of instructor.

EPE 643 VALUES, MORAL EDUCATION AND SCHOOLING. (3)
A critical study of approaches to moral and aesthetic values in American schools and the effects of other institutions upon these values. Consideration of how value judgments are made and supported; analysis of traditional theories of ethics and critiques of current recommendations for the improvement of values education. Prereq: 12 semester hours in education or permission of instructor.

EPE 646 ANALYSIS OF THINKING. (3)
An interdisciplinary analysis of thinking, the central process of education. Topics studied include psychological, logical and semantic aspects of thought. Prereq: EDP 548 and EPE 640, or consent of instructor.

EPE 650 HISTORY OF WESTERN EDUCATION. (3)
A study of the development of the "institution" of education in relation to social and political reality, ideas, and ideals of successive periods in Western culture.

EPE 651 HISTORY OF EDUCATION IN THE UNITED STATES. (3)
A history of the growth and development of education in the United States from earliest colonial times to the present, including recent movements and trends.

EPE 652 HISTORY OF EDUCATIONAL THOUGHT. (3)
Description and critical examination of the core ideas of leading educational theorists in the history of Western culture. Emphasis upon the societal and cultural conditions in which the ideas emerged, and the relevance of these ideas to contemporary educational policy concerns.

EPE 653 HISTORY OF HIGHER EDUCATION. (3)
Social and institutional history of higher education which will include selected topics in European culture and education and which will emphasize the development of the American college and university.

EPE 661 SOCIOLOGY OF EDUCATION. (3)
A study of schooling and education using basic analytic paradigms of sociology. Emphasis on schools as formal organizations and education in a changing, technologically oriented and stratified society. Prereq: SOC 101 or equivalent. (Same as SOC 661.)

EPE 663 FIELD STUDIES IN EDUCATIONAL INSTITUTIONS. (3)
Field research in an educational setting. Questions of theory, method, and application examined. Students plan and implement a study under faculty supervision. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

EPE 665 EDUCATION AND CULTURE. (3)
An analysis of the cultural role and function of educational institutions and processes. Topics considered include schooling as cultural transmission, the community context of education, cross-national studies of schools, and implications of anthropological approaches for teacher training.

EPE 666 MULTICULTURAL AND INTERNATIONAL EDUCATION. (3)
Examination of the educational implications of sociocultural pluralism in the United States and worldwide; consideration of social and educational policy issues involved in such curricular programs as bilingual/bicultural education, language and area studies, global education, multicultural education, and experiential learning through cross-cultural programs. Prereq: Graduate standing.

EPE 670 POLICY ISSUES IN HIGHER EDUCATION.(3)
A survey of modern tendencies in higher education; scope and development, objectives, organization, administration, curricula, finance, faculty and student personnel. Designed primarily for prospective college administrators, teachers, and registrars.

EPE 672 COLLEGE TEACHING AND LEARNING. (3)
A study of all phases of instruction at the college level. The course will include methods and principles of teaching, utilization of materials in teaching, a consideration of the teaching-learning process as it relates to the individual students, and the evaluation of students progress. A comprehensive course for prospective college teachers.

EPE 674 THEORIES OF STUDENT DEVELOPMENT. (3)
A study of college student behavior, relationship of student personnel to total college program, organization and administration, evaluation, and research of college student personnel.

EPE 676 ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION. (3)
Purposes and scope of higher education, organization, general administration, faculty administration, interinstitutional cooperation, allocation of financial resources, state systems of higher education.

EPE 678 ECONOMICS OF HIGHER EDUCATION. (3)
This course addresses issues of equity and efficiency by analyzing 1) how students, faculty and institutions are influenced by markets and incentives, 2) the economic impact of higher education on students and society, and 3) the financial management of institutions.

EPE 680 POLITICS OF HIGHER EDUCATION. (3)
Survey and analysis of the political forces and processes which influence the development and implementation of higher education policies, financing and programs at the federal, state and institutional levels.

EPE 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EPE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EPE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EPE 773 SEMINAR IN EDUCATIONAL POLICY STUDIES AND EVALUATION. (1-3)
Examination of selected problems in educational policy studies and evaluation. May be repeated to nine credits but no more than three credits may be earned under the same title. Prereq: Consent of instructor.

EPE 778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY. (3)
Emphasis upon implications of major trends in national historiography for needed research in education in Kentucky.

EPE 785 INDEPENDENT STUDIES IN EDUCATIONAL POLICY STUDIES AND EVALUATION. (3)
Independent study experience for advanced graduate students to investigate special problems and conduct research in educational policy studies and evaluation. Prereq: Permission of department chairperson required.

EPE 790 INTERNSHIP IN EDUCATIONAL POLICY STUDIES AND EVALUATION. (6)
Formal assignment to an evaluation and/or policy analysis project in an appropriate educational setting. Student's work directed and evaluated by both departmental faculty and on-site supervisor. Laboratory, 20 hours per week. May be repeated to a maximum of 12 credits. Prereq: 12 hours of graduate course work in the department and permission of the director of graduate studies.

EPE 798 SEMINAR IN HIGHER EDUCATION. (3)
A critical study of selected problems in higher education. The seminar topic will be varied from one semester to another. Prereq: EPE 718 and 733, or consent of instructor.

EPE 799 RESEARCH PROBLEMS IN HIGHER EDUCATION. (3)
An independent research course for the study of special problems in higher education. May be repeated to a maximum of six credits. Prereq: One year of graduate work.

EDUCATION—SPECIAL

EDS 277 INTRODUCTION TO DISORDERS OF SPEECH AND LANGUAGE. (3)
An introduction to developmental aspects of speech and language. Definitions, symptomologies, and etiologies of articulation, language, fluency and voice disorders.

EDS 285 APPLIED PHONETICS. (3)
Study of the phonetic structure of the English language with requirement of mastery of International Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. (Same as COM 285.)

EDS 357 INITIAL PRACTICUM IN SPECIAL EDUCATION. (1)
An introductory supervised field experience for special education majors. Students will participate in two special education programs as teacher aides. Placements will include public schools and other agencies serving handicapped children. May be repeated to a maximum of three credits. Lecture, one hour per week; laboratory, four hours per week. Prereq or concurrent: EDS 375.

EDS 360 TEACHING INTERNSHIP IN TRAINABLE MENTALLY HANDICAPPED. (6)
Supervised student internship in a classroom for the trainable mentally handicapped utilizing contemporary curricula, assessment, methods and material designed for use with children exhibiting moderate developmental retardation. To be offered on a letter grade basis only. Prereq: Published College and departmental requirements for admission to student teaching; admission to the Teacher Education Program or permission of instructor.

EDS 375 INTRODUCTION TO EDUCATION OF EXCEPTIONAL CHILDREN. (3)
An introduction to the various contemporary areas of special education. Topics include special education diagnostic categories, programming, service delivery models, career education, child advocacy and litigation affecting public education for the handicapped.

EDS 378 ANATOMY AND PHYSIOLOGY OF SPEECH. (3)
A detailed investigation of structures and functions supporting speech production: respiration, phonation, articulation, and resonance. Neural bases of speech and language will also be introduced. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDS 379 FUNDAMENTALS OF HEARING. (3)
Investigation of the anatomical, physiological, and neurological bases of hearing; physics of sound; and elementary psychoacoustics. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDS 380 PATHOLOGIES OF THE AUDITORY SYSTEM. (3)
Detailed investigation of various definitions, symptomatologies, etiologies, and treatments of hearing impairment. Surveys of definitions, symptomatologies, etiologies, and treatments of central and functional hearing impairment. Prereq: EDS 379; admission to the Teacher Education Program or permission of instructor.

EDS 382 CLINICAL ORIENTATION IN SPEECH AND LANGUAGE I. (3)
A competency-based experience in the clinical laboratory designed to orient the student to the professional activities in speech pathology. Lecture: one hour per week; laboratory: four hours per week. Prereq: EDS 277; SP/A majors only; admission to the Teacher Education Program or permission of instructor.

EDS 383 CLINICAL ORIENTATION IN SPEECH AND LANGUAGE II. (3)
A competency-based experience in the clinical laboratory designed to orient the student to the professional activities in speech pathology. Lecture: one hour per week; laboratory: four hours per week. Prereq: EDS 382; SP/A majors only; admission to the Teacher Education Program or permission of instructor.

EDS 384 INTRODUCTION TO DIAGNOSTIC PROCEDURES IN SPEECH AND LANGUAGE. (3)
Study of the principles, techniques, and tools used to develop and implement a diagnostic protocol. Prereq: EDS 586; SP/A majors only; admission to the Teacher Education Program or permission of instructor.

EDS 395 INDEPENDENT STUDY IN SPECIAL EDUCATION. (1-6)
An independent study course for undergraduate students with an interest in a specific problem in special education. Offered by appointment.

EDS 458 FIELD EXPERIENCES WITH MILDLY HANDICAPPED CHILDREN. (3)
Supervised prestudent teaching experiences with children having learning and behavior disorders, including observation and practical experience with public school children in at least two different special education sites. Approximately two hours lecture-discussion and two three-hour observations and/or practica per week. Prereq: EDS 514, EDS 515 and EDS 528; admission to the Teacher Education Program or permission of instructor.

EDS 459 STUDENT TEACHING IN SPECIAL EDUCATION. (3-12)
Supervised student teaching experience utilizing the special techniques used in working with individuals with exceptional educational problems such as speech handicaps, physical handicaps, visual impairments, hearing disabilities, neurological impairments (learning disabilities), mental retardation, and the gifted. To be offered only on a pass-fail basis. Prereq: Must complete the published College requirements for admission to student teaching; admission to the Teacher Education Program or permission of instructor.

EDS 478 ADAPTIVE BEHAVIOR ASSESSMENT AND CURRICULUM DESIGN FOR THE TMH CLASSROOM. (3)
A study of the development and use of curricula and materials for use in the TMH classroom. Prescriptive application of curricula based on adaptive behavior evaluation in classroom settings will provide the student with a clinical/prescriptive orientation to instruction in the TMH classroom. Lecture, three hours; laboratory, four hours per week. Prereq: Admission to Teacher Education Program, EDS 516, 530 or 541.

EDS 502 DEVELOPMENT AND EVALUATION OF INSTRUCTIONAL MATERIALS IN SPECIAL EDUCATION. (3)
Survey and principles of instructional materials in special education with emphasis on development and critical evaluation. Discussion of characteristics of effective instructional material and means of determining effectiveness. Determining need and means of developing new instructional material. Prereq: Consent of instructor.

EDS 510 EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED. (3)
An overview of the field of early childhood education of the handicapped including discussions of historical and empirical support for providing early intervention services, screening, assessment, instructional programming, integration of handicapped and nonhandicapped children, family involvement, and service delivery models. Emphasis is placed on assessing and promoting attainment of cognitive, language, social, self-help, and motor skills. Prereq: EDS 375 or EDU 203 or consent of instructor.

EDS 511 SPEECH-LANGUAGE DEVELOPMENT AND DISORDERS FOR THE SEVERELY HANDICAPPED. (3)
An introduction to communication development and intervention for language disordered individuals whose language age is at or below four years, including cognitive, social, auditory, visual, and motor components. Topics include prerequisties for language, normal communication development, evaluation of language functioning, and approaches to altering communication behavior. Prereq: EDS 277 or EDS 375 or consent of instructor.

EDS 512 SPEECH-LANGUAGE DEVELOPMENT AND DISORDERS FOR THE MILDLY HANDICAPPED. (3)
An introduction to the characteristics of receptive and expressive language disorders in language-disordered children whose language age is four years or higher, including auditory, visual, cognitive, and motor components. Topics include language development, language disorders, language evaluation, and techniques for receptive and expressive language stimulation. Prereq: EDS 277 or EDS 375 or permission of instructor.

EDS 513 LEGAL AND PARENTAL ISSUES IN SPECIAL EDUCATION. (3)
A review of pertinent legislation concerning human and constitutional rights and parental issues related to handicapped persons. Teachers' specific responsibilities and liabilities are described and related to current requirements for development of appropriate educational programs. Emphasis is given to how, through active parent participation, teachers can facilitate each student's developmental progress. The resources and methods for dealing with the problems confronted by parents of exceptional children are considered. Prereq: EDS 375 or consent of instructor.

EDS 516 PRINCIPLES OF BEHAVIOR MANAGEMENT AND INSTRUCTION FOR EXCEPTIONAL LEARNERS. (3)
An overview of educational settings in which special educators work and of basic principles of applied behavior analysis and modification which employ social learning theory and operant conditioning models. Emphasis is placed on designing individualized learning environments, selecting and implementing behavior management strategies, writing behavioral objectives, and performing task analyses. Prereq: EDS 375 or permission of the instructor.

EDS 517 PROSTHETICS FOR HANDICAPPED CHILDREN. (3)
A general introduction to the theory, need, and use of prosthetic devices in the classroom. Review of physical disabilities and basic operation, maintenance, and trouble shooting techniques will be presented. Service personnel typically associated with the fitting, training in the use of and repair of prosthetic devices will be discussed. Students will be required to simulate a disability and use a prosthetic device. Prereq: EDS 375 or permission of instructor.

EDS 520 SURVEY OF SEVERE DEVELOPMENTAL DISABILITIES. (3)
Introductory course surveying the medical and behavioral characteristics of severely retarded/multiply handicapped children and youth. Other topics will include the historical, social, political, economic and legal issues pertaining to the education and treatment of severely handicapped persons. Prereq: Consent of instructor and course in applied behavior analysis.

EDS 521 NONSPEECH COMMUNICATION. (3)
Addresses the use of nonspeech communication systems with moderately to severely handicapped individuals. This course encompasses two basic components: 1) a lecture/discussion component which examines the full range of nonspeech communication systems, including evaluation and training considerations, and 2) a manual sign component which provides students with a basic functional receptive and expressive manual sign vocabulary. Prereq: EDS 375 or equivalent or permission of instructor.

EDS 527 CHARACTERISTICS OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A survey of causes, treatment, and educational implications of physical and neurological disabilities in school age children. Attention given to rehabilitation and life adjustment problems of individuals with single and multiple handicaps.

EDS 528 EDUCATIONAL ASSESSMENT OF THE MILDLY HANDICAPPED. (3)
Procedures for administering formal and informal tests to determine specific educationally relevant strengths and deficits of children with learning and behavior disorders. The characteristics of children with learning and behavior disorders are surveyed, as they relate to special education programming. Lecture, three hours; laboratory, two hours. Prereq: EDS 250; admission to the Teacher Education Program or permission of instructor.

EDS 529 EDUCATIONAL PROGRAMMING FOR THE MILDLY HANDICAPPED. (3)
Design, implementation, and evaluation of individualized programs based on the educationally relevant characteristics of mildly handicapped children. Includes educational assessment and programming in reading, math, and language. Prereq: EDC 329, 330, and 331; admission to the Teacher Education Program, EDS 514, 516, 528.

EDS 530 CHARACTERISTICS OF THE MENTALLY RETARDED. (3)
A critical examination of pertinent research in reference to the educational, physical, and psychological nature and needs of the educable and trainable mentally retarded child, including interpretation of psychological tests. Evaluation of the physical, social, emotional and mental characteristics of the retarded, to assist the classroom teacher to recognize the social potential of each child to the degree that the child with retarded mental development may become less of a burden to himself and society.

EDS 549 PRACTICUM IN THE TRAINABLE MENTALLY HANDICAPPED CLASSROOM. (4)
The student as teacher aide participates in an intensive clinical experience with children in trainable mentally handicapped classrooms. Students utilize observation recording procedures, engage in assessment, program prescription, instruction in individualized and small group situations, and implement behavior management systems. Lecture, two hours; laboratory, six hours. Prereq: Admission to the Teacher Education Program, EDS 514, 516, 541, 547, 548 or consent of instructor.

EDS 558 PROBLEMS IN SPECIAL EDUCATION (Variable topic). (1-9)
In-depth study of a current and topical problem or issue in the education of exceptional children and youth. May be repeated to a maximum of nine credits. A title is assigned each time the course is offered.

EDS 570 BEHAVIOR DISORDERS OF EXCEPTIONAL CHILDREN. (3)
The behavior problems of exceptional children and youth are considered in the context of normal child development. A survey of the major categories of behavior disorders includes identification, description, and etiology, with material drawn from clinical, theoretical, and research sources. Approaches to remediation cover both community resources and the roles of various professional personnel. Prereq: EDS 375 or equivalent.

EDS 587 AUDIOMETRY. (3)
Introduction to basic clinical techniques for assessing hearing acuity. Topics include principles and techniques of: school age identification audiometry and hearing conservation programs, pure tone air and bone conduction threshold testing, speech audiometry, masking, and audiometric calibration. Prereq: EDS 380 or permission of instructor; admission to the Teacher Education Program.

EDS 588 DISORDERS OF ARTICULATION. (3)
Analysis, identification and management of articulation disorders. Application of physiological phonetics to remediation is included. Prereq: EDS 285 and EDS 277; admission to the Teacher Education Program or permission of instructor.

EDS 589 CLEFT PALATE. (3)
Analysis, identification, and management of communication deficits associated with orofacial abnormalities. Prereq: EDS 378, EDS 588, and permission of instructor; admission to the Teacher Education Program.

EDS 591 AURAL REHABILITATION. (3)
Introduction to management strategies, exclusive of language, for the hearing impaired. Topics include: variables affecting hearing handicap; hearing aid characteristics, selection, and orientation; acoustic and visual aspects of speech; auditory and visual perception and training; speech conservation. Prereq: EDS 587.

EDS 592 PROBLEMS AND NEEDS OF THE HEARING IMPAIRED. (3)
Effects of hearing impairment on mental development, language acquisition, and personality adjustment; current research and clinical trends in auditory rehabilitation and the education of the deaf.

EDS 600 SURVEY OF SPECIAL EDUCATION. (3)
A survey of current status of the field of special education. Emphasis is on analysis of the major research literature pertaining to exceptional children and their education. Prereq: Graduate standing.

EDS 601 BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Principles of behavioral management are reviewed. Techniques of observation, recording, and implementation of management programs with exceptional children are stressed through case work with individuals and groups of children. Lecture, two hours; laboratory, two hours. Prereq: EDS 516 or equivalent.

EDS 602 ADMINISTRATION AND SUPERVISION IN SPECIAL EDUCATION. (3)
The organization, management and supervision of programs for exceptional children at the local, state and national levels. Roles and functions of the special education administrator are considered. Experiences drawn from special residential, private and public day schools are studied. Prereq: Certification in special education; six hours of course work in educational administration and supervision.

EDS 603 BEHAVIORAL CONSULTATION IN THE SCHOOLS. (3)
Principles and techniques of behavioral consulting with classroom teachers and other school personnel, with particular focus on supporting handicapped children in mainstream education programs. The consultant's role in providing indirect service to children, through inservice teacher training and consultation, is emphasized. Lecture, two hours; laboratory, two hours. Prereq: EDS 601, or equivalent; EDP 671 (may be taken concurrently); or permission of instructor.

EDS 610 EDUCATIONAL EVALUATION OF EXCEPTIONAL CHILDREN. (3)
An intensive study of, and laboratory experience in, the assessment of educational problems of exceptional children. Special emphasis is given to the relationship of physical, intellectual, emotional and social handicaps to performance in the individual or group setting. Lecture, two hours; laboratory, two hours. Prereq: EDP 522 and consent of instructor, EDS 528 or equivalent.

EDS 611 EDUCATIONAL REMEDIATION OF LEARNING DISABILITIES OF EXCEPTIONAL CHILDREN. (3)
The study of, and laboratory experience in, the remediation of educational problems of exceptional children. Attention is given to the amelioration of learning disabilities in individual cases. Lecture, two hours; laboratory, two hours. Prereq: EDS 529 or equivalent and EDS 610 or consent of instructor.

EDS 612 ADVANCED PRACTICUM IN SPECIAL EDUCATION. (3-6)
Intensive clinical experience with exceptional children in day and residential schools, hospitals and private agencies. Students engage in prescriptive teaching with handicapped children in individualized, small group and special class settings. Laboratory, 6-12 hours per week. Prereq: Graduate standing; major in special education.

EDS 616 VOCATIONAL PROGRAMMING FOR HANDICAPPED YOUTH AND ADULTS. (3)
Conceptualization and delineation of vocational programming for handicapped individuals, vocational evaluation, training and program models are emphasized. Prereq: Permission of instructor.

EDS 620 INSTRUCTIONAL PROGRAMMING IN EARLY CHILDHOOD SPECIAL EDUCATION. (3)
An in-depth study of the rationale and research history of the early education of exceptional children. A wide variety of assessment tools commonly used in the education of young handicapped children will be presented, used and discussed. Individualized program planning based on test results and techniques for working with groups of exceptional children will be presented, implemented and discussed. Prereq: EDS 250 or 600 and EDS 510 or equivalent/or permission of instructor.

EDS 621 ISSUES IN EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED. (3)
Students will review, discuss and participate in supervised practicum experiences related to the preparation of special education teachers. Field work will include observation of sites of regular and special preschool programs, infant intervention programs, interdisciplinary child evaluation and demonstration of instructional methods and materials. Lecture: one hour; laboratory: two hours. Prereq: Admission to Master's Program in Special Education or permission of instructor and EDS 620.

EDS 623 PRACTICUM IN EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED. (3-9)
This course will provide supervised field experience in preparation of teachers or supervisors in early childhood education of the handicapped. May be repeated to a maximum of nine credit hours. Laboratory: Nine clock hours per credit hour. Prereq: Admission to Master's Program in Special Education, or permission of instructor.

EDS 630 METHODS FOR TEACHING THE SEVERELY HANDICAPPED. (3)
An intensive study of the principles and procedures used in programming learning activities for severely retarded/multiply handicapped students. Topical areas include the acquisition of stimulus control and programming for generalization and maintenance of induced behavior change. Lecture, three hours; laboratory, nine hours last 10 weeks of semester. Prereq: Course in applied behavior analysis and consent of instructor.

EDS 631 BASIC SKILL TRAINING FOR THE SEVERELY HANDICAPPED. (3)
Intensive review of instructional programs designed for use with severely retarded/multiply handicapped students. Emphasis is on developing learning activities/sequences and implementing those activities in a classroom with severely mentally handicapped children. To be taken concurrently with EDS 630. Lecture, three hours; laboratory, nine hours last 10 weeks of semester. Prereq: Consent of instructor.

EDS 632 ADVANCED PRACTICUM IN SEVERE DEVELOPMENTAL DISABILITIES. (1-12)
Intensive educational experience with severely retarded/multiply handicapped persons in educational, residential and hospital settings. Site and practicum responsibilities will be based on students' competencies and area of interest. May be repeated to a maximum of 20 credits. Prereq: Graduate standing and consent of instructor.

EDS 633 SINGLE SUBJECT RESEARCH DESIGNS IN SPECIAL EDUCATION. (3)
Principles and methods in designing single subject research with severely retarded/multiply handicapped students in educational settings. Students will be required to design and defend a research proposal. Prereq: Consent of instructor and one course in applied behavior analysis.

EDS 647 LANGUAGE DISORDERS II. (3)
Developmental and structured approaches to language evaluation and remediation. Assessment of language levels, knowledge of the language system and variables influencing language functioning in children in relation to devising intervention strategies. Remediational techniques are demonstrated. Prereq: EDS 511 and EDS 512.

EDS 656 CLINICAL LABORATORY IN DIAGNOSTIC PROCEDURES FOR SPEECH AND LANGUAGE. (2)
Experience in the assessment of speech and language skills in children and adults. Emphasis on organization of all behavioral and test data and on report writing. Lecture, one hour; laboratory, two hours per week. May be repeated to a maximum of four credits. Prereq: EDS 384 or permission of instructor; speech pathology and audiology majors only.

EDS 657 CLINICAL LABORATORY IN SPEECH AND LANGUAGE. (1-4)
Experience with children and adults in the management of speech and language disorders. May be repeated to a maximum of eight credits. Prereq: EDS 382 and EDS 383 or equivalent; speech pathology and audiology majors only.

EDS 658 CLINICAL LABORATORY IN AUDIOLOGY. (1)
Experience in management and/or basic evaluation of hearing impairment. Primary emphasis on planning and executing management techniques. May be repeated to a maximum of three credits. Open to speech pathology and audiology majors only. Prereq: EDS 587, EDS 591, and EDS 512.

EDS 659 CLINICAL EXTERNSHIP IN SPEECH PATHOLOGY. (1-12)
Supervised clinical experience in the evaluation and management of communication disorders of children or adults who are served by agencies other than the University Speech and Hearing Clinic. Open to speech pathology majors only. Up to forty laboratory hours per week (in schools all day). Prereq: Must successfully complete six hours of clinical lab (graduate level) and permission of instructor.

EDS 670 DISORDERS OF PHONATION. (3)
Analysis, identification, and management of phonatory disorders, including the specific communication problems of the laryngectomized adult. Prereq: Permission of instructor.

EDS 673 NEUROGENIC DISORDERS OF SPEECH AND LANGUAGE. (3)
Analysis, identification and management of neurogenic disorders of speech and language in adults. Primary emphasis is given to the communication problems of aphasic and dysarthric adults. Prereq: EDS 378, EDS 512, and EDS 588 or permission of instructor.

EDS 674 DISORDERS OF FLUENCY. (3)
Analysis, identification and management of fluency disorders. Prereq: Permission of instructor.

EDS 702 SEMINAR IN SPEECH PATHOLOGY (Variable topic). (1-3)
Advanced coverage of the clinical and research literature on the etiology, description, assessment, and management of specific speech and language disabilities. The semester topic will be rotated. Topics will include: stuttering, developmental language disabilities, cleft palate, cerebral palsy, etc. May be repeated to a maximum of nine hours.

EDS 710 SEMINAR IN MILD LEARNING AND BEHAVIORAL DISORDERS. (3)
Advanced study of issues related to mild learning and behavior disorders in children, including etiology, assessment, intervention, theories and contemporary research findings. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 711 SEMINAR IN SEVERE DEVELOPMENTAL DISABILITIES. (3)
Advanced study of issues related to severe developmental disabilities, including problems of identification and assessment, program alternatives, curricula, theories, and contemporary research findings. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 712 SEMINAR IN SPECIAL EDUCATION PROFESSIONAL SERVICES. (3)
Study of procedures for providing special education professional services including consultation, technical assistance, continuing education programs, professional organization development, committee and advisory board involvement, professional writing and editing, leadership training, and funding proposal development. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 720 SEMINAR IN SPECIAL EDUCATION TEACHER PREPARATION. (3)
Study of the design and implementation of special education teacher preparation programs, including syllabus development, organization of class presentations, instructional alternatives, scheduling, student assessment, professor-student interactions, student advising, resource identification and utilization and program evaluation. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 721 PRACTICUM IN SPECIAL EDUCATION PERSONNEL PREPARATION. (1-9)
Supervised practicum experiences related to the preparation of special education teachers, including practice in delivering lectures, conducting class discussions, leading seminars, directing independent studies, guiding student research projects, demonstrating instructional methods and materials, supervising special education student teachers and advising. Laboratory, three-nine hours. May be repeated to a maximum of nine credits. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 730 SEMINAR IN SPECIAL EDUCATION ADMINISTRATION. (3)
Administration of special education programs at the local and state levels. Emphasis is on program planning, staffing, fiscal management and program evaluation. Prereq: EDS 602 and admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 731 PRACTICUM IN SPECIAL EDUCATION ADMINISTRATION. (1-9)
Supervised practicum experiences related to the administration of special education programs at the local and state levels, and project management, including staff management and development, program planning, evaluation, fiscal management, organization, reporting, communications, and coordination. Laboratory, three-nine hours. May be repeated to a maximum of nine credits. Prereq: Admission to the Ed.S. or Ed.D. program in special education administration or in certification program for special education administrators.

EDS 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EDS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EDS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDS 779 SEMINAR IN SPECIAL EDUCATION (Variable topic). (1-3)
Study of philosophy, principles, trends and research in education of exceptional children. Students will carry on an extensive study of a problem dealing with education of the exceptional child. May be repeated to a maximum of nine credits.

EDS 789 INDEPENDENT STUDY IN SPECIAL EDUCATION. (1-6)
An independent study course for advanced graduate students with an interest in a specific problem in special education. Class hours by appointment. Prereq: Minimum of 12 semester hours in graduate work and consent of instructor.

EDS 799 RESEARCH TECHNIQUES IN SPECIAL EDUCATION. (3)
A study of the basic research techniques and their application to special education. Unique problems in special education will be discussed with emphasis on designing and conducting a research study. Computer usage will be discussed and students encouraged to use the computer as a research tool. Prereq: 12 graduate semester hours in special education including EDP 657 or equivalent.

EDUCATION—VOCATIONAL

AGRICULTURAL EDUCATION

EDV 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Vocational Education. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDV 370 STUDENT TEACHING IN VOCATIONAL AGRICULTURE. (9)
Practical application of methods in teaching various phases of vocational agriculture. To be taken concurrently with EDV 580, 581 and 583. Laboratory, 20 hours. Offered on a pass-fail basis only. Prereq: Second semester senior; admission to the Teacher Education Program or permission of instructor.

EDV 580 MATERIALS AND METHODS FOR TEACHING VOCATIONAL AGRICULTURE. (3)
Designed to develop teacher competency in methods of teaching with emphasis on the problem-solving procedure and use of demonstrations, field trips, and audiovisual materials. Evaluation of teaching-learning is emphasized. A study of facilities and instructional materials needed by a department of vocational agriculture is made. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 583 EXPERIENCE PROGRAMS IN VOCATIONAL AGRICULTURE. (3)
Designed to develop teacher competencies to guide students to select, plan, carry out, and evaluate supervised experience programs in vocational agriculture, both production and off-farm. Prereq: Second semester senior; admission to the Teacher Education Program or permission of instructor.

EDV 672 DETERMINING CONTENT IN VOCATIONAL AGRICULTURE. (3)
Interpretation of local data as a basis for course building. Each student works out the content of a four-year course in vocational agriculture.

EDV 679 ADULT EDUCATION IN AGRICULTURE. (3)
Preparation for teaching adult classes in agriculture with emphasis on improvement of established agricultural businesses including farming; organization of classes, development of curriculum, and methods of teaching.

EDV 680 DIRECTING OCCUPATIONAL EXPERIENCE IN AGRICULTURE. (3)
Supervised farming and agricultural employment as a method of teaching: standards, planning, supervision and records.

EDV 681 TEACHING FARM SHOP. (3)
A study of necessary content for shop, plans for securing and equipping the shop, and methods of teaching farm shop.

BUSINESS EDUCATION

EDV 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Vocational Education. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDV 393 STUDENT TEACHING IN BUSINESS EDUCATION. (3-12)
Student teaching in business subjects such as general business, shorthand, typewriting, and bookkeeping. Observation and practice in the content field. Safety education, audiovisual aids, and planning conferences with the supervising teacher. To be offered on a pass-fail basis only. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 511 TEACHING SECRETARIAL SUBJECTS. (1)
Effective teaching in shorthand and business communications areas. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 512 TEACHING ACCOUNTING SUBJECTS. (1)
Methods and materials used in teaching of accounting subjects. Prereq: Admission to the Teacher Education Program and six hours of accounting or consent of instructor.

EDV 513 TEACHING TYPEWRITING AND CLERICAL PRACTICE. (3)
A study of effective teaching in typewriting and clerical office practice including the machines commonly used in business offices. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 514 TEACHING GENERAL BUSINESS SUBJECTS IN THE SECONDARY SCHOOLS. (3)
The aims and purposes of the general business course are studied. Analysis is made of the objectives of the general subjects, and methods and materials used in teaching them are emphasized. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 615 PROBLEMS IN BUSINESS EDUCATION. (3)
A study of advanced problems of interest to business teachers such as testing in business subjects, guidance, job studies, placement and follow-up, equipment, and supervision. May be repeated to a maximum of 12 credits.

EDV 626 CLASSIFICATION AND POSSIBLE USE OF COMMUNITY RESOURCES IN BUSINESS EDUCATION. (3)
Course provides for community analysis, and the development of possible ways and means to supplement the business education course in the secondary school with a study of vital community resources.

EDV 640 ADVANCED METHODS IN THE SECRETARIAL SUBJECTS. (3)
Recent research, trends and developments in methodology of teaching typewriting, shorthand, and clerical procedures. The psychology of skill building and the techniques of office production.

DISTRIBUTIVE EDUCATION

EDV 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Vocational Education. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDV 380 STUDENT TEACHING IN DISTRIBUTIVE EDUCATION. (9)
Designed to provide the student experience with and practice in teaching, student placement, supervision, coordination, working with employers, advisory committees, and parents. Laboratory, 20 hours. Offered on a pass-fail basis only. Prereq: EDV 528; admission to the Teacher Education Program or permission of instructor.

EDV 517 DETERMINING TEACHING CONTENT IN DISTRIBUTIVE EDUCATION. (2-3)
Course construction in the field of distributive education. This course is planned to meet the needs of persons engaged as instructors in the field of distributive education. May be repeated to a maximum of six credits. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 528 TECHNIQUE OF TEACHING DISTRIBUTIVE EDUCATION. (2-3)
A study of the methods of teaching as applied to distributive education. The purpose of the course is to train prospective teachers to teach in the field of distributive education. May be repeated to a maximum of six credits. Prereq: Admission to the Teacher Education Program or permission of instructor.

HOME ECONOMICS EDUCATION

EDV 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Vocational Education. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDV 365 STUDENT TEACHING IN HOME ECONOMICS. (3-12)
Practical application of methods in teaching various phases of home economics. Offered on a pass-fail basis only. Prereq: EDV 586; admission to the Teacher Education Program or permission of instructor.

EDV 586 TEACHING HOME ECONOMICS IN THE SECONDARY SCHOOL. (3)
A course emphasizing methods of teaching; utilization of resources; evaluation; and professional responsibilities of the teacher as they apply to vocational home economics. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 588 ADULT EDUCATION IN HOME ECONOMICS. (3)
Problems in teaching vocational homemaking in day, part-time, and evening schools. To be taken concurrently with EDV 586. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 590 PROBLEMS IN HOME ECONOMICS EDUCATION. (3)
Problems in teaching home economics for high school students and adults. May be repeated to a maximum of nine credits. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 684 CURRENT TRENDS IN HOME ECONOMICS EDUCATION. (3)
Class work in current trends and significant developments in home economics education. May be repeated to a maximum of nine credits.

EDV 685 HOME ECONOMICS CURRICULUM CONSTRUCTION. (3)
A study of the underlying principles of curriculum building for junior and senior high school and adult education in home economics. Prereq: EDV 586, 362.

EDV 686 EVALUATION IN HOME ECONOMICS EDUCATION. (3)
A course to acquaint teachers of home economics with techniques used in measuring attainment in home economics in the junior and senior high school and college. Prereq: Teaching experience.

EDV 687 HOME ECONOMICS SUPERVISION. (3)
A course planned primarily to help prepare teacher-trainers and supervisors of home economics education. Prereq: EDV 586, 362; experience in teaching; consent of instructor.

INDUSTRIAL EDUCATION

EDV 107 SHOP MANAGEMENT PROBLEMS. (2)
Study of the shop or laboratory teacher's management responsibilities that may be categorized as managerial. Attention is directed toward the incorporation of these activities into an affective program of instruction. Management of shop equipment, arrangement of the shop or laboratory, and student personnel systems receive major attention.

EDV 109 INSTRUCTIONAL MATERIAL IN INDUSTRIAL EDUCATION. (2-3)
Components of a comprehensive course of study are identified and students engage in the validation and preparation of materials to be used in teaching. Emphasis is placed on planning and preparing those materials that individualize instruction in the vocational industrial course.

EDV 110 PRINCIPLES OF INDUSTRIAL TEACHING. (2-3)
Designed for the beginning vocational industrial teacher. Study is made of various accepted teaching procedures and class managerial activities with which the new shop teacher must be familiar.

EDV 220 PRACTICUM IN INDUSTRIAL EDUCATION. (3-9)
Observation and experience in teaching industrial occupations in area vocational schools and extension centers. The course emphasizes planning, methods, utilization of resources, safety education, teaching procedures, and evaluation. Lecture, one hour; laboratory, 9-30 hours.

IND 222 OCCUPATIONAL INTERNSHIP FOR INDUSTRIAL TEACHERS. (1-3)
Coordinated occupational experience in an industrial environment for persons desiring to become industrial teachers. Emphasis is given to the development of occupational competence, trade theory, meeting production schedules, employer-employee relations and industrial safety in the area of certification. Laboratory, 10 hours. May be repeated to a maximum of nine credits. Prereq: Two years of industrial experience in a single occupation or consent of instructor.

IND 226 BASIC COMPETENCIES IN INDUSTRIAL OCCUPATIONS. (3)
Skill development experience for new teachers and those desiring to become teachers of industrial occupations. Emphasis to be given to the development of work skills in laboratory situations, selection of proper tools and equipment, and safe work habits in the area of certification. May be repeated to a maximum of nine credits. Lecture, three hours; laboratory, three hours.

IND 228 ADVANCED COMPETENCIES IN INDUSTRIAL OCCUPATIONS. (3)
A study of advanced theories and practices in skills of industrial-technical occupations for present teachers and those desiring to become teachers. Emphasis is given to providing laboratory experience to attain competence necessary for teaching industrial competencies in the area of certification. May be repeated to a maximum of nine credits. Lecture, three hours; laboratory, three hours. Prereq: IND 226.

EDV 352 STUDENT TEACHING FOR INDUSTRIAL AND EDUCATIONAL TRAINING DIRECTORS. (3-12)
Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. Offered on a pass-fail basis only.

EDV 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Vocational Education. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDV 518 METHODS IN INDUSTRIAL EDUCATION. (2 or 3)
A study of various principles and concepts of learning and how they relate to teaching in vocational industrial education. Emphasis is given to methods and techniques used in shop teaching and how these activities are associated with the principles and concepts of learning. May be repeated to a maximum of four credits.

IND 525 SUPERVISED WORK EXPERIENCE IN BUSINESS OR INDUSTRY. (3)
For students planning careers as vocational teachers and directors. Includes education and experience under the supervision of college personnel and personnel in business and industry. May be repeated to a maximum of 12 hours.

EDV 529 EVALUATION IN INDUSTRIAL AND DISTRIBUTIVE EDUCATION. (2)
The theory and practice of standardized, classroom and performance testing as a means of measuring student achievement. Opportunity to practice will be provided in keeping with each teacher's work assignment. Prereq: Must be employed as teacher in trade or distributive education.

EDV 537 SPECIAL PROBLEMS IN INDUSTRIAL EDUCATION. (1-3)
A study of the problem-solving process and its relationship to the solutions of the problems faced by vocational industrial teachers. Students learn to identify teaching problems and engage in activities that lead to their solutions. May be repeated to a maximum of six credits.

VOCATIONAL EDUCATION

EDV 210 INTRODUCTION TO VOCATIONAL EDUCATION. (2-3)
The history, status, philosophy, and objectives of vocational education in relation to general education.

EDV 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in schools and agencies of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Vocational Education. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

EDV 516 PROBLEMS OF THE COORDINATOR IN VOCATIONAL EDUCATION. (2-3)
A course to prepare coordinators of vocational education programs, including planning of local or area programs, use of advisory committees, selection of instructional materials and equipment, organizing instructional programs, and overall planning and operating of the program. May be repeated to a maximum of six credits.

EDV 535 PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION. (2-3)
Study is made of philosophy, accepted principles, and legislation affecting programs in vocational education. May be repeated to a maximum of six credits.

EDV 641 APPRAISAL OF CURRENT LITERATURE IN VOCATIONAL EDUCATION. (3)
A critical study of the issues and trends as reported in the current literature. Course designed to enable students to read more widely in the field of vocational education, to read more critically, to interpret research findings and to formulate generalizations from studying the literature.

EDV 670 METHOD IN TEACHING VOCATIONAL EDUCATION. (3)
The principles of method applied to teaching in the field of vocational education. Prereq: Experience in teaching vocational education.

EDV 671 YOUTH ORGANIZATIONS IN VOCATIONAL EDUCATION. (3)
A study of the underlying philosophy and principles for organizing and advising youth organizations in vocational education. Emphasis to be placed on activities which will enrich and motivate the instructional programs and which will develop leadership, cooperation and citizenship.

EDV 678 SELECTING TEACHING MATERIALS. (3)
Selection and organization of specific references and other instructional materials to be used in teaching an area of vocational education.

EDV 693 SUPERVISION IN VOCATIONAL EDUCATION. (3)
This course includes practice in teaching for observation by others, student teaching, and school visiting. Prereq: Two years of teaching experience and EDV 687.

EDV 694 THE ADMINISTRATION OF VOCATIONAL EDUCATION. (3)
A course designed for superintendents, high school principals, and other administrators. Its purpose is to train for administering and supervising vocational education in schools.

EDV 695 SPECIAL PROBLEMS IN VOCATIONAL EDUCATION. (3)
An independent work course for students interested in vocational education. Students make individual investigations and report on special problems.

EDV 702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES. (2-3)
Overview of theories of career development and current research. Emphasis on use of vocational assessment techniques in counseling and decision-making. (Same as EDP 702.)

EDV 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EDV 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EDV 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDV 779 SEMINAR IN VOCATIONAL EDUCATION. (1-3)
A critical study of selected problems in vocational education. The couse is open only to students with experience in the field. May be repeated to a maximum of nine credits.

EDV 789 INDEPENDENT WORK IN VOCATIONAL EDUCATION. (1-3)
An independent work course for students who have completed a minimum of 12 semester hours of graduate work, one half of which must have been in vocational education. May be repeated to a maximum of nine hours.

EDV 799 RESEARCH IN VOCATIONAL EDUCATION. (1-3)
Individual research of importance to vocational education. May be repeated to a maximum of nine credits.

ELECTRICAL ENGINEERING

EE 101 ELECTRICAL ENGINEERING PROFESSIONS SEMINAR. (1)
Introductory seminar on professional practice, growth, conduct and ethics. Presentations on computers in electrical engineering and the University computer system. Presentations from career engineers and professional societies and reading assignments in professional journals. Pass/fail only.

EE 211 CIRCUITS I. (4)
Fundamental laws and principles for linear circuits whose elements consist of passive and active components used in present day engineering practice. Determination of the sinusoidal steady state responses using the algebra of complex numbers. Lecture, three hours; recitation-laboratory demonstration, one two-hour session. Prereq: MA 114; prereq, or concur: PHY 232, 242, CS 221.

EE 221 CIRCUITS II. (3)
General analysis methods for linear circuits and systems. Discrete time approximations. State variable methods for both analog and digital circuits. Prereq: EE 211. Concur: MA 214.

EE 222 ELECTRICAL ENGINEERING LABORATORY I. (2)
Laboratory exercises in the use of measuring instruments. Experiments in R-L-C circuit analysis. Lecture, one hour; laboratory, three hours. Prereq or concur: EE 221.

EE 305 ELECTRICAL CIRCUITS AND ELECTRONICS. (3)
A study of DC and AC electrical circuits, electronics principles and applications to instrumentation. Prereq: PHY 232, MA 114.

EE 306 ELECTRICAL CIRCUITS AND MACHINERY. (3)
A study of AC and DC electrical circuits, single and three-phase systems, AC and DC machines and their control. Prereq: MA 114, PHY 232.

EE 395 INDEPENDENT WORK IN ELECTRICAL ENGINEERING. (1-6)
Special research and problems for individual students who are capable of pursuing independent investigations. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

EE 402G ELECTRONIC INSTRUMENTATION AND MEASUREMENTS. (3)
Elementary laboratory treatment of electronic circuits. Topics will include AC circuits, filters, simple circuits using transistors and other semiconductor devices, simple treatment of operational amplifiers, and an introduction to digital circuits. Lecture, two hours; laboratory, three hours. (Note: Not open for graduate credit to graduate students in Electrical Engineering and Physics.) Prereq: EE 305 or PHY 242 or consent of instructor. (Same as PHY 402G.)

EE 403G ADVANCED ELECTRICAL ENGINEERING LABORATORY I. (2)
Laboratory practice and experimental exercises selected from a broad range of advanced electrical engineering topics. These topics may include electronic circuits, analog and digital electrical controls; microwaves; electro-optics; electro-mechanics; electron devices; logic circuits and other topics of active interest to current electrical engineering practice. Laboratory, four hours. Prereq: Engineering upper division status or consent of instructor.

EE 415G ELECTROMECHANICS I. (3)
Study of idealized electromechanical systems and rotary energy converters with emphasis on their dynamical behavior. Prereq: EE 221, EE 467G and engineering upper division status or consent of instructor.

EE 416G ELECTRICAL ENGINEERING LABORATORY III. (2)
Laboratory practice and experimental studies related to EE 415G. Lecture one hour; laboratory, three hours. Prereq: Engineering upper division status or consent of instructor. Prereq or concur: EE 415G.

EE 420G ELECTRICAL ENGINEERING ANALYSIS I. (3)
A study of electrical engineering applications of transform methods including spectral representation of signals in linear systems, based on Fourier series, Fourier transforms, and Laplace transforms. Prereq: MA 214 and a grade of C or better in EE 221.

EE 461G INTRODUCTION TO ELECTRONICS. (3)
Analysis and design of electronic circuitry incorporating nonlinear electronic elements such as transistors, FET's, and vacuum tubes. Applications to amplifiers. Prereq: A grade of C or better in EE 221.

EE 462G ELECTRICAL ENGINEERING LABORATORY II. (2)
Experimental exercises in the design and analysis of useful electronic circuits incorporating semiconductor devices: transistors, tunnel and Zener diodes; also, vacuum tubes, integrated circuits and operational amplifiers. Lecture, one hour; laboratory, three hours. Prereq: EE 222, CS 221; prereq or concur: EE 461G.

EE 467G ELECTRIC AND MAGNETIC FIELDS. (3)
Field laws and theorems in vector form; fields in dielectric and magnetic media. Forces, moments, energy, power. Brief introduction to time-varying fields. Prereq: PHY 232, MA 213.

EE 468G FIELDS AND WAVES. (3)
Applications of electromagnetic theory; Maxwell's field equations; plane waves; reflection and refraction; transmission lines and waveguides; antennas and radiation. Prereq: EE 467G and engineering upper division status or consent of instructor.

EE 471G LINEAR FEEDBACK CONTROL SYSTEMS. (3)
Block diagram and transfer function representation of linear control systems. Basic servo characteristics; stability and frequency response. Analysis and synthesis by Nyquist diagram, Bode diagram and root-locus method. Prereq: EE 420G and engineering upper division status or consent of instructor.

EE 480G LOGICAL DESIGN. (3)
Boolean algebra; combinational logic circuits, synchronous sequential circuits; asynchronous sequential circuits; design problems using TTL integrated circuits. Prereq: Junior classification or above.

EE 481 LOGICAL DESIGN LABORATORY. (2)
A laboratory involving the design and implementation of logic circuits. Combinational and sequential (both synchronous and asynchronous) design examples using small and medium scale integrated circuits. Lecture, one hour; laboratory, one three-hour session. Prereq: Upper division status, EE 221 and EE 222; prereq or concur: EE 480G.

EE 491 SEMINAR. (1)
Weekly meetings with staff for oral reports on term papers. Discussion of modern practices in electrical engineering. Prereq: Engineering upper division status.

EE 499 ELECTRICAL ENGINEERING DESIGN (Subtitle required). (3)
A course for senior students in electrical engineering with an emphasis on the engineering design processes requiring the creative involvement of students in open-ended problems relating to actual designs that are appropriate to the profession of electrical engineering. Prereq: Senior standing in electrical engineering and consent of the course coordinator.

EE 511 INTRODUCTION TO COMMUNICATION SYSTEMS. (3)
An introduction to the basic signal processing operations in communications systems. Topics include frequency and time domain signal and system representation, random signals, modulation, sampling, pulse modulation, information theory. Prereq: EE 420G and engineering upper division status.

EE 512 DIGITAL COMMUNICATION SYSTEMS. (3)
A treatment of the basic signaling concepts involved in the communication of digital information. Topics include transmission requirements and distortion of digital signals; discrete amplitude, frequency, and phase modulation; error control coding. Prereq: EE 420G, engineering upper division status or consent of instructor.

EE 517 ADVANCED ELECTROMECHANICS. (3)
Dynamics of electromechanical systems and rotating electrical machines. Applications of electro-magnetic theory to electrical machines. Certain special topics of current interest. Prereq: EE 415G and engineering upper division status.

EE 522 ANTENNA DESIGN. (3)
Principles of radiation, potential solution to Maxwell's equations for current in empty space, electrically small antennas, antenna arrays, wire antenna principles, introduction to numerical methods, aperture antennas, frequency scaling antennas, receiving properties of antennas, antenna measurement techniques. Prereq: EE 468G and engineering upper division status.

EE 523 MICROWAVE CIRCUIT DESIGN. (3)
Physical and mathematical descriptions of wave propagation in guided structures; microstrip lines; microwave integrated circuits; passive components; two-terminal devices; four-terminal devices; S-parameter concept; equivalent circuit concept; solid state microwave amplifiers and oscillators. Prereq: EE 468G and engineering upper division status.

EE 527 ELECTROMAGNETIC COMPATIBILITY. (3)
Design of electronic systems to minimize 1) emission of electromagnetic signals that cause interference in other electronic systems, 2) the susceptibility of that system to electromagnetic signal from other electronic systems, and 3) the susceptibility of that system to its own, internally generated signals. A set of brief laboratory experiments demonstrate the design principles and provide familiarity with modern test equipment. Prereq: EE 468G and engineering upper division status.

EE 530 ROBOTICS. (3)
Methods of analysis, design, and operation of industrial and mobile robots. Kinematic and dynamic models of mechanical manipulators. Electromechanical drive systems. Robotic vision and sensors. Control and optimization of motion trajectories. Control programming. Current topics of interest from the literature. Prereq: EE 415G or EE 306, EE 471G or ME 343, and EM 313.

EE 537 ELECTRIC POWER SYSTEMS I. (3)
Application of symmetrical components to power system fault studies, calculation of transmission line parameters. Prereq: Engineering upper division status and consent of instructor.

EE 538 ELECTRIC POWER SYSTEMS II. (3)
Introduction to modern power system practices, basic transient and steady-state stability analysis with emphasis on digital techniques. Prereq: Engineering upper division status and consent of instructor.

EE 560 SEMICONDUCTOR DEVICE DESIGN. (3)
Theory, development and discussion of equivalent circuit models of transistor devices, negative resistance, semiconductor devices and praetersonic devices based on electronic processes in solid state elements. High and low frequency, as well as the Ebers-Moll and charge control switching models and their application in computerized electronic circuit analysis will be developed. Prereq: EE 467G, EE 461G or equivalent, and engineering upper division status.

EE 561 ELECTRIC AND MAGNETIC PROPERTIES OF MATERIALS. (3)
Study of dielectric and magnetic materials. Topics include dielectric relaxation, conduction and breakdown mechanisms, liquid crystals, ferroelectrics, magnetic resonance and relaxation, measurement techniques. Prereq: MSE 212 and PHY 361 or EE 461G and EE 467G. (Same as MSE 561.)

EE 562 ANALOG ELECTRONIC CIRCUITS. (3)
Feedback amplifiers, tuned and untuned amplifiers, oscillators, AM and FM transmitters. Prereq: EE 461G and engineering upper division status.

EE 564 DIGITAL ELECTRONIC CIRCUITS. (3)
Timing, scanning, trigger, logic and pulse circuits; video and broad band RF amplifiers. Prereq: EE 461G and engineering upper division status.

EE 567 INTRODUCTION TO LASERS AND MASERS. (3)
Basic principles of laser action; atomic transitions; population inversion; two and three level systems; optical resonators; pumping methods; applications. Prereq: Engineering upper division status or consent of instructor. (Same as PHY 567.)

EE 581 ADVANCED LOGICAL DESIGN. (3)
Medium-scale and large-scale digital components; register-transfers; bus-structures; controller/process organizations. Design of arithmetic processors and stored-program computers. Microprogramming. Prereq: EE 480G.

EE 583 MICROPROCESSORS. (3)
A course in the hardware and software of microprocessors. Assembly language programming, address decoding, hardware interrupts, parallel and serial interfacing with various special purpose integrated circuits. Each student is expected to do homework assignments using microprocessor hardware. This will be arranged by special appointment through the instructor. Prereq: EE 480G.

EE 584 COMPUTER-AIDED DESIGN. (3)
The student's background in programming and design techniques is combined and focused on practical design problems in passive and active networks and systems. Prereq: EE 461G, CS 221; prereq or concur: EE 471G.

EE 587 MICROCOMPUTER SYSTEMS DESIGN. (3)
A course in the design of microcomputer systems for hardware engineers which includes the following topics: use of uncommitted logic arrays in instruction set design; hardware support for operating systems and programming languages; customizing microcomputers for specific execution environments; and control of concurrency. Prereq: EE 581 and EE 583, or consent of instructor. (Same as CS 587.)

EE 595 INDEPENDENT PROBLEMS. (1-3)
For electrical engineers. A problem, approved by the chairperson of the department, provides an objective for study and research. May be repeated to a maximum of six credits. Prereq: 2.5 standing and engineering upper division status.

EE 599 TOPICS IN ELECTRICAL ENGINEERING. (2-3)
A detailed investigation of a topic of current significance in electrical engineering such as biomedical instrumentation, digital filter design, active networks, advanced electrical devices, digital communications, display of electronics. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the EE 599 number. Prereq: Equivalent of two 400-level courses in electrical engineering, consent of instructor and engineering upper division status.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in electrical engineering or its equivalent.

EE 601 ELECTROMAGNETIC ENERGY CONVERSION I. (3)
Generalized electric machine theory; parameter determination. Energy conversion in continuous media including magnetohydrodynamics. Prereq: Consent of instructor.

EE 602 ELECTROMAGNETIC ENERGY CONVERSION II. (3)
Continuation of EE 601 with special reference to energy conversion in nonlinear media; numerical methods; irregular boundaries. Prereq: Consent of instructor.

EE 603 POWER ELECTRONICS. (3)
Study of solid-state power electronic devices and their applications in power conditioned electric motor drive systems. Examination of control philosophies, steady-state models, and numerical simulation of characterizing differential equations. Current topics of interest from the literature. Prereq: EE 517 and EE 471G or consent of instructor.

EE 611 LINEAR SYSTEMS ANALYSIS. (3)
Concepts of linear systems, singularity functions, convolution and superposition integrals, state-variable method for linear systems, relation between transfer function and state-variable equations, fundamental matrix, state-transition matrix, unit-impulse response matrix, and transmission matrix. Prereq: EE 420G and EE 471G.

EE 613 OPTIMAL CONTROL THEORY. (3)
State-space modeling of control systems; variational techniques; system optimization by maximum principle, dynamic programming; Hamilton-Jacobi equations design of linear optimal systems; computational methods for solving boundary value problems. Prereq: EE 611.

EE 614 SAMPLED-DATA CONTROL SYSTEMS. (3)
Basic theory of sampling, the pulse-transfer function, Z-transform analysis of sampled-data control systems, modified Z-transforms, general design principles, analysis of multi-rate, variable-rate and nonsynchronized sampled-data systems. Prereq: EE 420G or consent of instructor.

EE 619 PROBLEMS SEMINAR IN OPERATIONS RESEARCH. (3)
In this course the student is exposed to the art of applying the tools of operations research to real world problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as BA/OR/STA 619 and MA 613.)

EE 622 ADVANCED ELECTRODYNAMICS. (3)
Solution methods for applied electrodynamics problems; uniqueness, equivalence, duality, reciprocity; linear space methods; wave solutions in separable coordinate systems; classical problems in cartesian, cylindrical, and spherical coordinates. Prereq: EE 468G.

EE 623 FIELD THEORY OF GUIDED WAVES. (3)
Mode theory in closed and open waveguides; Floquet harmonics; waveguide junctions; leaky-wave concepts; mode matching techniques; excitation of closed and open waveguides; spectral wave concepts. Prereq: EE 622.

EE 627 MULTICONDUCTOR TRANSMISSION LINES. (3)
Analysis of electromagnetic coupling in multiconductor transmission lines. Emphasis on modeling the line for the purposes of predicting crosstalk and incident field effects. Applications to interference prediction, power transmission line transients, and synthesis of microwave filters and circuits. Prereq: EE 468G or consent of instructor.

EE 630 DIGITAL SIGNAL PROCESSING. (3)
An introductory treatment of the basic concepts of signal processing via time and frequency domain (Z-transform) methods and a survey of procedures for designing, implementing and using digital signal processors. Prereq: EE 512 or consent of instructor.

EE 635 IMAGE PROCESSING. (3)
The course outlines applications of image processing and addresses basic operations involved. Topics covered include image perception, transforms, compression, enhancement, restoration, segmentation, and matching. Prereq: Graduate standing and consent of instructor. (Same as CS 635.)

EE 639 ADVANCED TOPICS IN SIGNAL PROCESSING AND COMMUNICATIONS. (3)
Advanced topics in signal processing and communications research and design topics of current interests, such as optical processing, pattern recognition, satellite systems, and digital communication networks. A review and extension of current literature and selected papers and reports. May be repeated to a maximum of nine credits. Prereq: Advanced graduate standing.

EE 640 CONTINUOUS STOCHASTIC PROCESSES. (3)
Random variables, stochastic processes, stationary processes, correlation and power spectrum, mean-square estimation, filter design, decision theory, Markoff processes, simulation. Prereq or concurrent: EE 611.

EE 650 ELECTRO-OPTICAL PROPERTIES OF MATERIALS. (3)
The effects of electric fields upon light propagation in media. Lasers, electro-optic modulation, nonlinear optics, laser noise, optical parametric oscillator, stimulated Raman emission, coherent scattering. Prereq: EE 661.

EE 660 ELECTRONIC DEVICE DESIGN. (3)
An integrated treatment of the theory and application of electronic devices with emphasis on methods of engineering analysis and design. Prereq: EE 560 and consent of instructor.

EE 661 SOLID-STATE ELECTRONICS. (3)
Bose and Fermi statistics. Semiconductor theory; solid-state devices; electrical properties of insulators; theory and applications of magnetic materials, including ferrites. Prereq: EE 560 or consent of instructor.

EE 662 MOS DEVICE DESIGN AND MODELING. (3)
Analysis of the physical principles of the Metal-Oxide-Semiconductor (MOS) Transistor and their application to the design of these devices. Equivalent circuit models for computer aided circuit design and analysis will be developed. Special emphasis will be on the applications to VLSI circuits. Prereq: EE 560.

EE 663 MICROWAVE PROPERTIES OF MATERIALS. (3)
Review of waveguides; reflection and transmission methods of measuring permittivity; cavity methods; resonance experiments and measurement of magnetic susceptibility; high frequency application of ferrites and ferroelectrics; dispersion mechanism and relaxation effects; quantum effects and principles of microwave spectroscopy; applications. Prereq: EE 468G and 561.

EE 664 SAW DEVICE DESIGN, MODELING, AND APPLICATIONS. (3)
Analysis of physical principles of Surface Acoustic Wave (SAW) devices on piezoelectric substrates and their application to the design of these devices. The use of these devices in a wide range of high-frequency signal processing applications will be covered, and computer aided design techniques for analysis and design will be surveyed. Prereq: EE 420G, 468G, 560.

EE 665 INTEGRATED CIRCUITS. (3)
Theory and analysis of integrated circuits will be developed and the relations between process variables and electrical performance parameters established. Modern semiconductor techniques will be described for silicon and other microcircuit materials and the theory and rationale behind their application developed. The use and application of computer-aided design will be introduced. Prereq: EE 560 or consent of instructor.

EE 666 ADVANCED TOPICS IN SOLID STATE ELECTRONICS. (3)
Current research and design practices in solid state and quantum electronic devices. A review and extension of current literature. Prereq: Consent of instructor.

EE 670 QUANTUM ELECTRONICS. (3)
The interaction of electromagnetic radiation fields and atomic systems and devices that make use of such interactions. Prereq: EE 661.

EE 672 MOLECULAR PROPERTIES IN ELECTRONIC DEVICES. (3)
The study of molecular properties and the application of these properties in electronic devices. Correlation of molecular energy states with infrared and Raman spectra; selection rules and intensities of transitions; instrumentation for molecular investigation; applications. Prereq: Consent of instructor.

EE 682 SWITCHING THEORY. (3)
Application of the symbolic logic of Boole and Schroeder to the design of switching systems. Topics include Boolean algebra, Boolean analysis, the solution of logic equations, the minimization of Boolean formulas, and the diagnosis of failures in digital systems. Prereq: EE 480G or consent of instructor. (Same as CS 682.)

EE 683 FINITE-STATE MACHINES. (3)
Analysis and synthesis of sequential machines via state-tables and regular expressions. Equivalence, minimization and decomposition of machines. Partitions and structure-theory. Identification and diagnosis of finite-state machines by means of input-output experiments. Linear, finite-memory, and information-lossless machines. Prereq: EE 480G. (Same as CS 683.)

EE 685 COMPUTER DESIGN AND ARCHITECTURE. (3)
A study of the organization, architecture, relationships, and procedures of the arithmetic/logic unit, mainframe memory, control structure, and input/output unit of a traditional single processor computer; also an introduction to microprogrammable and other specialized architectures. Prereq: EE 480G and EE 581.

EE 686 ADVANCED COMPUTER ARCHITECTURE DESIGN. (3)
A study of current diverse advanced architectures such as microprogrammed, parallel, array and vector, networked, and distributed architectures; applications and example systems employing these architectures; matching applications to architectures; consideration of architectures of the future. Prereq: EE 685.

EE 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EE 771 SEMINAR. (0)
Review of current literature in the field of electrical engineering, general discussion and presentation of papers on departmental research. Required of all graduate students. One class hour.

EE 783 SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING. (1-3)
Open to graduate students only. Individual work on an assignment approved by the chairperson of the department. May be repeated to a maximum of nine credits.

ENGINEERING

EGR 399 COOPERATIVE ENGINEERING EDUCATION. (1)
A course designed for undergraduate students who, through the engineering cooperative education office, secure full-time, salaried, career-related positions under the supervision of a sponsoring employer. Enrollment in the course constitutes full-time status. Course may be taken on a pass-fail basis only and may be repeated on a rotational basis to a maximum of six credit hours. Prereq: Approval of Coordinator of Cooperative Engineering Education.

EGR 537 NUMERICAL ANALYSIS. (3)
Floating point arithmetic. Direct methods for the solution of systems of linear algebraic equations. Polynomial and piecewise polynomial approximation, orthogonal polynomials. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Basic methods for initial value problems for ordinary differential equations. The emphasis throughout is on the understanding and use of software packages for the solution of commonly occurring problems in science and engineering. Prereq: CS/MA 321 or equivalent or graduate standing or consent of instructor. Knowledge of Fortran programming is essential. (Same as CS/MA 537.)

EGR 621 COMPUTATIONAL METHODS IN ENGINEERING. (3)
Theoretical, conceptual and computational basics of the finite element and boundary element methods are presented. Development of element relationships, element calculations, assembly and efficient solution of the finite element and boundary element equations is emphasized. Variational finite element formulations are developed for 1D, 2D, 3D and transient problems in engineering. Direct boundary element formulations for 2D and 3D problems are also considered. Areas of applications include heat transfer, stress and vibration analysis, fluid mechanics, hydrology and convective transport. Prereq: EGR 537 or consent of instructor.

EGR 622 ADVANCED COMPUTATIONAL METHODS IN ENGINEERING. (3)
Advanced topics in finite element and boundary element analysis including weighted residual methods, variational principles, mixed and hybrid finite element formulations, advanced interpolation scheme for inclusion of analytically dominant singular behavior, nonlinear analysis and indirect boundary element formulations are covered. Areas of applications include heat transfer, stress and vibration analysis, fracture mechanics, fluid mechanics and convective transport. Prereq: EGR 621.

EGR 780 TOPICS IN ENGINEERING (Subtitle required). (1-3)
An experimental, interdisciplinary course devoted to a topic of interest to graduate students in several departments of the college. May be repeated to a maximum of six credits, but only three credits may be earned under the same title. A particular topic may be offered at most twice under the EGR 780 number. Prereq: Variable, given when topic is identified.

ENGINEERING MECHANICS

EM 221 STATICS. (3)
Study of forces on bodies at rest. Vector algebra; study of force systems; equivalent force systems; distributed forces; internal forces; principles of equilibrium; application to trusses, frames and beams; friction. Prereq or concur: MA 213.

EM 230 MECHANICS FOR ELECTRICAL ENGINEERS. (3)
Principles of statics. Principles of dynamics of a particle and a system of particles, with emphasis on applications in electromagnetics. Computer solutions included. Students may not receive credit for EM 221 and EM 230. Prereq or concur: MA 213 and PHY 232.

EM 302 MECHANICS OF DEFORMABLE SOLIDS. (3)
A study of stress and strain in deformable solids with application primarily to linear elastic materials: stress and strain transformations; simple tension and compression of axial members; torsion of shafts; bending of beams; combined loading of members; buckling of columns. Prereq: Registration in the College of Engineering or consent of chairperson, and EM 221; prereq or concur: MA 214.

EM 303 DEFORMABLE SOLIDS LABORATORY. (1)
Experimental studies of the mechanical properties of materials and structural elements. Laboratory, four hours per week for three-fourths of the semester. Prereq or concur: EM 302.

EM 313 DYNAMICS. (3)
Study of the motion of bodies. Kinematics: cartesian and polar coordinate systems; normal and tangential components; translating and rotating reference frames. Kinetics of particles and rigid bodies: laws of motion; work and energy; impulse and momentum. Prereq: Registration in College of Engineering or consent of chairperson and EM 221, MA 214 and CS 221.

EM 503 INTRODUCTION TO CONTINUUM MECHANICS. (3)
This course emphasizes the unity and applicability of general principles underlying the mechanics of all deformable materials viewed as continua. It provides an introduction, in a cartesian tensor setting, the kinematics of finite and infinitesmal deformation and rate of deformation; stress and couple stress concepts; mechanical and thermomechanical balance principles; and the elementary theory of constitutive equations for isotropic materials. Simple applications in elasticity and viscous fluid mechanics are studied as helpful preparation for advanced courses in these specialized topics. Prereq: Engineering upper division status; prereq or concur: MA 432G or consent of instructor.

EM 506 MECHANICS OF COMPOSITE MATERIALS. (3)
A study of the structural advantages of composite materials over conventional materials, considering high strength-to-weight and stiffness-to-weight ratios. Fiber reinforced, laminated and particulate materials are analyzed. Response of composite structures to static and dynamic loads, thermal and environmental effects, and failure criteria are studied. Prereq: EM 302, engineering upper division status or consent of instructor. (Same as MSE 506.)

EM 510 DYNAMICS AND DESIGN OF ROBOT MANIPULATORS. (3)
Analysis of the design and operation of robotic systems. Emphasis on robot kinematics, dynamics, differential motion, manipulator Jacobian, motion trajectories, geometric modeling, force and vibration analyses. Various practical applications and real cases are investigated. Prereq: ME 340 or both EE 420G and EM 230. (Same as ME 510.)

EM 513 MECHANICAL VIBRATIONS. (3)
The analysis of vibrational motion of structural and mechanical systems. Single-degree-of-freedom systems; free vibrations; nonperiodic excitation; harmonic excitation. Modal analysis of multiple-degree-of-freedom systems. Vibration of continuous bodies, including strings and bars (axial, torsional and flexural modes). Energy methods. Prereq: EM 313 and EM 302, engineering upper division status or consent of instructor.

EM 527 APPLIED MATHEMATHICS IN THE NATURAL SCIENCES I. (3)
Construction, analysis and interpretation of mathematical models applied to problems in the natural sciences. Physical problems whose solutions involve special topics in applied mathematics are formulated, various solution techniques are introduced, and the mathematical results are interpreted. Fourier analysis, dimensional analysis and scaling rules, regular and singular perturbation theory, random processes and diffusion are samples of selected topics studied in the applications. Intended for students in applied mathematics, science and engineering. Prereq: MA 432G or three hours in an equivalent junior/senior level mathematics course or consent of the instructor. (Same as MA 527.)

EM 531 ADVANCED STRENGTH OF MATERIALS. (3)
Unsymmetrical bending of beams, thin plates, stress analysis of thick-walled cylinders, and rotating discs. Theory of elastic energy, curved beams, stress concentration, and fatigue. Prereq: EM 302 and engineering upper division status.

EM 533 AIRCRAFT AND MISSILE STRUCTURAL ANALYSIS. (3)
Thin-walled structures used in aircraft, missile, and pressure vessel applications are studied. The response of thin-walled structures to flexure, torsion, pressure loads and temperature variations is analyzed by energy and approximate methods. Study of conventional and advanced composite materials, and the effects of creep and plasticity. Prereq: EM 302 or equivalent and engineering upper division status.

EM 545 ADVANCED KINEMATICS. (3)
Mathematical and computer aided analysis of motion applied to mechanisms and simple robots. Velocity, acceleration, finite displacement and rotation analysis of a spatial mechanism or robot element treated as a rigid body; composition of rotations, angular velocities and angular accelerations of coupled elements; and rigid body guidance are studied. Special computer programs for kinematic analysis are introduced. Prereq: EM 313.

EM 585 FOURIER SERIES AND BOUNDARY VALUE PROBLEMS. (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432G or equivalent. (Same as MA 485G.)

EM 603 MECHANICS OF PLASTIC SOLIDS I. (3)
Permanent changes in shape of solid materials occur as plastic deformations in many engineering applications, such as extrusion, forging and rolling. This course examines the experimental basis and fundamental theoretical framework for plastic materials. The analysis of plastic deformations in simple bending, torsion, tension and compression, and some two dimensional problems are presented. Connection between mechanics parameters, design variables and metallurgical phenomena are discussed. Limit analysis is studied. Prereq: EM 503 or EM 651 or consent of instructor.

EM 613 NONLINEAR OSCILLATIONS. (3)
Many physical systems exhibit some nonlinear behavior. This course presents some methods of analyzing discrete, nonlinear, dynamical systems and applies the methods to typical mechanical systems. Various kinds of nonlinear behavior, including resonance phenomena such as harmonics, parametric excitation, and discontinuous jumps in amplitude are considered. Lyapunov stability criteria and Floquet and Routhian procedures for performing stability analyses of systems are introduced, and their physical interpretations for various systems are studied. Prereq: EM 513.

EM 628 APPLIED MATHEMATICS IN THE NATURAL SCIENCES II. (3)
Continuation of EM/MA 527 with emphasis on special topics and techniques applied to partial differential equations that occur in various physical field theories. Field equations of continuum mechanics of solids and fluids are reviewed. The method of characteristics, elliptic functions and integrals, Legendre polynomials, Mathieu functions, integral equations and transforms, and the methods of potential theory are examples of selected topics studied in introductory applications. Intended for students in applied mathematics, science and engineering. Prereq: EM/MA 527. (Same as MA 628.)

EM 645 ADVANCED DYNAMICS I. (3)
Many physical systems in engineering involve rigid bodies in translation and rotation. Such motions are studied in this course by the use of Euler's Laws. The kinematical description of the motions utilize the concept of reference frames. The inertia properties of rigid bodies, and the energy functions for rigid bodies are covered. Analytical and numerical solutions of dynamical systems of engineering interest are considered. Prereq: EM 313; prereq, or concur: MA 432G.

EM 646 ADVANCED DYNAMICS II. (3)
Continuation of EM 645 with emphasis on the use of Lagrangian and Hamiltonian formalisms. Generalized coordinates and generalized forces for holonomic and nonholonomic systems are introduced. The classification of dynamical systems is discussed. Lagrange's form of D'Alembert's principle and Lagrange's equations are established and used to derive equations of motion for various engineering systems. Conservation theorems are derived to obtain first integrals of motion. Generalized impulse and generalized momentum are studied. Hamilton's Canonic Equations are also introduced. Prereq: EM 645.

EM 651 MECHANICS OF ELASTIC SOLIDS I. (3)
Many engineering applications involve the use of materials that behave elastically when performing their designed function. This course concerns the general analysis of small deformations, stress, and stress-deformation relations for elastic bodies. The solution of typical problems frequently encountered in engineering applications, e.g., extension, bending, and torsion of elastic bars, stress concentrations and thermoelastic behavior, are studied. Some modern computational methods currently used in engineering practice are introduced. Prereq: MA 432G or consent of instructor.

EM 652 MECHANICS OF ELASTIC SOLIDS II. (3)
Continuation of EM 651 with more attention to the fundamental structure of and important historical and contemporary contributions to elastic theory. Extensive use of modern computational methods that were introduced in the first course will provide familiarity with the solution of larger scale, industrially important elasticity problems. Application of the boundary integral equation method (BIE) will be emphasized. Some use also will be made of the finite element method, primarily for comparison with BIE. Instruction will include "hands-on" experience with digital-computer program packages. Prereq: EM 651 or consent of instructor.

EM 653 METHODS OF APPLIED DIFFERENTIAL EQUATIONS. (3)
Integrals of nonlinear partial differential equations; similarity variables and other transformations; perturbation methods; weighted residual methods; numerical methods; selected topics. Prereq: MA 432G or consent of instructor.

EM 661 NONLINEAR CONTINUUM MECHANICS I. (3)
The general nonlinear mechanical response characteristics of many engineering materials is emphasized. Kinematics of deformation and basic balance laws for continua are reviewed. Principles of the theory of constitutive equations and isotropy group concepts are developed and applied to simple solids and fluids, constrained material response, motions with constant stretch history, and viscometric flows of incompressible fluids. Prereq: EM 503 or equivalent, or consent of instructor.

EM 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

EM 760 RESEARCH PROJECT IN ENGINEERING MECHANICS. (0)
Individual study related to a special research project supervised by the student's adviser. A final written report on the project is required. Prereq: Approval of director of graduate studies.

EM 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EM 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EM 780 SPECIAL PROBLEMS IN ENGINEERING MECHANICS. (3)
A mechanism for special and individualized study of a wide range of topics of interest to the advanced student of engineering mechanics. May be repeated to a maximum of nine credits. Prereq: Approval of director of graduate studies.

ENGLISH

ENG 098 ENGLISH FOR SPEAKERS OF OTHER LANGUAGES. (3)
This course is a writing course designed to provide international undergraduate students with a firm basis in the rhetorical patterns of written English and in the grammatical structures and expressions associated with those patterns. It also serves as an introduction to the analysis and organization of information as found in English paragraphs and essays. Emphasis is placed upon writing beyond the sentence level. Students must attain at least a C in order to enter ENG 099. The course may be repeated up to six credits. Students cannot count this credit toward the Freshman Composition requirement or toward the graduation requirement. Lecture, five hours per week.

ENG 101 WRITING I. (3)
A course in writing, designed to teach students to generate and develop ideas—through significant revision—in clear, effective written English. Course includes a review of grammar, usage, punctuation, and mechanics. Note: Credit not available by special examination, **Advanced Placement** excepted.

ENG 102 WRITING II. (3)
Study and practice in writing in response to written texts. Writing assignments include summary, synthesis, critique, argumentation. Instruction in library research methods and in the conventions of academic writing. Note: Credit not available by special examination, **Advanced Placement** excepted. Prereq: ENG 101 or equivalent.

ENG 105 WRITING: AN ACCELERATED COURSE. (3)
An intensive course in writing that combines the content of ENG 101 and ENG 102, emphasizing argumentation and library research. ENG 105 satisfies the University Writing Requirement for students who qualify for admission by ACT score and special examination. Note: Credit for this course and for fulfillment of the University Writing Requirement possible by CLEP examination.

ENG 161 INTRODUCTION TO LITERATURE. (3)
An analytical rather than historical approach to literature, intended to deepen the student's insight into the nature and purpose of literature and to develop literary taste and judgment. Designed especially for nonmajors, this course satisfies no requirements of the English major. (Offered in Community College System only.)

ENG 201 ETYMOLOGY. (3)
A study of words and their fundamental values with reference to development of a writing vocabulary. (Same as JOU 201.)

ENG 203 BUSINESS WRITING. (3)
Instruction and experience in writing for business, industry, and government. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prereq: Completion of University Writing requirement.

ENG 204 TECHNICAL WRITING. (3)
Instruction and experience in writing for science and technology. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memos, and reports for specific audiences. Prereq: Completion of University Writing requirement.

ENG 205 ADVANCED COMPOSITION. (3)
A course for those who wish further instruction and practice in expository writing. The emphasis is upon thoughtful organization of material and clear writing. Note: ENG 205 fulfills no requirements of the English major. Prereq: Completion of freshman composition requirement.

ENG 207 BEGINNING WORKSHOP IN IMAGINATIVE WRITING (Subtitle required). (3)
A beginning course in the craft of writing, teaching students how to read critically and how to revise work in progress. The students provide an audience for each other's work. Exercises involve practice in aspects of craft and promote experimentation with different forms, subjects, and approaches; outside reading provides models and inspiration. May be repeated under different subtitle to a maximum of six credits. Prereq: Consent of instructor.

ENG 211 INTRODUCTION TO LINGUISTICS. (3)
Introduction to the scientific study of human language. Emphasis on the fundamental principles of linguistic theory; applications of these principles in the investigation of grammatical structure, language change, regional and social dialect variation, and the acquisition of language by children. Credit will not be given to students who already have credit for either ANT 215 or ENG 414G. Prereq: Two college semesters or two high school years of a foreign language. (Same as LIN 211.)

ENG 221 SURVEY OF ENGLISH LITERATURE I. (3)
A survey of English literature from *Beowulf* through Milton. The emphasis is upon the more important writers, with attention to their cultural backgrounds.

ENG 222 SURVEY OF ENGLISH LITERATURE II. (3)
A survey of English literature from Dryden to the present. The emphasis is upon the more important writers, with attention to their cultural backgrounds.

ENG 251 SURVEY OF AMERICAN LITERATURE I. (3)
A survey of American literature from the Colonial Era to the Civil War. Emphasis upon the more important writers, with attention to their cultural backgrounds.

ENG 252 SURVEY OF AMERICAN LITERATURE II. (3)
A survey of American literature from the Civil War to the present. Emphasis upon the more important writers with attention to their cultural backgrounds.

ENG 261 SURVEY OF WESTERN LITERATURE FROM THE GREEKS THROUGH THE RENAISSANCE. (3)
A study of works by major Western authors from the Bible and ancient Greek literature through the Renaissance. Note: ENG 261 fulfills no requirement of the English major.

ENG 262 SURVEY OF WESTERN LITERATURE FROM 1660 TO THE PRESENT. (3)
A study of works by major Western authors from mid-17th century to the present. Note: ENG 262 fulfills no requirements of the English major.

ENG 264 MAJOR BLACK WRITERS. (3)
An aesthetic and analytical approach to selected works by major black writers of Africa, the Caribbean, and the United States. Writers to be studied may include Achebe, Lamming, Ellison, Hughes, Wright, Marshall, Morrison.

ENG 270 THE OLD TESTAMENT AS LITERATURE. (3)
A survey of the major types of Old Testament literature in English translation. While attention will be paid to historical backgrounds, the emphasis is on careful analysis of literary forms and techniques.

ENG 271 THE NEW TESTAMENT AS LITERATURE. (3)
A survey of the major types of New Testament literature in English translation. While attention will be paid to historical backgrounds, the emphasis is on careful analysis of literary forms and techniques.

ENG 281 INTRODUCTION TO FILM. (3)
An introduction to the study of the movies as a narrative art and a cultural document. Viewing of films outside of class is required. May not be taken concurrently with ENG 380.

ENG 305 ADVANCED WRITING. (3)
An intermediate-level course in the forms of nonfictional writing. Emphasis on the growth of a graceful, professional writing style. To enter course, students must demonstrate basic writing proficiency, an absence of problems requiring remedial instruction in writing. Prereq: Completion of freshman English requirement and consent of instructor.

ENG 320 INTRODUCTION TO LITERARY STUDY. (3)
A practical introduction to the theory and practice of literary study. Emphases on literary terms, genre distinctions, practice in writing about literature. Readings in prose fiction, poetry, and drama. Required for English majors.

ENG 356 STUDIES IN BLACK AMERICAN LITERATURE. (3)
An analytical-historical approach to the development of black American literature from Douglass and DuBois to Ellison, Baldwin, and Cleaver.

ENG 360 THE SHORT STORY. (3)
Intensive study of the short story as a literary form. Readings will be drawn from a wide variety of stories and may include works by American, British, and, in translation, continental authors.

ENG 361 LITERARY TYPES (Subtitle required). (3)
Studies in one or more of the following literary types: comedy, tragedy, satire, romance. Specific topics announced the preceding semester. May be repeated to a maximum of six credits with consent of English Department Director of Advising. May not be repeated under the same subtitle.

ENG 363 SPECIAL TOPICS IN LITERATURE (Subtitle required). (3)
Study of special topics in literature, in areas such as fiction, poetry, drama, and the relation of literature and intellectual movements. Topics announced the preceding semester. May be repeated under different subtitles to a maximum of nine credits.

ENG 364 STUDIES IN CONTEMPORARY LITERATURE (Subtitle required). (3)
Selected topics in the fiction and poetry of the English-speaking world since World War II. Topics announced the preceding semester. May be repeated under different subtitles for a maximum of six credits.

ENG 369 STUDIES IN SOUTHERN AMERICAN LITERATURE. (3)
Studies in southern American literature with special attention to such major figures as the Southern Regionalists: Faullkner, Wolfe, Warren, O'Connor, Welty, and Dickey.

ENG 374 AMERICAN FOLKLORE. (3)
An introductory survey of folklore using American materials. The use of this material in other forms. Experience in actual collecting and in the cataloging of materials.

ENG 375 THE WOMAN WRITER. (3)
Survey of the themes and forms of female literary expression. Includes works by writers from a range of ethnic backgrounds and supplements the literature with biographical and social context.

ENG 378 TOPICS IN POPULAR CULTURE (Subtitle required). (3)
Variable in content and context, this course may focus on any of several aspects of popular culture—genre, theory, history, contemporary and past expressions in popular narrative forms. Specific content announced the preceding semester. May be repeated up to six hours with permission of English Department Director of Advising. May not be repeated under the same subtitle.

ENG 380 FILM CRITICISM. (3)
A course in film criticism as the art of seeing movies; attention is given to the process of descriptive analysis and evaluation. Viewing of the films outside of class is required. May not be taken concurrently with ENG 281.

ENG 381 HISTORY OF FILM I. (3)
The history of film as art and industry from the invention of the moving picture to World War II. Emphasis on the artistic development of the silent film in America and Europe, the rise of the American studio system, and the emergence of the sound film in the 1930's. Viewing of films outside of class is required.

ENG 382 HISTORY OF FILM II. (3)
A history of film from World War II to the present. Emphasis on the artistic development of both the American film and various national cinemas (e.g., Italy, Sweden, France, Germany, Japan) during this period, with special consideration of the emergence of color and widescreen processes. Viewing of films outside of class is required.

ENG 390 UNDERGRADUATE SEMINAR (Subtitle required). (3)
Detailed investigation of a given topic, author, or theme with emphasis on both content and methods of research. Topics vary from section to section and are announced the preceding semester. Enrollment limited to 15 students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

ENG 395 INDEPENDENT WORK. (1-3)
For undergraduate majors in English with a high standing. Each pursues a course independently under the guidance of a staff member, writes a paper embodying the results of his study, and takes an examination. Prereq: Major, standing of 3.0 in the department, and permission of the chairperson. May be repeated to a maximum of six credits.

ENG 401 WORKSHOP IN PROFESSIONAL WRITING. (3)
Individual instruction and practice in the writing of expository, persuasive, and research papers in the student's field of interest. Not for students with writing deficiencies. Prereq: ENG 305 or consent of instructor.

ENG 405 EDITING ENGLISH PROSE. (3)
For students with substantial training in writing. Instruction and practice in editing and revising skills; practice in evaluating, revising, and editing both the student's own writing and the prose works of others. Emphasis on developing critical intelligence and a sense of audience. Techniques of revision, verification of sources, preparation of manuscripts. Not for students with writing deficiencies. Prereq: ENG 305 or consent of instructor.

ENG 407 INTERMEDIATE WORKSHOP IN IMAGINATIVE WRITING (Subtitle required). (3)
Continued studies in the writer's craft, focusing on student work, but with increased emphasis on outside reading. May be repeated under a different subtitle to a maximum of six credits. Prereq: ENG 207 and consent of instructor.

ENG 414G INTRODUCTION TO MODERN ENGLISH LINGUISTICS. (3)
A study of phonetics, morphemics, and syntax. Special attention will be given in laboratory sessions to practical applications. Credit will not be given to students who already have credit for either ANT 215 or ENG/LIN 301. Prereq: Junior standing.

ENG 418 HISTORY OF THE ENGLISH LANGUAGE. (3)
A survey of the historical development of English from its Indo-European origins to the present. Includes an investigation of the principal changes which have affected English phonology, morphology, syntax, semantics, and vocabulary, and of the ways in which these changes are reflected in contemporary English usage; and an examination of the socio-historical factors that have shaped the evolution of the English language. Prereq: An introductory course in linguistics (ENG/LIN 301, ENG 414G, ANT 215, or the equivalent) is recommended but not required.

ENG 420G STUDIES IN MEDIEVAL ENGLISH LITERATURE. (3)
Studies in Old English and/or Middle English literature, such as Middle English lyric and romance, heroic poetry in Old and Middle English, Middle English alliterative poetry, religious poetry of the Middle Ages. Topics announced the preceding semester. Readings from some texts will be in Modern English translation.

ENG 421G CHAUCER. (3)
Extensive readings in the principal works of Chaucer, with particular attention to *The Canterbury Tales*.

ENG 422G ENGLISH RENAISSANCE: 1500-1600. (3)
Literature of the English Renaissance exclusive of the drama. Foreign sources of the English Renaissance. Major writers such as More, Ascham, Wyatt, Sidney, Spenser, Raleigh, and Marlowe.

ENG 423G ENGLISH RENAISSANCE: 1600-1660. (3)
Selected nondramatic works of such writers as Bacon, Donne, Ben Jonson, George Herbert, Izaak Walton, Herrick, Sir Thomas Browne, Vaughan, and Traherne.

ENG 425G SHAKESPEARE SURVEY. (3)
A study of ten to twelve of the major plays of Shakespeare, including comedies, tragedies, and histories and covering the important phases of his career.

ENG 426G SHAKESPEARE STUDIES (Subtitle required). (3)
Detailed study of a special topic in Shakespeare, such as Shakespeare's tragedies, early Shakespeare, Shakespeare's romantic comedies, Shakespeare and film. Topics announced the previous semester. May be repeated under different subtitles to a maximum of six credits.

ENG 428G MILTON. (3)
Extensive readings in Milton's poetry and prose.

ENG 430G THE RESTORATION AND EARLY 18th CENTURY: 1660-1730. (3)
A survey of the rise of Classicism with emphasis on the works of Dryden, Pope, Swift, Addison and Steele.

ENG 431G THE LATER 18th CENTURY: 1730-1780. (3)
A survey of the transition from Classicism to Romanticism with emphasis on the works of Boswell, Johnson, Gray, Goldsmith, and Cowper.

ENG 435G THE ROMANTIC MOVEMENT: 1780-1815. (3)
A study of the poetry and prose of the first half of the romantic movement. The emphasis is on the poetry of Blake, Wordsworth, and Coleridge.

ENG 436G THE ROMANTIC MOVEMENT: 1815-1830. (3)
A study of the poetry and prose of the second half of the romantic movement. The emphasis is on the poetry of Keats, Shelley, and Byron.

ENG 438G VICTORIAN PERIOD: 1830-1860. (3)
A survey of the major essayists and poets of the early Victorian period. Such authors as Mill, Carlyle, Browning, Tennyson, Arnold, and Newman will be considered both analytically and historically.

ENG 439G VICTORIAN PERIOD: 1860-1900. (3)
Survey of the major figures and movements of the late Victorian period: Ruskin, Pater, Hopkins; the pre-Raphaelites, Darwinism, Imperialism, Aestheticism, and Decadence.

ENG 440G THE 18th CENTURY ENGLISH NOVEL. (3)
A study of the English novel and its backgrounds from the beginnings through Jane Austen. Emphasis on the major figures of the 18th Century: Defoe, Richardson, Fielding, Smollett, and Sterne.

ENG 441G THE 19th CENTURY ENGLISH NOVEL. (3)
A study of the English novel and its backgrounds from Scott and the early Victorians through Hardy and the Age of Transition. Such novelists as the Brontes, Dickens, Thackeray, Trollope, George Eliot, Meredith, and Collins will be studied.

ENG 442G THE 20th CENTURY ENGLISH NOVEL. (3)
A study of the English novel and its backgrounds from 1900 to the present, with emphasis on the major figures of the pre-World War II era such as Conrad, Joyce, Lawrence, Forster, and Virginia Woolf.

ENG 446G 20TH CENTURY BRITISH LITERATURE. (3)
British literature of the 20th century, with particular attention to the poetry, to literary movements, and to critical theory.

ENG 448G ENGLISH DRAMA (Subtitle required). (3)
Studies in English drama, exclusive of Shakespeare, from the beginnings to the present. Organized historically, the course covers some major portion of the canon. Specific content announced the preceding semester. May be repeated up to six credits with consent of English Department Director of Advising. May not be repeated under same subtitle.

ENG 451G STUDIES IN AMERICAN LITERATURE BEFORE 1860 (Subtitle required). (3)
Studies of selected American writers in one or more of the following contexts: Colonial America, the Age of Reason and Revolution, Romanticism. May be repeated to a maximum of six credits with consent of English Department Director of Advising. May not be repeated under the same subtitle.

ENG 452G STUDIES IN AMERICAN LITERATURE: 1860-1920. (3)
Studies in American writing from the Civil War to 1920, with emphasis on major writers of fiction and poetry.

ENG 453G STUDIES IN AMERICAN LITERATURE SINCE 1900. (3)
Studies in American writing from the beginning of the century to the present, with emphasis on major writers of fiction, poetry, and drama.

ENG 454G AMERICAN NOVEL BEFORE 1900. (3)
An analytical and historical survey of the American novel from Charles Brockden Brown to the early Dreiser. Novelists such as Cooper, Hawthorne, Melville, Twain, Howells, James, and Crane will be studied.

ENG 455G MODERN AMERICAN NOVEL. (3)
An analytical and historical survey of the American novel from Wharton to Mailer. Novelists such as Dreiser, Anderson, Lewis, Fitzgerald, Hemingway, Faulkner, Steinbeck, Updike, and Bellow will be studied.

ENG 466G MODERN DRAMA. (3)
Continental, British, and American dramatic literature from Ibsen to the present. Authors such as the following are studied: Shaw, O'Neill, Brecht, and Beckett.

ENG 472G SPECIAL TOPICS IN FOLKLORE (Subtitle required). (3)
Using various approaches—theoretical, thematic, comparative, historiographic, ethnographic, or structural—the course examines special topics in folklore not covered in survey or genre courses. Specific content announced the preceding semester. May be repeated up to six hours with permission of English Department Director of Advising. May not be repeated under the same subtitle.

ENG 473G SURVEY OF WORLD FOLKLORE. (3)
A survey on a worldwide scope of types of folklore. Emphasis upon folklore as a cultural phenomenon in its own right and upon its relations to literary types. The development of the science of folklore.

ENG 475G BRITISH AND AMERICAN BALLAD AND FOLKSONG. (3)
The course will seek—through lectures, readings, recordings, films, demonstrations—to acquaint students with textual, musicological, thematic, historical, and sociocultural aspects of British and American (including Afro-American and white ethnic) folksongs and ballads. Lesser attention will be given to the metatheory and evolution of folksong scholarship and to the transformation of folk materials by popular or elite artists.

ENG 476G FOLKLIFE AND MATERIAL FOLK CULTURE. (3)
The study of the settlement patterns, oral history, and family life in European and American folk enclave communities from early times until the present, with a heavy emphasis on customary folklore and material folk culture—e.g., art, crafts, architecture, costumes, foodways, tools and implements, musical instruments, etc.

ENG 477G REGIONAL, OCCUPATIONAL, AND ETHNIC FOLKLORE OF THE UNITED STATES. (3)
A survey of one or more of America's regional, occupational, and ethnic groups with emphasis upon the folklore and folklife of specific subcultures or folkgroups found in the United States.

ENG 478G APPALACHIAN FOLKLORE. (3)
The course, by discussions and lectures, provides definitions of the various genres of folklore comprising the traditional humanistic threads of the Appalachian sociocultural fabric, with emphasis upon the place of folklore in Appalachians' lives.

ENG 479G THE FOLKTALE. (3)
Drawing upon many international cultures for examples, the course examines the diverse forms of folk narrative. Folktales will be studied from several perspectives.

ENG 480G SPECIAL STUDIES IN FILM (Subtitle required). (3)
Study of special topics in film, such as directors, genres, film and literature, film theories, film movements. Viewing of films outside of class is required. Topics announced the preceding semester. May be repeated to a maximum of six credits with consent of instructor. Prereq: ENG 281 or 380 or consent of instructor.

ENG 507 ADVANCED WORKSHOP IN IMAGINATIVE WRITING (Subtitle required). (3)
For the student who has shown marked talent and commitment, this course provides a more rigorous workshop among peers and includes additional attention to outside reading. Each student will produce a chapbook of poems or stories. May be repeated with the same subtitle to a maximum of six credits. Prereq: ENG 207 and ENG 407, or the equivalent, and consent of the instructor.

ENG 509 COMPOSITION FOR TEACHERS. (3)
The basic studies helpful to teachers of composition. The teaching of grammar, punctuation, usage, etc., and of theme planning, correction, and revision. Students are required to do quite a bit of writing.

ENG 510 AMERICAN ENGLISH. (3)
The varieties of modern American English: regional and social dialects, ethnic varieties, creoles, and argots. History and methods of American dialect study. Prereq: ENG/LIN 301 or ENG 414G or ANT 215 or the equivalent; or consent of instructor.

ENG 512 MODERN ENGLISH GRAMMAR. (3)
Contemporary approaches to grammatical analysis; the interrelationships of phonology, morphology, and syntax. Prereq: ENG/LIN 301 or ENG 414G or ANT 215 or the equivalent; or consent of instructor.

ENG 513 TEACHING ENGLISH AS A SECOND LANGUAGE. (3)
The course will examine the current theories and methods of teaching English as a second language. The course will include (1) language learning theory as it relates to other disciplines; (2) methods and techniques of contrastive analysis. Prereq: One course in linguistics or consent of instructor. (Same as EDC 513.)

ENG 514 TESL MATERIALS AND METHODS. (3)
An extension of ENG/EDC 513, this course will include examination and evaluation of published materials designed for teaching English to speakers of other languages. Students will create individualized teaching materials and gain practical experience in applying the methods and using their own materials. Prereq: ENG/EDC 513 or consent of instructor. (Same as EDC 514.)

ENG 515 PHONOLOGICAL ANALYSIS. (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. Prereq: ENG/LIN 301 or equivalent. (Same as ANT/LIN 515.)

ENG 516 GRAMMATICAL ANALYSIS. (3)
Emphasis on the systematic interrelationships of morphemes within words and sentences. Practical training in the writing of grammars and exposure to various theories of grammatical description. Prereq: ENG/LIN 301 or equivalent. (Same as ANT/LIN 516.)

ENG 519 INTRODUCTION TO OLD ENGLISH. (3)
An introduction to Old English language and literature.

ENG 562 COMPARATIVE LITERATURE: 17TH THROUGH 19TH CENTURY. (3)
A study in English of major works of continental European literature written in modern languages, especially French, German, Spanish, Italian, Russian, from mid-17th century to end of 19th century. (Same as CLT 562.)

ENG 563 COMPARATIVE LITERATURE: 20TH CENTURY. (3)
Masterpieces and examples of 20th century Western World literature, in English translation, with emphasis on the emergence of new forms and techniques invented to express the complexity of modern life. The course will study novels, poems, and plays in their traditional development and in experimental and divergent forms. (Same as CLT 563.)

ENG 568 HISTORY OF LITERARY CRITICISM I. (3)
Literary criticism in the Western World from Plato through the 19th century. Includes such critics as Plato, Aristotle, Horace, Longinus, Sidney, Dryden, Johnson, Coleridge, A.W. Schlegel, Arnold, Sainte Beuve, and Pater.

ENG 569 HISTORY OF LITERARY CRITICISM II. (3)
The theory and practice of modern literary criticism such as New Criticism, Formalism, structuralism, reader response, Marxism, deconstruction, psychoanalysis, and feminist criticism.

ENG 570 SELECTED TOPICS FOR ADVANCED STUDIES IN LITERATURE (Subtitle required). (3)
Study of special topics that cut across the normal divisions of genre or periods, such as the relations of literature to other disciplines; metaphor and symbolism; interpretative theory. May be repeated to a maximum of six credits. Prereq: Junior standing or consent of instructor.

ENG 572 STUDIES IN ENGLISH FOR TEACHERS (Subtitle required). (3)
Specialized studies designed to increase the teacher's knowledge of subject matter and to enlarge his understanding of new developments and approaches to the teaching of English. May be repeated to a maximum of six credits.

ENG 579 ORAL NARRATION IN FOLK CULTURE. (3)
Examination of techniques, aesthetics, and models used by various storytellers from various cultures. Study of the interaction of performer and audience; of appropriate styles for different oral genres and different narration contexts; of the relation of literary and oral styles. Fieldwork or library research. Prereq: ENG 374 or consent of instructor.

ENG 581 AESTHETICS OF FILM. (3)
An examination of theories of film. Emphasis on the establishment of criteria for the aesthetic response to film and the visual image. Viewing of films outside of class is required. Prereq: Another ENG film course or consent of instructor.

Proseminars: The purpose of the proseminar courses (600 level) is to impart through lectures and discussion both the facts of literary history and the techniques of literary analysis. They are, therefore, designed to go beyond the mere information level to techniques of contemporary literary criticism and scholarship.

ENG 600 BIBLIOGRAPHY AND METHODS OF RESEARCH. (3)
An introduction to descriptive and enumerative bibliography, textual criticism, and historical scholarship.

ENG 607 GRADUATE WRITING WORKSHOP (Subtitle required). (3)
A course for experienced writers who have some knowledge of contemporary American literature. Equal emphasis on students' original work and outside reading. Each student will produce a chapbook of poems or stories and write a short introduction to it. May be repeated with the same subtitle to a maximum of six credits. Prereq: Consent of instructor.

ENG 618 HISTORY OF THE ENGLISH LANGUAGE. (3)
An intensive study of the change of English from a synthetic to an analytic language, from its origin in Indo-European to its current stage of development. Emphasis is on changes in phonology, morphology, syntax, and semantics, from Old to Early-Modern English.

ENG 619 BEOWULF. (3)
Translation and study of *Beowulf*. ENG 518 or ENG 519 recommended as background courses.

ENG 620 STUDIES IN MIDDLE ENGLISH LITERATURE. (3)
A study in depth of selected writers and movements.

ENG 621 STUDIES IN CHAUCER. (3)
A study in depth of selected works of Chaucer, especially *Troilus*, in relation to aspects of the medieval literary tradition.

ENG 622 STUDIES IN ENGLISH LITERATURE: 1500-1600. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 623 STUDIES IN ENGLISH LITERATURE: 1600-1660. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 625 STUDIES IN RENAISSANCE DRAMA EXCLUSIVE OF SHAKESPEARE. (3)
A study in depth of selected writers.

ENG 626 STUDIES IN SHAKESPEARE. (3)
A reading of Shakespeare's work and an intensive study of a selection representative of the full range of his dramatic and nondramatic writing. Extensive reading in Shakespeare scholarship and criticism. Prereq: One of the following: ENG 425G, 426G, 427G, or equivalent.

ENG 628 STUDIES IN MILTON. (3)
A study of all of Milton's poetry and of his more important prose; readings from contemporary thinkers; studies in thought currents of the time and Milton's relation to them.

ENG 630 STUDIES IN ENGLISH LITERATURE: 1660-1720. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 631 STUDIES IN ENGLISH LITERATURE: 1720-1780. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 700 TUTORIAL FOR PH.D. CANDIDATES. (3)
In addition to its proseminar and seminar schedule of courses, the English Department offers its Ph.D. students the opportunity to investigate, by tutorial, topics that cannot be handled as well in a classroom setting. The purpose of the tutorial is to enable a student to work intensively with a specialist on the kind of topics that lead to professional research, including dissertations. Unlike independent study, the tutorial involves both instructor and students in a mutual investigation of little-studied topics. An ultimate aim is to present students with possibilities for dissertation topics. May be repeated to a maximum of six credits. Prereq: Admission to the Ph.D. Program and instructor's consent.

ENG 635 STUDIES IN LITERATURE: 1780-1815. (3)
A study in depth of selected writers and movements.

ENG 636 STUDIES IN LITERATURE: 1815-1830. (3)
A study in depth of selected writers and movements.

ENG 638 STUDIES IN ENGLISH LITERATURE: 1830-1860. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 639 STUDIES IN ENGLISH LITERATURE: 1860-1900. (3)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole.

ENG 640 STUDIES IN THE 19th CENTURY BRITISH NOVEL. (3)
A study in depth of selected writers. Prereq: Graduate standing.

ENG 642 STUDIES IN MODERN BRITISH LITERATURE. (3)
Selected writers, works, and movements in the modern period with concentration on the period from 1890 to 1945.

ENG 643 STUDIES IN MODERN BRITISH AND AMERICAN POETRY. (3)
Selected poets from England and America, with a major concentration on the period 1890-1945.

ENG 651 STUDIES IN AMERICAN LITERATURE BEFORE 1860. (3)
A study in depth of selected writers and movements.

ENG 652 STUDIES IN AMERICAN LITERATURE: 1860-1900. (3)
A study in depth of selected writers and movements.

ENG 653 STUDIES IN AMERICAN LITERATURE SINCE 1900. (3)
A study in depth of selected writers and movements.

ENG 656 BLACK AMERICAN LITERATURE. (3)
An in-depth study of black American literature, with concentration on major texts by major black writers.

ENG 660 MODERN CRITICAL THEORY. (3)
Detailed examination of one or another topic in contemporary theory of interpretation, such as literature and analytical philosophy, phenomenology and literature, structuralism, Marxism, psychoanalysis.

ENG 673 STUDIES IN FOLKLORE. (3)
A study in depth of selected topics such as the development of literary genres out of oral folklore. Prereq: Eng 374 or consent of instructor.

ENG 681 STUDIES IN FILM. (3)
Comprehensive study of the history, theory, and criticism of film, with concentration on a series of major American and foreign films. Viewing of films outside of class is required.

ENG 682 STUDIES IN FICTION. (3)
A study in depth of selected types of fiction.

ENG 683 STUDIES IN DRAMA. (3)
A study in depth of selected types of drama.

ENG 684 STUDIES IN POETRY. (3)
A study in depth of selected types of poetry. May be repeated to a maximum of six credits.

ENG 720 SEMINAR IN MEDIEVAL LITERATURE. (3)
Recent topics: medieval fiction; Chaucer and the Gothic mind. May be repeated to a maximum of six credits.

ENG 722 SEMINAR IN 16th CENTURY LITERATURE. (3)
Recent topics. Spenser; Elizabethan drama. May be repeated to a maximum of six credits.

ENG 723 SEMINAR IN 17th CENTURY LITERATURE. (3)
Recent topics: Donne; Herbert; Milton. May be repeated to a maximum of six credits.

ENG 726 SEMINAR IN SHAKESPEARE. (3)
Seminar in Shakespeare. May be repeated to a maximum of six credits.

ENG 730 SEMINAR IN 18th CENTURY LITERATURE. (3)
Recent topics: neoclassic satire. May be repeated to a maximum of six credits.

ENG 735 SEMINAR IN ROMANTIC LITERATURE. (3)
Recent topics: Keats; Wordsworth. May be repeated to a maximum of six credits.

ENG 738 SEMINAR IN VICTORIAN LITERATURE. (3)
Seminar in Victorian literature. May be repeated to a maximum of six credits.

ENG 740 SEMINAR IN 20th CENTURY BRITISH LITERATURE. (3)
Seminar in 20th century British literature. May be repeated to a maximum of six credits.

ENG 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ENG 751 SEMINAR IN AMERICAN LITERATURE: 1800-1860. (3)
Seminar in American literature 1800-1860. Recent topics: Emerson and Melville; Hawthorne. May be repeated to a maximum of six credits.

ENG 752 SEMINAR IN AMERICAN LITERATURE: 1860-1900. (3)
Seminar in American literature 1860-1900. Recent topics: Whitman and Dickinson. May be repeated to a maximum of six credits.

ENG 753 SEMINAR IN AMERICAN LITERATURE SINCE 1900. (3)
Seminar in American literature since 1900. Recent topics: Faulkner, Wolfe, and Warren. May be repeated to a maximum of six credits.

ENG 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ENG 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ENG 771 SEMINAR IN SPECIAL TOPICS. (3)
Seminar in special topics; includes genres and subject matters such as symbolism which cover more than one period of literature. Recent topics: symbolism and allegory. May be repeated to a maximum of six credits.

ENG 780 DIRECTED STUDIES. (1-6)
Independent work devoted to study and research on specific subjects and problems according to the interests and needs of individual students. May be repeated to a maximum of nine credits. Permission of chairperson required.

ENG 781 SEMINAR IN FILM (Subtitle required). (3)
Seminar in special topics in film, such as directors, genres, historical periods, film and literature, film theories, and film movements. Viewing of films outside of class is required. May be repeated under different subtitle to a maximum of six credits. Prereq: ENG 681 or consent of instructor.

ENTOMOLOGY

ENT 110 INSECTS AND HUMAN AFFAIRS. (3)
Overview of the natural history of insects, and of the historical and contemporary interactions between insects and humans. Emphasizes comparison of how insects and vertebrates have resolved the basic challenges of survival; insect behavior and ecology; and the interaction of insects and human affairs.

ENT 300 GENERAL ENTOMOLOGY. (3)
Fundamentals of insect biology and relationships among insects, plants, and other organisms; identification of commonly encountered insects. Beneficial and detrimental effects of insects are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: One course in introductory biology. (Same as BIO 300.)

ENT 310 INSECT PESTS OF FIELD CROPS. (3)
Identification, life histories and control of insects attacking field crops, especially those of importance in Kentucky. The damage that these insects cause, the reasons for their abundance, and alternatives in control practices will also be emphasized. Lecture, two hours per week; laboratory, two hours per week.

ENT 320 HORTICULTURAL ENTOMOLOGY. (3)
A detailed coverage of the insects and mites attacking turf, ornamentals, greenhouse plantings, vegetables and fruits, with emphasis on field recognition of the pests and their damage. Lecture, two hours per week; laboratory, two hours per week.

ENT 340 LIVESTOCK ENTOMOLOGY. (2)
Biology and behavior of insects and other pests attacking livestock, poultry, pets and wildlife. Current control methods are discusssed. For students interested in livestock production, farm management, dairy science, poultry science, and preveterinary medicine, as well as general agriculture.

ENT 395 INDEPENDENT WORK. (2-3)
Special problems for individual students who are capable of pursuing independent investigations in various areas of entomology. May be repeated to a maximum of six credits. Prereq: ENT 100.

ENT 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-6)
Field-based or community-based experience in entomology under supervision of a faculty member. Pass/Fail only. Prereq: Permission of faculty member and department chairperson and completion of a departmental learning agreement before registration.

ENT 402 FOREST ENTOMOLOGY. (3)
The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture, two hours; laboratory, two hours. Prereq: One year of biology or consent of instructor. (Same as FOR 402.)

ENT 530 INTEGRATED PEST MANAGEMENT. (3)
Principles of insect damage, populations and distributions. Various types of natural and applied control, including problems of insecticide toxicity, resistance and residues. Prereq: ENT 100.

ENT 561 MEDICAL ENTOMOLOGY. (4)
Study of arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Given alternate years. Prereq: BIO 104/105, BIO 106/107 or consent of instructor. (Same as BIO 561.)

ENT 562 EXTERNAL MORPHOLOGY OF INSECTS. (4)
A study of the external structure of insects, including function and variation of form. Prereq: ENT 100 or equivalent. (Same as BIO 562.)

ENT 563 PARASITOLOGY. (4)
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures and life histories. Techniques for host examination and preparation of material for study. Prereq: BIO 150, 151, 152, 153 or consent of instructor. (Same as BIO 563.)

ENT 564 INSECT TAXONOMY. (4)
A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Prereq: ENT 562 or equivalent. (Same as BIO 564.)

ENT 568 INSECT BEHAVIOR. (3)
The principles of animal behavior will be stressed using insects as examples. Physiology, mechanisms, behavioral ecology and evolution of insect behavior will be covered. Prereq: One year of biology. (Same as BIO 568.)

ENT 606 INSECTICIDE CHEMISTRY AND TOXICOLOGY. (3)
Discussion of toxic action of insecticides; preparation, use, and analysis of insecticides; residues; analytical methods in insect toxicology. Prereq: CHE 230, 232, or consent of instructor. (Same as TOX 606.)

ENT 608 BEHAVIORAL ECOLOGY. (3)
This course uses an evolutionary approach to examine the behavior of organisms. Topics addressed include: optimality and behavior, kin and group selection, predator and prey behaviors, and social and mating behaviors. Prereq: BIO 451G and one semester of calculus; or consent of instructor. (Same as BIO/FOR 608.)

ENT 609 COMMUNITY AND ECOSYSTEM ECOLOGY. (3)
This course discusses the structural attributes of communities, particularly as determined by antagonistic and mutualistic interactions among populations. The diversity and stability of communities and response of species distributions to environmental gradients are emphasized. The ecosystem concept is introduced and system ecology is considered. Prereq: BIO 451G or FOR 340 or consent of instructor. (Same as BIO/FOR 609.

ENT 610 POPULATION ECOLOGY. (3)
This course examines the processes that determine the sizes and distributions of plant and animal populations. Topics addressed include: life tables, life history strategies, population regulation and population stability, and the role of biological factors such as competition, predation and mutualism in determining single-species and multi-species population dynamics. Prereq: BIO 451G or FOR 340 and one semester of calculus; or consent of instructor. (Same as BIO/FOR 610.)

ENT 626 INSECT PATHOLOGY. (3)
Principles of insect pathology related to the etiology, pathogenesis, symptopathology, gross pathology, histopathology, epizootiology of insect diseases with emphasis on infectious diseases caused by occluded viruses, bacteria, fungi, and protozoans. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

ENT 635 INSECT PHYSIOLOGY AND INTERNAL MORPHOLOGY. (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, neurophysiology, endocrinology and digestion. Internal morphology will be studied as it relates to function. Lecture, three hours; laboratory, two hours. Prereq: Consent of instructor. (Same as BIO 635.)

ENT 645 THEORY AND PRACTICE OF EXTENSION ENTOMOLOGY. (3)
The course will acquaint students with the background and missions of the land grant university and the Cooperative Extension Service. Students will learn to develop and implement extension programs, training aids and educational materials. Emphasis will be placed on current topics and innovative technology in information delivery. Lecture, two hours; laboratory, two hours per week. Prereq: Graduate standing.

ENT 660 IMMATURE INSECTS. (4)
Bionomics, structure and classification of immature stages of insects; practice in their identification. Lecture, two hours; laboratory, four hours. Prereq: BIO 570 or ENT 564, or consent of instructor.

ENT 665 INSECT ECOLOGY. (3)
The biotic and physical factors influencing the distribution and abundance of insects and insect populations. Prereq: Consent of instructor. (Same as BIO 665.)

ENT 670 EXPERIMENTAL METHODS IN ENTOMOLOGY—FIELD. (2)
The principles and techniques of field entomological research with emphasis on problem selection and the collection, evaluation, and presentation of data. Lecture, two hours; laboratory, four hours. Taught first half of the semester.

ENT 671 EXPERIMENTAL METHODS IN ENTOMOLOGY—LABORATORY. (2)
The principles and techniques of instrumentation in laboratory entomological research with evaluation and presentation of data. Two class hours; four laboratory hours. Taught second half of the semester.

ENT 680 BIOLOGICAL CONTROL OF INSECTS. (3)
The history and principles of biological control and of integrated programs for insect control. The use of parasites, predators, pathogens, host resistance, electromagnetic energy, pheromones, and their interactions with insecticide control programs will be discussed. Prereq: Consent of instructor.

ENT 695 SPECIAL TOPICS IN ENTOMOLOGY (Subtitle required). (3)
Special topical or experimental courses in entomology for advanced graduate students. Special title required and must be approved by the chairperson of the Department of Entomology. A particular title may be offered twice at most under ENT 695. May be repeated to a maximum of six credits. Students may not repeat under the same subtitle. Prereq: Will be set by instructor.

ENT 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ENT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ENT 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ENT 770 ENTOMOLOGICAL SEMINAR. (1)
Discussion of current research problems in entomology. May be repeated to a maximum of six hours.

ENT 780 SPECIAL PROBLEMS IN ENTOMOLOGY AND ACAROLOGY. (2-3)
Investigations of chosen insect problems, including original work. Discussion and assignment of current insect subjects. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

ENT 790 RESEARCH IN ENTOMOLOGY AND ACAROLOGY. (1-6)
Independent research in entomology or acarology. May be repeated to a maximum of 12 hours. Prereq: Consent of instructor.

EXPERIENTIAL EDUCATION

EXP 396 EXPERIENTIAL EDUCATION. (1-12)
A community-based or field-based learning experience under the supervision of a faculty member. May be repeated to a maximum of 30 credits. Pass/fail with departmental permission required for letter grade. Prereq: Completion of departmental learning agreement and filing of the agreement in OEE. Consent of major department chairperson and instructor required.

FAMILY STUDIES

FAM 101 INTRODUCTION TO FAMILY STUDIES. (3)
Survey course to introduce students to the concepts of family studies in home economics. Special attention will be given to psycho-social and managerial family subsystems and life span development of individuals and families.

FAM 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT. (3)
A study of Japanese life with emphasis on the philosophical and cultural differences with the West as expressed through family life, nutrition practices, and the designed environment. Lectures, discussion, written analysis and research. (Same as HED/HET/NFS 110.)

FAM 250 CONSUMER ISSUES. (3)
A study of consumer issues, rights and responsibilities. Examination of how individual and societal decisions affect quality of life.

FAM 251 PERSONAL AND FAMILY FINANCE. (3)
Management of personal and family financial resources throughout the lifespan. A study of individual and family finances as related to planning, credit, savings, investment, insurance, taxes, housing costs, transportation costs, retirement and estate planning.

FAM 252 THE INDIVIDUAL, MARRIAGE AND FAMILY. (3)
Consideration of the dynamics of intimate relationships with emphasis on the individual's personal development and expectations regarding intimacy, marriage, and family.

FAM 253 HUMAN SEXUALITY: DEVELOPMENT, BEHAVIOR AND ATTITUDES. (3)
Study of human sexuality, including the process of gender differentiation, sexual response patterns, sexual behavior and attitudes. Prereq: Three hours in social or behavioral science.

FAM 254 DEVELOPMENTAL PSYCHOLOGY. (3)
An introduction to the principles of developmental psychology as seen in human growth over the entire lifespan, with the primary focus on infancy through adolescence. Emphasis is placed on theory and data relating to the developmental aspects of cognition, language and personality. Prereq: PSY 100. (Same as PSY 223.)

FAM 255 CHILD DEVELOPMENT. (3)
An overview of the various aspects of development (physical, social, emotional, intellectual) for children ages birth through adolescence. Course will emphasize techniques of directed observation.

FAM 256 GUIDANCE STRATEGIES FOR WORKING WITH YOUNG CHILDREN. (3)
Examination of effective guidance strategies for use with young children in non-public school settings; modification of experiences for age level, ability, group and individual needs. Application and evaluation of guidance skills in laboratory experience. Lecture, two hours; laboratory, two hours per week. Prereq: PSY 223 (or FAM 254) or FAM 255.

FAM 258 CHILD DEVELOPMENT AND FAMILY LIFE IN JAPAN AND CHINA. (3)
Consideration of structure and function of the family, marriage and kinship patterns, socialization of children and personality development, attitudes and values relating to children, economic practices within the family, and how these family values and patterns in Japan, Mainland China, and Taiwan relate to the historical and philosophical bases of Eastern cultures.

FAM 350 PROGRAMS FOR THE YOUNG CHILD. (4)
Theories, research and strategies for planning, implementing and evaluating learning experiences for young children (2-8 years). Application in practicum at the Early Childhood Lab. Lecture, two hours; laboratory, four hours per week. Prereq: FAM 255 or six hours in social or behavioral science.

FAM 353 DYNAMICS OF MARRIAGE AND FAMILY DEVELOPMENT. (3)
A consideration of the developmental tasks and interpersonal dynamics through the various stages of marriage and the family life cycle. Emphasis is placed upon social and psychological research pertaining to the study of marriage and the family. Prereq: FAM 252 or equivalent or consent of instructor.

FAM 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as ANT/SOC SW 354.)

FAM 355 HUMAN SEXUALITY IN CROSS-CULTURAL PERSPECTIVE. (3)
The study of human sexuality in evolutionary and cross-cultural perspective; considers gender identity, sexual response, cultural rules and norms concerning sexual behavior, and the social organization of sexual behavior. Prereq: ANT 120 or ANT 121 or FAM 101 or PSY 100 or SOC 101. (Same as ANT 355.)

FAM 356 MIDDLE CHILDHOOD. (3)
Examination of the various aspects of development including physical, social, emotional and cognitive for children ages 9-12 years. Emphasis is on the current research and theories most relevant to the age group. Prereq: FAM 255 or equivalent.

FAM 357 CONTEMPORARY ADOLESCENCE. (3)
A survey of contemporary adolescent development and behavior with special emphasis on the multiple forces which affect this stage of development. Prereq: Six hours in social or behavioral science or consent of instructor.

FAM 363 PATTERNS OF HOUSEHOLD ENERGY USAGE. (3)
Critical examination of economical, sociological, and ecological implications of energy use by households. Prereq: Junior standing or consent of instructor.

FAM 390 INTRODUCTION TO RESEARCH IN FAMILY STUDIES. (3)
An introduction to research design, methodology, instrumentation, and data analysis with emphasis on a student's ability to understand and critique research in human development and family relations. Prereq: One course in FAM and STA 370 or consent of instructor.

FAM 402 FAMILY ECONOMICS AND MANAGEMENT ISSUES. (3)
Examination of family economics and management issues and analysis of their impact on the economic well-being of families. Prereq: FAM 251 or consent of instructor.

FAM 410 PRACTICUM IN APPLIED CHILD DEVELOPMENT. (4-6)
Supervised practicum in a community agency. Emphasis on observing children and/or adolescents and developing competencies in providing services to these ages on either an individual, small, or large group basis. Biweekly discussion will provide analysis of problems related to these competencies. Lecture, one hour biweekly; laboratory, 8 to 12 hours per week. Pass/fail only. Prereq: FAM 255; senior standing or consent of instructor.

FAM 411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION. (6-12)
Course designed to give students experience with supervised teaching at two levels, pre-primary and primary. Emphasis will be placed on observation and teaching (individual, small, and large group methods). One afternoon per week will be devoted to a discussion and analysis of problems in student teaching. Discussion, two hours; laboratory, 22 hours per week. To be offered pass-fail only. Prereq: Completion of professional sequence and formal admission to student teaching; admission to the Teacher Education Program or permission of instructor. (Same as EDC 411.)

FAM 463 CONCEPTS OF PERSONAL AND FAMILY MANAGEMENT. (3)
Concepts of management related to individuals and families throughout the life cycle. Emphasis is given to the decision making for achieving goals through use of family resources. Prereq: FAM 101, junior or senior class standing.

FAM 464 APPLICATION OF PERSONAL AND FAMILY MANAGEMENT. (3)
Experiences in a variety of settings to apply managerial concepts to diverse individual and family needs. Participation with other families and groups in managerial activities. Prereq: FAM 101, FAM 353, (Vocational Home Economics majors exempt from FAM 353), FAM 463.

FAM 503 FAMILY HOUSING ISSUES. (3)
Examination of family and societal housing needs and values. Analysis of public and private policies related to consumer housing. Includes socio-economic and political factors. Investigation of future solutions to family housing needs. Prereq: FAM 251, 363, or consent of instructor.

FAM 507 ASSESSMENT OF YOUNG CHILDREN. (2)
The nature of assessment and measurement of skills in children from birth to age eight. Training in the development and use of commercially available and teacher-made assessment devices and techniques suitable for teachers to administer. Includes observation and tests in the sensori-motor, perceptual, intellectual, social-affective and academic skill areas for teachers of young children. Includes laboratory experience in assessment of children ages 3-8. Lecture, one and one-half hours; laboratory, one hour. Prereq: FAM 255.

FAM 509 THE U.S. FAMILY IN HISTORICAL PERSPECTIVE. (3)
A study of American family experience and values from its pre-industrial Anglo-European roots to the present. Using an interdisciplinary focus, the course will examine the shifting boundary between family and community and the interaction between domestic life and demographic, religious, and economic influences in American history. Prereq: FAM 353 or SOC 409 or equivalent, or consent of instructor. (Same as HIS 596, SOC 509.)

FAM 510 SOCIALIZATION IN THE FAMILY. (3)
Socialization and parenting with emphasis on family interaction will be examined through analysis of alternative perspectives on socialization, cross-cultural family patterns and alternative family systems. This course will approach family socialization with a theory-research emphasis. Prereq: One introductory level sociology course plus SOC 409 or consent of instructor. (Same as SOC 510.)

FAM 550 CHILD DEVELOPMENT AND FAMILY LIFE AN APPALACHIA. (3)
An examination of the contemporary state of children and families in the central Appalachian region with consideration of courtship and marriage, changes in sex roles, child-rearing practices, kin relations, the family managerial system, religion, education, and economics and how these affect child development and family life. Prereq: An undergraduate course on the family or consent of instructor.

FAM 551 WOMAN IN CONTEMPORARY SOCIETY. (3)
An examination of the development of modern American women through the life span. The course emphasizes how female biology and socialization, as well as demographic, political and economic forces, help to create important differences in female development from that of males. Consideration is given to uniquely female events such as menstruation, pregnancy, childbirth, motherhood, and menopause. Modern social problems that particularly affect women, including poverty, provision of child care, psychological depression, role overload, being a displaced homemaker, and widowhood are also discussed. Prereq: Six hours of social sciences or consent of instructor.

FAM 552 ORGANIZATION AND ADMINISTRATION OF EARLY CHILDHOOD EDUCATION PROGRAMS. (3)
Organization and administration, including housing, equipment, program, records, parent cooperation. Field trips. Prereq: FAM 350 or consent of instructor.

FAM 553 THE CHILD IN HIS/HER FAMILY. (3)
Preparation and presentation of research reports of studies of family influences on the personality and development of children. Prereq: FAM 252, and six credits in sociology and/or psychology.

FAM 554 WORKING WITH PARENTS. (3)
Principles, techniques, and resources relevant to working with parents as individuals, couples, and families. Survey of related literature on parent effectiveness and parent education is included with relevant field experiences. Lecture, two hours; laboratory, two hours. Prereq: FAM 350 and six hours of 300 level or above in social and behavioral sciences or consent of instructor.

FAM 555 FOSTERING COGNITIVE DEVELOPMENT IN CHILDREN. (3)
The child's development of reasoning and concept formation, perception of reality, and development of language. Consideration of relevant research and theory and their applications to the education of pre-school and early elementary school children. Prereq: FAM 255 or equivalent or consent of instructor.

FAM 557 INFANT DEVELOPMENT. (3)
The development of the young child during the prenatal period, infancy and toddlerhood. Care and guidance of the child during the first two years of life. Lecture, two hours; laboratory, two hours per week. Prereq: Six hours of child development psychology or equivalent.

FAM 558 ADVANCED CHILD DEVELOPMENT. (3)
Advanced study of current theory, research findings, and evaluative techniques relating to the processes of child development. Particular emphasis on parent-child and peer relationships, cognitive development, physical-motor development, and the role of child development professionals. Prereq: FAM 255 or equivalent.

FAM 561 MANAGEMENT FOR FAMILIES WITH LIMITED RESOURCES. (3)
Study of family and community resources which may be utilized to improve family management. Specific emphasis will be placed on the needs of families with limited resources and the community agencies and organizations which fulfill these needs. Prereq: FAM 101, 463 or consent of instructor.

FAM 562 MANAGEMENT FOR MULTI-ROLES. (3)
Consideration of social, psychological, and economic factors associated with prevailing and emerging multi-role life styles. Examination of resource demands and managerial and consumer competencies relating to multi-role situations. Prereq: FAM 101, FAM 463; or consent of instructor.

FAM 563 FAMILIES, LEGISLATION, AND PUBLIC POLICY. (3)
A study of the impact of legislation and public policies on the well being of the family. Emphasis on the involvement of individuals and families with policies and legal resources as a means for realizing satisfying life styles. Prereq: FAM 252.

FAM 573 FAMILY LIFE EDUCATION. (3)
Historical development, current programs, and emerging trends in family life education with particular emphasis on programs and techniques for teaching sex education, marital relations, parenting and human development. Prereq: FAM 252 and 353 or consent of instructor.

FAM 585 AGING AND ENVIRONMENT. (3)
Explores the elderly person's changing experience of environment. Physiological, psychological and social changes are related to adjustment within urban and rural community environments, special housing for the elderly, and long-term care environments. Prereq: Graduate or advanced undergraduate standing and consent of instructor. (Same as GEO 585.)

FAM 586 FIELD EXPERIENCE IN FAMILY ECONOMICS AND MANAGEMENT. (1-6)
Intensive field experience in the specialized setting of the student's choice. Laboratory, three hours a week per credit hour. May be repeated to a maximum of six credits. Prereq: FAM 101, nine credits in family economics and management and consent of department chairperson.

FAM 595 SPECIAL PROBLEMS IN INDIVIDUAL AND FAMILY DEVELOPMENT. (1-3)
Intensive work on specific problems. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FAM 596 SPECIAL PROBLEMS IN FAMILY ECONOMICS AND MANAGEMENT. (1-3)
Intensive work on specific phases of field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FAM 599 FIELD EXPERIENCES. (3)
Field training in a community setting. Opportunities for developing competencies in planning and conducting individual and small group experiences related to human development and family relations. Lecture, one hour; laboratory, seven hours. May be repeated to a maximum of six credits. Prereq: Senior or graduate standing and consent of instructor.

FAM 602 CONSUMER ECONOMICS. (3)
A study of consumer economics with emphasis upon application of the theories and principles toward solution of problems of the individual and family unit as a part of the total economy. Prereq: ECO 260 or equivalent; FAM 250, 251, or consent of instructor.

FAM 603 THEORY AND RESEARCH IN FAMILY ECONOMICS AND MANAGEMENT. (3)
Research and theories in family economics and management with special emphasis given to current issues. Conceptual frameworks developed by leaders in family economics and management are studied. Prereq: FAM 790, and FAM 662 or FAM 463, or consent of instructor.

FAM 604 CULTURALLY DIFFERENT CHILDREN AND FAMILIES. (3)
A study of the psycho-social characteristics of disadvantaged children and families including language and cognitive development. Survey of early childhood education programs and related services for the disadvantaged. A review of methods of child guidance in the family and early childhood programs for the disadvantaged, parent involvement, and the role of para-professionals. Lecture, three hours; laboratory, one hour. Prereq: An advanced undergraduate course in family or child development or consent of instructor.

FAM 605 PRACTICUM IN DIRECTING EARLY CHILDHOOD PROGRAMS. (4)
Supervised experience and study in the processes of teaching, staff supervision, staff development, and evaluation of staff performance in early childhood programs. Lecture, two hours; laboratory, four hours. Prereq: FAM 411 or equivalent or consent of instructor.

FAM 624 PERSPECTIVES ON HUMAN SEXUALITY. (3)
An examination and study of historical and current perspectives of sexuality as it relates to behavioral patterns, cultural attitudes, social policy and practice. Prereq: Knowledge of human behavior and personality theory highly recommended. (Same as SW 624.)

FAM 652 READINGS IN FAMILY RELATIONS. (3)
Basic readings in family relations with special attention given to current research in the family field. The student will be introduced to conceptual frameworks used in family study as an orientation to the family related literature. Prereq: Graduate standing and FAM 353 or SOC 409 or equivalent.

FAM 653 FAMILY THEORY AND DYNAMICS. (3)
A survey and critical evaluation of family theory in the areas of mate selection, marital satisfaction, spousal relations and the process of parenthood and child rearing in addition to evaluations of current research in these areas. Prereq: FAM 652 or consent of instructor. (Same as SOC 653.)

FAM 654 LIFE SPAN HUMAN DEVELOPMENT AND BEHAVIOR. (3)
A survey of human development across the life span of the individual from conception to death. Content includes changes in motor skills, biological growth and decline, learning behavior, language, social, emotional, moral, and intellectual development as well as the roles of the family, the school, peers, and work in relation to individual development. Critical evaluation of current theories which describe human development. (Same as EDP 600.)

FAM 655 THEORY AND DYNAMICS OF HUMAN DEVELOPMENT. (3)
Advanced study of theory and research relating to the processes and outcomes of human development throughout the life cycle. Prereq: An advanced undergraduate course in child or human development or consent of instructor.

FAM 656 ADULT DEVELOPMENT IN THE FAMILY. (3)
Individual development during young adulthood and middle age, but not including aging or the aged. Particular emphasis is placed on the impact of marital, familial, and parenting careers on individual development in other areas. Theories relating to role negotiations, identity, and the family life cycle are also considered. Prereq: Graduate standing or consent of instructor.

FAM 657 FAMILY SYSTEMS THEORY. (3)
An investigation into the evolution and development of family systems theory, beginning with general systems theory and extending into the current applications to family studies. Emphasis is upon evaluation of the theory and its derivatives together with relevant research pertaining to the theory. Prereq: FAM 653 or consent of instructor.

FAM 658 ADOLESCENT DEVELOPMENT. (3)
A survey of theory and research in adolescent development with particular emphasis on the role of families and implications for working with adolescents. Prereq: Six hours in social or behavioral science.

FAM 662 SOCIAL AND ECONOMIC DECISION MAKING IN THE FAMILY. (3)
Special study of social and economic decisions affecting family resource management. Prereq: FAM 464 or consent of instructor.

FAM 668 ALLOCATION OF FAMILY RESOURCES. (3)
Study of the contributors to and the recipients of family resources. Emphasis upon the recognition and analysis of patterns of resource utilization and the effect of definite factors such as standard of living on those patterns. Prereq: FAM 463 or consent of instructor.

FAM 684 FAMILY MANAGEMENT ANALYSIS. (3)
Analysis of management in a variety of family situations. Designed to provide training and experiences in the knowledge and use of analytical approaches appropriate for helping individuals and families solve managerial problems. Prereq: FAM 463 and 603; or consent of instructor.

FAM 686 THEORY AND METHODS IN MARRIAGE AND FAMILY COUNSELING. (3)
A survey of theories and methods used in counseling based on human development and family relations. Designed to provide training and experiences in the knowledge and use of counseling techniques appropriate to marriage and family. Prereq: EDP 652 and 661; or FAM 653; and consent of instructor. (Same as EDP 686.)

FAM 687 TREATMENT MODALITIES IN MARRIAGE AND FAMILY THERAPY. (3)
The primary systemic modalities in marriage and family therapy are presented both in theory and in case study analysis. Modalities include structural, strategic, extended family, communications, behavioral, and experiential. The presenting problem, history of the problem, family history, identification of dysfunctional dynamics, goals, plan of treatment, and outcome/evaluation are emphasized in each modality. Techniques of intervention specifically applicable to each modality are emphasized together with techniques common to both systemic and nonsystemic modalities. Research relevant to outcome/evaluation of each modality is also emphasized. Prereq: FAM 686 and FAM 657 or consent of instructor.

FAM 688 FAMILY STRESS AND THERAPEUTIC INTERVENTION. (3)
An examination of the normative and nonnormative stressor events experienced by families. Family crisis theory and the research strategies used to explore family adaptation to stress and crisis will be explored. Emphasis will be on the impact these stressor events have on family life, methods of coping, and principles and techniques of therapeutic intervention. Prereq: FAM 652 or consent of instructor.

FAM 689 PERSPECTIVES ON DIVORCE AND REMARRIAGE. (3)
Examination of research, theory and intervention strategies for family experiences: divorce, single-parenting, and remarriage. Focus on family dynamics and child outcomes during these normative family changes. Prereq: Six graduate credits in human development, family relations or equivalent; consent of instructor.

FAM 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

FAM 773 SEMINAR IN FAMILY ECONOMICS AND MANAGEMENT. (3)
Study of emerging critical issues and research in family economics and management. May be repeated to a maximum of six credits. Prereq: Graduate standing.

FAM 775 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY RELATIONS. (3)
Preparation and presentation of reports of current investigations in child development. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FAM 785 ADVANCED PROBLEMS IN INDIVIDUAL AND FAMILY DEVELOPMENT. (1-3)
Independent advanced work. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FAM 786 ADVANCED PROBLEMS IN FAMILY ECONOMICS AND MANAGEMENT. (1-3)
Independent advanced work in family economics and management. May be repeated to a maximum of six credits. Prereq: Graduate standing and consent of department chairperson.

FAM 787 SUPERVISED EXPERIENCE IN THE PRACTICE OF MARRIAGE AND FAMILY THERAPY. (3)
Supervised experience in the practice of marriage and family therapy. Students are required to participate in two hours of supervision per week covering the eight-ten hours of client contact per week. May be repeated to a maximum of nine credits. Prereq: FAM 652, 653, 656, 686, 687, and consent of instructor.

FAM 790 FAMILIAL AND DEVELOPMENTAL RESEARCH METHODS. (3)
The study of research techniques and methodological problems involved in home economics research on the family. Emphasis is placed on research concerning interrelations between the family and its environment, development within the family, and family dynamics. Prereq: A course in basic statistics or equivalent.

FINANCE

FIN 300 CORPORATION FINANCE. (3)
An introduction to the basic principles, concepts, and analytical tools in finance. Includes an examination of the sources and uses of funds, budgeting, present value concepts and their role in the investment financing and dividend decision of the corporate enterprise. Prereq: ECO 261, ACC 202.

FIN 350 FUNDAMENTALS OF INVESTING. (3)
Investigation of various investment opportunities. Primary emphasis on financial assets such as stock, bonds, options, and futures contracts. Also considers real estate, insurance, and similar alternatives. Operation of financial markets; security analysis and valuation models, forecasting. Efficient markets: random walk vs. technical analysis. Description of portfolio management.

FIN 360 PRINCIPLES OF REAL ESTATE. (3)
An overview of the basic concepts and principles of real estate in the private and public sectors. The course provides an introduction to real estate issues and a foundation for further study in the various specialized areas of real estate and urban development. Prereq: FIN 300 or consent of instructor.

FIN 391 TOPICS IN FINANCE. (1-3)
Readings, research and discussion in a seminar format to illuminate problems of historical and contemporary interest, in areas of special faculty competence. May be repeated to a maximum of six credits. Prereq: Consent of instructor mandatory.

FIN 395 INDIVIDUAL WORK IN FINANCE. (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairperson's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

FIN 410 ANALYSIS OF FINANCIAL INFORMATION. (3)
Begins with a review of the informational inputs to financial decision-making, including financial statements and other economic data. Some emphasis placed on the interpretation of "noncomparable" data across firms, and the application of popular analytic techniques. Studies evaluting the usefulness of financial data will also be reviewed. Prereq: FIN 300, ECO 391 and ACC 301.

FIN 423 INTERNATIONAL FINANCE. (3)
The course provides an overview of world trade, international monetary and trade theory, and the theory of exchange rate determination. Focus is on the management of short- and long-term international assets, with particular attention given to the direct investment decision and on financing international operations. Prereq: FIN 300.

FIN 445 CAPITAL INVESTMENT AND FINANCING DECISIONS. (3)
Primary emphasis on the application of financial concepts and tools of analysis. Case analysis is used to simulate "real world" environment. Topics include capital budgeting, financing decisions, cost of capital, leasing, dividend policy, and mergers and acquisitions. Prereq: FIN 300.

FIN 447 WORKING CAPITAL MANAGEMENT. (3)
Primary emphasis is placed on the study of short-term financial management policies. Course topics include cash management, marketable security investment, credit and inventory policies, as well as alternative sources of short-term funding. Some casework is involved. Prereq: FIN 300.

FIN 450 SECURITY ANALYSIS. (3)
Analysis of corporation statements for investment purposes; the security market; market influences on security prices; effect of interest changes on security prices; and the development of investment programs. Prereq: ACC 202 and FIN 300.

FIN 452 OPTIONS AND FUTURES. (3)
A study of the options and futures markets including institutional aspects, pricing, and regulation. Primary emphasis will be on the uses and applications of options and financial futures. Prereq: FIN 300, ECO 391, ECO 485G and a course in investments; or consent of instructor.

FIN 464 REAL ESTATE FINANCE. (3)
The course surveys the sources and uses of real estate funds. The institutions which provide funds and the various types of financial instruments are described and compared. Likewise, various forms of real estate investment are analyzed and methods of determining value are critiqued. Prereq: FIN 300.

FIN 480 MONEY AND CAPITAL MARKETS. (3)
A study of the institutional structure and theory of the money and capital markets, including the types of financial claims traded in such markets, the major buyers and sellers, the regulatory environment, capital market theory, and the forces of supply and demand affecting the level and structure of interest rates. Prereq: FIN 300 and ECO 485G or consent of instructor.

FIN 584 FINANCIAL MARKETS AND INSTITUTIONS. (3)
Analysis of securities markets, savings and loan associations, insurance companies, pension funds, credit unions, broker-dealer operations and government agencies with particular attention to their role in the flow of funds in the American economy. Prereq: ECO 485G.

FIN 585 BANK MANAGEMENT. (3)
A study of the principles and cases in commercial banking practice. Bank management practices are studied within the economic, monetary, fiscal and legal framework of the American economy. Prereq: ECO 485G or consent of instructor.

FIN 600 CORPORATE FINANCIAL POLICY. (3)
A study of financial management from the viewpoint of the corporate financial officer. Areas studied include capital budgeting, capital structure, financing decisions, working capital management, dividend policy, and mergers and acquisitions. Prereq: Graduate standing: ECO 610, ACC 628, MGT 650.

FIN 637 HEALTH FINANCE. (3)
This course applies general principles of finance to the financial management of health care institutions. The major financial incentives which dictate how health care is delivered are studied and proposals to change these incentives are explored. Prereq: ACC 201, 202 or equivalent; PA 632 or equivalent; and consent of instructor. (Same as CH/PA 637.)

FIN 645 CORPORATE INVESTMENT AND FINANCING POLICY. (3)
Emphasizing both theory and practice, this course is an in-depth study of long-term corporate investment and financing decisions. Topics include valuation, capital budgeting, cost of capital, leasing, dividend policy, capital structure, and mergers and acquisitions. Prereq: FIN 600.

FIN 647 WORKING CAPITAL POLICY. (3)
A study of short-term financial policies primarily from the corporate financial officer's viewpoint. Areas studied include working capital management, liquidity policy, banking relations, investment in money market instruments and financial statement forecasting. Prereq: FIN 600.

FIN 650 INVESTMENT MANAGEMENT. (3)
Evaluation of sources of information and advice concerning securities, methods of analysis and policies of individuals and institutions in the management of investment funds. Prereq: Appropriate undergraduate courses in accounting and finance.

FIN 680 MONEY, INTEREST AND CAPITAL. (3)
A study of the theory of money, interest and financial intermediation. In addition to the theory, the major financial markets, financial institutions and financial instruments will be examined. Finally, the governmental agencies which regulate the industry will be discussed as will the overlapping nature of the regulatory process. Prereq: Completion of the first year MBA core or consent of instructor.

FIN 695 INDIVIDUAL WORK IN FINANCE. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FIN 700 SEMINAR IN FINANCIAL THEORY. (3)
Primary emphasis on the theory of financial asset valuation. Topics include utility theory, investor reaction to uncertainty, cost of capital theory, dividend theory, portfolio theory, and asset pricing in equilibrium. Prereq: FIN 600 and FIN 650.

FIN 710 DECISION MODELS IN FINANCE. (3)
Examination of various economic, statistical, operations research, and behavioral models and how they are applied to the financial decisions of the firm. The emphasis is on the application of the decision models rather than their derivation. Prereq: FIN 700 and MGT 751.

FIN 745 SEMINAR IN MANAGERIAL FINANCE. (3)
Primary emphasis on the implementation of financial theory for the management of the assets of a business firm. Topics include capital budgeting, working capital planning, financing the firm, cost of capital and the financial structure of the firm, and mergers and acquisitions. Prereq: FIN 700.

FIN 750 SEMINAR IN INVESTMENT THEORY. (3)
Primary emphasis on the implementation of financial theory for the evaluation and management of financial assets in an efficient capital market. Topics include mean-variance efficiency, development and testing of the capital asset pricing model, stochastic dominance, and option pricing theory as well as other topics in modern capital market theory. Prereq: FIN 700 or equivalent, or consent of instructor.

FIN 763 RESEARCH, DESIGN AND ANALYSIS. (3)
This course deals with the design and analysis of business research. Emphasizes the practical application of analysis of variance and correlational techniques to problems in business research. Focus will be on design, implementation, and interpretation of research. Prereq: BA 762. (Same as MGT/MKT 763.)

FIN 780 SEMINAR IN FINANCIAL INSTITUTIONS.(3)
An examination of the role of financial institutions in the financial system and in the economy, with special emphasis on commercial banks. Topics covered include: theories of financial intermediation, asset-liability management, regulation and deposit insurance, structure of the financial institutions industry, and empirical models of banking. Prereq: FIN 700.

FIN 791 SEMINAR IN FINANCE. (3)
Each semester some topic currently discussed in scholarly journals in finance will be studied intensively. May be repeated to a maximum of nine credits. Prereq: Consent of the instructor.

FIN 795 INDEPENDENT WORK IN FINANCE. (1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to a total of six credit hours. Prereq: Consent of instructor.

FINE ARTS

FA 301 PRINCIPLES AND PRACTICES OF ARTS ADMINISTRATION. (3)
Survey of techniques and practices used in the administration of performing and visual art facilities and programs. Prereq: Fine Arts majors with sophomore standing; others with the consent of the instructor.

FA 401 SEMINAR IN ARTS ADMINISTRATION. (3)
Continuation of FA 301. Class focuses upon the principles and theories of arts administration with emphasis on management research, market analyses and audience education theories. Prereq: FA 301 or consent of instructor.

FA 499 INTERNSHIP IN ARTS ADMINISTRATION.(1-9)
An internship with university, community or regional arts organizations, providing practical work experience related to arts administration. Internship conducted under supervision of a faculty member. Student must file learning contract with college. May be repeated to a maximum of nine credits. Prereq: Junior standing; FA 301 and FA 401.

FA 501 ARTS-STUDY TOUR. (3)
Domestic or foreign tour for intensive study of the arts in major cultural centers. Seminars, tours, and performances are planned according to specific itineraries. Attendance at all scheduled seminars on campus and arts events during the tour plus maintenance of a journal and completion of a substantial course project is required. May be repeated to a maximum of six credits.

FORESTRY

FOR 100 INTRODUCTION TO FORESTRY. (2)
A brief coverage of the general fields of forestry; development and importance; tree growth; principal forest regions and important timber species; forest management practices; utilization and products; state and federal forestry programs.

FOR 101 INTRODUCTION TO WILDLIFE CONSERVATION. (2)
An introduction to the history, concepts, and principles of wildlife biology and management. The role of wildlife in ecological systems and human-altered environments will be discussed.

FOR 219 SILVICS AND TREE IDENTIFICATION. (3)
Silvics, taxonomy, and preparation of woody plants native to the U.S. Lecture, two hours per week; laboratory, three hours per week, with field trips to local forests. Prereq: One semester of botany or consent of instructor.

FOR 221 WINTER DENDROLOGY. (1)
Identification of 100 species of trees, shrubs, and lianas based upon bark, form, twig, and bud characteristics. Laboratory; four hours per week for one-half semester. Prereq: FOR 219 or consent of instructor.

FOR 300 FOREST MEASUREMENTS. (4)
Basic forest surveying; units of measure and their application in determining volume in forest stands and products; statistical techniques and photogrammetry in volume estimate; site classification and growth determinations; continuous forest inventory and data processing techniques. Lecture, three hours; laboratory, two hours. Prereq: MA 113 and STA 370 or consent of instructor.

FOR 305 HARVESTING TIMBER CROPS. (3)
Principles and practices in the harvest of timber crops. Study of equipment choice, methods of planning, and operational techniques involved in movement of timber products. Time and motion studies. Lecture, three hours with occasional extended field trips.

FOR 310 FOREST PHOTOGRAMMETRY. (1)
Use of aerial photographs in land and topographic mapping, forest type delineation, volume estimates, administration and forest inventory sampling systems. Capabilities and limitations of aerial photographs. Laboratory, two hours per week. Prereq: FOR 300.

FOR 340 FOREST ECOLOGY. (3)
The study of the forest as a biological community with emphasis on the interrelationships betweeen trees and other organisms comprising the community, and the interrelationships between these organisms and the physical environment. Lecture, two hours; laboratory, three hours per week. Prereq or concur: FOR 219, AGR 366, and AGR 367.

FOR 350 SILVICULTURE. (4)
Principles and techniques of intermediate cutting, natural and artificial regeneration, systems of reproduction, application of genetics and tree improvement to intensive forest management, and silviculture of some of the major forest types of the United States. Lecture, three hours; laboratory, two hours with occasional extended field trips. Prereq: FOR 219, AGR 366, AGR 367, FOR 340.

FOR 375 TAXONOMY OF FOREST VEGETATION. (1)
Field study of the identification and silvics of forest vegetation. Prereq: FOR 219.

FOR 376 SILVICULTURAL PRACTICES. (1)
Field study of the relationship between specific site characteristics and yield of forest stands and the application of cultural practices to forest stands. Prereq: FOR 350.

FOR 377 FOREST SURVEYING. (1)
The application of surveying principles and techniques to forest land areas. Prereq: CE 100.

FOR 378 FOREST MENSURATION. (1)
The application of mensurational principles and techniques in determining tree and stand volumes and growth; timber cruising; development of volume and stand tables. Prereq: FOR 300.

FOR 379 HARVEST AND UTILIZATION OF WOOD. (2)
Study and use of harvesting and milling equipment in the harvest and manufacture of wood and wood products.

FOR 399 FIELD-BASED EDUCATION IN FORESTRY. (1-6)
The use of field experience as an educational complement to classroom work. May be repeated to a maximum of 12 credits which are to be used as electives. Prereq: Permission of instructor and department chairperson. A departmental learning agreement must be completed prior to registration.

FOR 400 WOOD IDENTIFICATION AND PROPERTIES. (3)
General anatomy of wood, identification of commercial species based on microscopic and macroscopic features, wood properties and uses. Lecture, two hours; laboratory, two hours. Prereq: BIO 106, 107, or equivalent.

FOR 402 FOREST ENTOMOLOGY. (3)
The principles of forest entomology, including the detection, collection, identification, appraisal of damage, and control of forest insect pests. Lecture, two hours; laboratory, two hours. Prereq: One year of biology or consent of instructor. (Same as ENT 402.)

FOR 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107, BIO 150 and 151 or BIO 351. (Same as PPA 410.)

FOR 415 WOOD SEASONING AND PRESERVATION. (3)
Principles and methods involved in air and kiln drying of wood; kiln design and operation. Agencies causing disintegration of wood, factors affecting penetration and absorption of preservative solutions in wood, wood preservatives and processes, plant equipment design and operation and economic considerations. Lecture, three hours with occasional extended field trips.

FOR 420 WOOD PRODUCTS. (3)
Sources, processing, and utilization of wood products. Lecture, three hours with occasional extended field trips. Prereq: FOR 400 or consent of instructor.

FOR 425 TIMBER MANAGEMENT. (4)
The principles of sustained yield timber management, organization of the forest area, management objectives, timber valuation, regulation of the cut, and timber management plans. Lecture, three hours; laboratory, two hours. Prereq: Junior Forestry Camp or consent of instructor.

FOR 430 FOREST WILDLIFE AND RANGE MANAGEMENT. (3)
The principles and practices of wildlife and range ecology and management with emphasis on the forest environment. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: Junior Forestry Camp or consent of instructor.

FOR 440 FOREST RESOURCES FOR RECREATION. (3)
Study of resource-oriented recreation in the forest. The recreational development of forest lands and waters and basic forest land management policies and principles related thereto. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: Full senior standing in forestry or consent of instructor.

FOR 455 FOREST POLICY AND ADMINISTRATION. (2)
The relation of forest to man and its effect on development of forest policy. Principles and practices of natural resource administration as applied both to publicly and privately owned forest land. Prereq: Full senior standing in forestry or consent of instructor.

FOR 460G FOREST WATERSHED MANAGEMENT. (3)
Principles and techniques involved in forest watershed management as related to the water resource. The influence of forestry practices on water movement into and through the watershed; water storage; water loss, vegetation and water yields; water quality. All-day field trip required. Prereq: Consent of instructor.

FOR 511 FOREST REGENERATION. (3)
The fundamentals and applications of forest tree improvement, seed production, nursery practices, and site-improvement techniques to the regeneration of forest stands by artificial means. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: FOR 350, 376, 402, and 410.

FOR 512 FOREST TREE PHYSIOLOGY. (3)
The fundamental principles of tree physiology with particular reference to the growth and development of forest species, and consideration of the influence of genetic and environmental factors on physiological processes in forest trees. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

FOR 564 FOREST SOILS. (3)
The physical, chemical and biological properties of soils as they relate to forest tree growth and the forest community. A study of the genesis, morphology, classification and utilization of soils for forestry. Lecture, two hours; laboratory, two hours with occasional extended field trips. Prereq: AGR 366 and 367 and consent of instructor. (Same as AGR 564.)

FOR 599 INDEPENDENT WORK IN FORESTRY. (1-3)
Study and independent work on selected problems related to allocation and utilization of natural resources. May be repeated to a maximum of six credits. Any combination of FOR 599 and FOR 781 cannot exceed six credits. Prereq: Senior or graduate standing and consent of instructor.

FOR 601 RESEARCH METHODS IN FORESTRY. (3)
A study of research methods, procedures, and techniques used in forestry. Major emphasis will be placed on problem analysis and methods of conducting organized research. Prereq: Consent of instructor.

FOR 608 BEHAVIORAL ECOLOGY. (3)
This course uses an evolutionary approach to examine the behavior of organisms. Topics addressed include: optimality and behavior, kin and group selection, predator and prey behaviors, and social and mating behaviors. Prereq: BIO 451G and one semester of calculus; or consent of instructor. (Same as BIO/ENT 608.)

FOR 609 COMMUNITY AND ECOSYSTEM ECOLOGY. (3)
This course discusses the structural attributes of communities, particularly as determined by antagonistic and mutualistic interactions among populations. The diversity and stability of communities and response of species distributions to environmental gradients are emphasized. The ecosystem concept is introduced and system ecology is considered. Prereq: BIO 451G or FOR 340 or consent of instructor. (Same as BIO/ENT 609.)

FOR 610 POPULATION ECOLOGY. (3)
This course examines the processes that determine the sizes and distributions of plant and animal populations. Topics addressed include: life tables, life history strategies, population regulation and population stability, and the role of biological factors such as competition, predation and mutualism in determining single-species and multi-species population dynamics. Prereq: BIO 451G or FOR 340 and one semester of calculus; or consent of instructor. (Same as BIO/ENT 610.)

FOR 612 FOREST ECOSYSTEM ANALYSIS. (3)
The study of ecosystem structure and function with emphasis upon eastern deciduous forest ecosystems. Topics discussed will include energy flow, mineral cycling, the influence of disturbance upon ecosystem properties and dynamic processes in the development of ecosystems. Prereq: FOR 340 or BIO 451G and consent of instructor.

FOR 620 SPECIAL TOPICS IN FORESTRY (Subtitle required). (1-3)
Special topical or experimental courses in forestry for advanced graduate students. Special title required and must be approved by the chairperson of the Department of Forestry. May be repeated to a maximum of nine credits. Students may not repeat under the same subtitle. Prereq: Consent of instructor.

FOR 630 WILDLIFE HABITAT ANALYSIS. (3)
The components and structure of wildlife habitats and associated wildlife communities. Univariate and multivariate statistical methods of habitat analysis will be described and applied to data collected during laboratory periods to identify important habitat characteristics for selected wildlife species. The importance of habitat complexity will be demonstrated in laboratory and field situations. Lecture, three hours; laboratory, two hours. Prereq: FOR 430 and basic courses in statistics and ecology.

FOR 662 QUANTITATIVE METHODS IN RENEWABLE RESOURCE MANAGEMENT. (3)
Design and analysis of optimization models in renewable resource management. Includes survey of applications in mathematical programming, CPM-PERT, Markov processes and Game theory. Case examples are used to demonstrate applicability and problem formulation in management of industrial and public forests. Prereq: MA 113 and MA 162 or equivalent, and AEC 445G or equivalent. (Same as AEC 662.)

FOR 670 WILDLAND WATER QUALITY. (3)
Water quality parameters and use criteria; "background" quality, sources of pollution, and effects of land management on wildland water quality; sampling techniques. Lecture: two hours; laboratory: three hours. Prereq: Consent of instructor.

FOR 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours. Prereq: Consent of adviser and chairperson of the department.

FOR 770 FORESTRY SEMINAR. (1)
Reports and discussions of problems and investigations of problems in forestry and related fields. May be repeated to a maximum of three credits.

FOR 781 SPECIAL PROBLEMS IN FORESTRY. (1-3)
Advanced study of selected problem areas in forestry. May be repeated for a total of six credits; any combination of FOR 781 and FOR 791 cannot exceed six credits. Prereq: Consent of graduate adviser.

FOR 791 RESEARCH IN FORESTRY. (1-3)
Involves original research in selected areas of interest in forestry. May be repeated for a total of six credits; any combination of FOR 781 and FOR 791 cannot exceed six credits. Prereq: Consent of graduate adviser.

FRENCH LANGUAGE AND LITERATURE

FR 011 FRENCH FOR READING KNOWLEDGE. (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination.

FR 101 ELEMENTARY FRENCH. (4)
The study of basic French through grammar, reading and oral practice.

FR 102 ELEMENTARY FRENCH. (4)
A continuation of FR 101. The study of basic French through grammar, reading and oral practice. Prereq: FR 101.

FR 106 ELEMENTARY FRENCH REVIEW. (5)
A course equivalent in level to FR 102 designed to prepare students with two or three units of high school French for French 201 who, on the basis of the placement test, appear to lack sufficient skill in French for that course. Prereq: Two years of high school French and the placement test.

FR 200 ORAL PRACTICE IN FRENCH III. (1)
This course is designed for intermediate students who wish to strengthen speaking skills through practice in a supervised laboratory. Concur: FR 201.

FR 201 INTERMEDIATE FRENCH. (3)
Reading, conversation and oral comprehension are the basic aims of this course, which is structured around contemporary texts. Prereq: FR 102 or two years of high school French and placement test.

FR 202 INTERMEDIATE FRENCH. (3)
A continuation of FR 201. Prereq: FR 201 or three years of high school French and placement test.

FR 203 ELEMENTARY FRENCH CONVERSATION AND COMPOSITION. (2)
This course will develop conversational skill and introduce writing. Premajor requirement for the French major. Prereq or concur: FR 202.

FR 261 MASTERPIECES OF FRENCH LITERATURE IN TRANSLATION. (3)
An esthetic and analytical approach to major texts (in English translation) by such authors as Corneille, Racine, Molière, Voltaire, Beaumarchais, Balzac, Huysmans, Cocteau, Gide, Sartre and Ionesco. No knowledge of French required.

FR 300 ORAL PRACTICE IN FRENCH (Subtitle required). (1)
Oral-aural practice in the spoken language. Emphasis in the expansion of conversational vocabulary. Designed to increase oral fluency in French. May be repeated to a maximum of three credits. May not be repeated under the same subtitle. Not open to students who are taking or who have taken FR 312 or FR 412. Prereq: FR 202 and FR 203 or equivalent.

FR 304 INTRODUCTION TO FRENCH LITERATURE I. (3)
A study of selected prose readings with emphasis on literary analysis and critical approaches. Lecture, discussion, reports. Prereq: FR 202 and FR 203 or equivalent.

FR 305 INTRODUCTION TO FRENCH LITERATURE II. (3)
A study of selected readings in poetry and theater with emphasis on literary analysis and critical approaches. Lecture, discussion, reports. Prereq: FR 202 and FR 203 or equivalent.

FR 306 INTERMEDIATE FRENCH COMPOSITION. (3)
Intermediate grammar review and theme writing. Vocabulary expansion and practice in writing stylistically appropriate French. Prereq: FR 203 or equivalent.

FR 307 FRENCH FOR BUSINESS AND ECONOMICS. (3)
Development of specialized conversational and written proficiency necessary to import-export business activities, banking, insurance, business regulation, etc., in the French-speaking world. Prereq: FR 306.

FR 312 INTERMEDIATE FRENCH CONVERSATION. (3)
Intensive practice in oral French, emphasizing idiomatic speech. Designed to maintain oral fluency in French. Not open to students who are taking or who have taken FR 412. Prereq: FR 203 or equivalent.

FR 395 INDEPENDENT WORK IN FRENCH. (3)
Directed study in French literature and linguistics. May be repeated once. Prereq: Major, senior standing, 3.0 grade-point average in the department, consent of instructor, and approval of the Director of Undergraduate Studies.

FR 406 ADVANCED FRENCH GRAMMAR AND COMPOSITION. (3)
The course aims to present vocabulary and grammatical structures necessary in writing long, logically developed compositions in correct formal French. Compositions will be discussed and analyzed in class. Prereq: FR 306.

FR 407 FRENCH PHONETICS. (3)
Phonetics and phonemics, theory and practice. Advanced corrective pronounciation drill on an individual basis. Prereq: FR 203.

FR 412 ADVANCED FRENCH CONVERSATION. (3)
Practice of language skills at an advanced level. Emphasis on fluency and command of contemporary French speech. Preparation of oral presentations. Prereq: FR 306.

FR 438G A SURVEY OF FRENCH LITERATURE OF THE 17TH AND 18TH CENTURIES. (3)
A study of representative writers and of the major literary movements from 1600 to the French Revolution. Prereq: FR 304 and 305.

FR 439G A SURVEY OF FRENCH LITERATURE OF THE 19TH CENTURY. (3)
A study of the representative writers of the 19th century and the major literary movements. Prereq: FR 304 and 305.

FR 440G A SURVEY OF FRENCH LITERATURE OF THE 20TH CENTURY. (3)
A study of the representative writers of the 20th century and the major literary movements. Prereq: FR 304 and 305.

FR 461G MASTERPIECES OF FRENCH DRAMA. (3)
A critical and historical study of the development of French drama from the 17th century to the present. Prereq: FR 304 and 305.

FR 470 STUDIES IN FRENCH LITERATURE (Subtitle required). (3)
Study of an author, literary form, topic, or problem. Taught in French. Course may be repeated to a maximum of nine credits under different subtitle. Prereq: FR 304 and FR 305.

FR 501 FRENCH LITERATURE AND THE ARTS: THE MIDDLE AGES. (3)
A study of the interrelationship of French narrative, dramatic and poetic literature with the other arts—music and the plastic arts—in the period 1050-1500. Readings in French: Course conducted in English.

FR 502 FRENCH LITERATURE AND THE ARTS: LA BELLE EPOQUE. (3)
A study of the literature of the late 19th and early 20th century and its extension into the arts. Readings in French, class conducted in English.

FR 503 FRENCH LITERATURE AND THE ARTS: SURREALISM. (3)
Examination of the multi-faceted French movement in the novel, poetry, theatre, film and plastic art. Course conducted in English with readings in French.

FR 504 TOPICS IN FRENCH LITERATURE AND CULTURE (Subtitle required). (3)
Intensive study of an author, genre, a period or movement of French literature or an aspect of French culture. May be repeated to a maximum of six credits.

FR 507 INTERPRETATION AND STYLE. (3)
Study of French style with attention to written and oral expression. Introduction to stylistic theory and methodology. Prereq: FR 406 or graduate standing.

FR 510 LINGUISTIC STRUCTURE OF MODERN FRENCH. (3)
An introduction to the basic phonological, syntactic and semantic categories and processes of contemporary French as studied in the light of current linguistic theory and practice. Prereq: FR 306 or equivalent.

FR 516 INTRODUCTION TO EARLY FRENCH. (3)
An introduction to the study of Old and Middle French. Emphasis will be on understanding the language through an examination of its phonology and grammar, and through practice in reading from selected texts, chiefly literary. Prereq: FR 304 and 305.

FR 550 FRANCE TODAY. (3)
A contrast between contemporary France in today's Europe and the historical image of France. The impact of the "new Quiet French Revolution" and of the new institutions on French Society. Conducted in French. Prereq: FR 306 and consent of instructor.

FR 553 THE TEACHING OF FRENCH. (3)
The course is designed for teachers and prospective teachers of French at the secondary level. Designed for undergraduates preparing for student teaching.

FR 601 POETIC VISION (Subtitle required). (3)
Examination of the major trends in French poetics; attention will focus on aesthetic problems, generic concerns, and various approaches to the nature of poetry. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 602 NARRATIVE TRADITION (Subtitle required). (3)
A study of narrative structure and techniques as exemplified in selected masterpieces of French literature. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 603 THE DEVELOPMENT OF THE FRENCH LANGUAGE. (3)
A history of the phonology and grammar of French from the origins to the present, with analysis and study of appropriate documents, literary and otherwise, to illustrate these developments, along with some introduction to the basic concepts of historical linguistics. Prereq: Consent of instructor.

FR 604 THE TRAGIC MODE (Subtitle required). (3)
A study of the concept of the tragic mode and its embodiment in French literature and critical theory. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 605 COMIC FICTION (Subtitle required). (3)
Studies in the development and theory of comic fiction in France. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 606 LITERATURE OF THE MIDDLE AGES (Subtitle required). (3)
Special topics in French literature from the period 1050-1500. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 607 STUDIES IN RENAISSANCE LITERATURE (Subtitle required). (3)
Comprehensive study of selected writers. May be repeated under a different subtitle to a maximum of six credits. Prereq: Consent of instructor.

FR 609 CLASSIC THEATRE. (3)
A study of French theatre of the 17th century with a main emphasis on Corneille, Racine and Molière. Prereq: Consent of instructor.

FR 617 ROMANTICISM. (3)
A study of the major themes of the Romantic vision in France as expressed in the works of such authors as Rousseau, Chateaubriand, Hugo, Musset, Nerval, Proust, Alain-Fournier. Prereq: Consent of instructor.

FR 620 THE NEW AVANT-GARDE: LITERARY TRENDS SINCE WORLD WAR II. (3)
Description of post-World War II literature (new novel, theatre of the absurd and of the revolution, anti-poetry) with close attention to modern critical trends (structuralism, post-structuralism, semiotics). Prereq: Consent of instructor.

FR 621 CONTEMPORARY FRENCH THEATER (Subtitle required). (3)
A study of major currents in French 20th century theater, such as traditional theater (Claudel, Giraudoux, Sartre, Camus, Anouilh) or avant-garde theater (Jarry, surrealism, theater of the absurd, present-day trends). May be repeated to a maximum of six credits under different subtitles. Prereq: Consent of instructor.

FR 650 CULTURAL HISTORY OF THE FRENCH PEOPLE. (3)
The evolution and cultural contributions of the provinces which make up contemporary France and their influence on French institutions, arts, and literature. Prereq: Consent of instructor.

FR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

FR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

FR 780 SPECIAL STUDIES IN FRENCH. (3)
Selected studies and investigations in the French language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated to a maximum of six hours. Prereq: Consent of instructor.

GEOGRAPHY

GEO 105 MAPS AND MAPMAKERS. (3)
An introduction to geography through maps. Topics include maps in antiquity, Old World exploration and discovery, the changing techniques and philosophy of map making in New World settlement and surveying, and the evolution of topical and topographic mapping. Recent innovations in satellite imagery and computer graphics also discussed.

GEO 130 WEATHER, CLIMATE AND WATER. (3)
A geographic treatment of natural environmental processes, with an underlying theme being the association of physical processes to human activity. The focus is on atmospheric determinants of weather and climate, including such items as temperature, pressure, and moisture and on the factors that cause them to vary over space. The role of water in weather and climate is emphasized because of its importance in both the physical and human environments.

GEO 132 THE EARTH'S PHYSICAL LANDSCAPES. (3)
An examination of the patterns that explain systematic variations in soils, vegetation, and physical landscapes across the earth's surface. Interrelationships among the environmental elements in selected physical regions are discussed.

GEO 152 REGIONAL GEOGRAPHY OF THE WORLD. (3)
A study of the geography of the world by regions with emphasis on the world's landscapes as explained by natural and human processes. Fulfills elementary certification requirement for Education and General Studies requirement.

GEO 160 LANDS AND PEOPLES OF THE NON-WESTERN WORLD. (3)
This study of selected cultures of India, China, Southeast Asia, the Middle East, Africa, and South America will focus on topics such as languages, religions, food, and physical environment, with an emphasis on how specific non-Western cultural landscapes arise from the interactions of land, people, and culture.

GEO 210 POLLUTION, HAZARDS, AND ENVIRONMENTAL MANAGEMENT. (3)
An introduction to environmental systems such as weather and climate, vegetation, land forms and soils, and how the quality of these systems is modified by human use. Resource issues discussed include river flooding, damage, and controls; tornadoes; air and water pollution; living with earthquake danger; industry and mining; use of the world's forests; and nuclear energy. Case studies illustrating important environmental problems are presented with explanation of how human activity and environmental systems interrelate.

GEO 222 WORLD URBANIZATION. (3)
Focuses on the historical development of urbanized settlement in major world regions and the geographic expressions of major world cities, their populations, economies, social character, and planning for the future. Problems of cities in developed and developing countries are examined.

GEO 241 PHYSICAL LANDSCAPES. (3)
Examination of the impacts of landforms on man and man on landforms at local and global scales. Topics discussed include how humans modify the earth's surface through agriculture, mining, urbanization, and highway construction; the impacts of natural hazards (droughts, hurricanes, floods, earthquakes, etc.) on human activities; cultural variations in the use and perception of land as a resource; landscape aesthetics, and preservation of physical landscapes. Prereq: GEO 132 or GLY 144 or consent of instructor.

GEO 251 CLIMATES OF THE WORLD. (3)
Examination of the controls of climate, including air masses, ocean currents, altitude, continentality, and major patterns of precipitation and winds. Features of major climate regions are discussed. Prereq: GEO 132 or permission of instructor.

GEO 252 HUMAN USE OF THE EARTH. (3)
A study of the spatial distributions of significant elements of human occupance of the earth's surface, including basic concepts of diffusion, population, migration, settlement forms, land utilization, impact of technology on human occupance of the earth. (Fulfills elementary certification requirement for Education and General Studies requirement.)

GEO 256 BEHAVIOR IN SPACE AND TIME. (3)
An examination of how space and time are organized and how space and time influence behavior. Included will be notions of territoriality, life-space and the meaning of space at the personal and social level. The course will explore implications of these concepts for important issues such as aging, stress and mental illness.

GEO 260 THIRD WORLD DEVELOPMENT. (3)
The course focuses on characteristics of developing countries as well as solution strategies to development problems and conditions. Cultural distinctions, traditions, and institutions are recognized as keys to development condition and progress. Selected theories show how cultural variations in language and religion may be used to explain development. Numerous case studies are discussed, including Indonesia, China, India, Brazil, Kenya, and Zimbabwe. Prereq: ECO 202 and GEO 152.

GEO 285 INTRODUCTION TO PLANNING. (3)
An introduction to the history, purpose, and objectives of planning with emphasis on urban and regional planning, planning processes, techniques, and legislation.

GEO 300 GEOGRAPHIC RESEARCH AND FIELD TECHNIQUES. (4)
Introduces the students to the tools and methods utilized in geographic research and to the range of activities of professional geographers in education, government and the private sector. Students become familiar with field research problems and major types of data and methods of analysis used in field research including topographic maps, aerial photographs, interviewing, and sampling techniques. Organized local and regional field trips.

GEO 305 ELEMENTS OF CARTOGRAPHY. (3)
Fundamental training in map drafting, compilation, symbolization, scales, projections, and map reproduction, including emphasis on the conceptual planning and designing of maps and graphs as a medium for communication.

GEO 310 QUANTITATIVE TECHNIQUES IN GEOGRAPHY. (3)
The application of spatial techniques geographers use to collect, sample, map, and analyze data in human and physical geography. Students will be introduced to automated data processing. Prereq: STA 291 or equivalent.

GEO 320 GEOGRAPHY OF THE UNITED STATES AND CANADA. (3)
A systematic review of the physical, economic, historic, and cultural characteristics that distinguish U.S. and Canadian regions. Topical emphasis on the geographical aspects of regional problems. Prereq: GEO 151 or 152 or 252, or consent of instructor.

GEO 321 LAND, PEOPLE, AND DEVELOPMENT IN APPALACHIA. (3)
Major themes revolve around regional diversity and regional development. Major topics examined include physical geography, historical development, economic geography, and population geography. The region to be examined includes the upland areas between Southern New York State and Northern Alabama. Prereq: GEO 151 or 152 or 252, or consent of instructor.

GEO 322 GEOGRAPHY OF KENTUCKY. (3)
A study of the cultural, economic and environmental characteristics of Kentucky. Emphasis is placed on Kentucky geography in a regional and national context. Prereq: GEO 151 or 152 or 252, or consent of instructor.

GEO 324 GEOGRAPHY OF CENTRAL AND SOUTH AMERICA. (3)
Examination of the diversity of physical environments in the region, how the processes of physical geography may affect human activity, how Indian cultures developed in varied environmental niches and have been impacted through contact with Europeans, and how current cultures utilize their environment to adapt to the influence of the world economy. Prereq: GEO 152 or 160 or 252.

GEO 326 GEOGRAPHY OF EUROPE. (3)
A study of the countries of Western Europe; their physical characteristics, their cultural endowments, and the expression of these in regional variations in the European landscape. Prereq: GEO 152, 252.

GEO 328 GEOGRAPHY OF THE MIDDLE EAST AND NORTH AFRICA. (3)
A comprehensive overview of the region, emphasizing cultural adaptation to desert environments. The interrelationships among religions, cultures, and the physical environment will be examined. Prereq: GEO 152, GEO 160, GEO 252 or consent of instructor.

GEO 329 GEOGRAPHY OF EAST EUROPE, SOVIET UNION AND CHINA. (3)
A study of the geography of the planned socialist countries with particular emphasis on China and the Soviet Union. The role of socialist location theory, spatial decision making behavior, ideology; Marxist planning and perception of environment on the evolution of geographic patterns. Prereq: GEO 152, 252.

GEO 330 GEOGRAPHY OF SOUTH ASIA. (3)
A study of the human, economic, and environmental aspects of India, Pakistan, Bangladesh, Himalayan Nepal and Bhutan, and Sri Lanka. Topics include basic physical and cultural regionalisms, land use and population problems, and patterns of economic development involving urbanization, resources, and industrialization. Prereq: GEO 152 or 160 or 252.

GEO 332 GEOGRAPHY OF SOUTHEAST ASIA. (3)
A study of the cultural, economic, and political patterns and processes in mainland and insular Southeast Asia. Major themes examined are how the region's diverse physical geography, uneven natural resource base, cultural diversity, and colonial heritage provide a background to understanding contemporary development. Prereq: GEO 152 or 160 or 252.

GEO 333 GEOGRAPHY OF EAST ASIA. (3)
To provide an understanding of the relationships between the physical, historical-cultural, and economic geography of the nations of East Asia. Contemporary development and problems are addressed for the entire region. Primary emphasis on China and Japan. Prereq: GEO 152, GEO 160, GEO 252 or consent of instructor.

GEO 336 GEOGRAPHY OF SUB-SAHARAN AFRICA. (3)
A cultural approach to the geography of the region. This course covers the belief systems as well as the physical, economic, and social geography of Africa south of the Sahara. Emphasis is in cultural adaptations to African environments and present-day political problems. Prereq: GEO 152 or 160 or 252.

GEO 355 ECONOMIC GEOGRAPHY. (3)
Examines the locational patterns of economic activities including agriculture, industrial and energy resources, manufacturing, business, retailing, international trade, and the transportation circulation system that integrates these sectors. Emphasis is on the factors determining these patterns at all geographic scales from local to international. Prereq: ECO 260, GEO 152 or 252.

GEO 360 URBAN GEOGRAPHY. (3)
A study of the location and growth of cities, their internal characteristics, and the spatial aspects of urban social, environmental, and political problems. Emphasis is on basic concepts, models and theories used in urban geography. Prereq: A 100- or 200-level geography course or consent of instructor.

GEO 405G CARTOGRAPHIC PRODUCTION AND DESIGN. (3)
A course involving the modern techniques of designing, drafting and reproducing commercial quality, multi-color cartographics and graphics. Scribing, photocomposition, color-proofing and planning are the principal topics of study. Lecture, one hour per week; laboratory, four hours per week. Prereq: GEO 305.

GEO 407 DEVELOPMENT OF GEOGRAPHIC THOUGHT. (3)
A survey of the evolution of concepts basic to geography from the classic period of ancient Greece, through the Age of Exploration, to contemporary spatial analysis. Prereq: Geography major and junior standing or consent of instructor.

GEO 410G PLANNING THEORY. (3)
A study of the major planning concepts and theories including the evolution of contemporary planning thought in America. Prereq: GEO 285 or consent of instructor.

GEO 415 MAP INTERPRETATION. (3)
An introduction to reading and interpreting maps. Special attention given to the study of physical and cultural geography as portrayed on large scale topographic maps. Emphasis on the relationship between the environmental setting and man's activities, surveys and boundaries, transportation, urban and rural settlement and land use, and place names. Prereq: GEO 151 or 252 or consent of instructor.

GEO 420G URBAN AND REGIONAL PLANNING. (3)
An analysis of urban and regional planning with emphasis on the contemporary urban and regional planning activities. Prereq: GEO 410G or consent of instructor.

GEO 430G URBAN LAND USE PLANNING. (3)
Discussion of the land use planning process in the United States, major land use issues, and new concepts in urban growth management. Prereq: GEO 420G or equivalent.

GEO 450G PLANNING RESEARCH METHODS AND WRITING. (3)
Research techniques in subject areas associated with city and regional planning. Research tools, data collections, analysis and projection as a basis for planning and decision-making. Preparation of written planning reports including graphics. Prereq: GEO 430G or equivalent.

GEO 475G HEALTH AND DISEASE PATTERNS. (3)
An examination of the basic principles of medical geography and their significance in assessing morbidity and mortality patterns. The distribution and diffusion of selected major diseases are presented as well as their relationship to the environment. Historical and contemporary diseases are discussed including the plague, yellow fever, cancer, and heart disease. Prereq: GEO 252 or consent of instructor.

GEO 480 PLANNING INTERNSHIP. (3)
Professionally supervised field experience in public and private planning development agencies. Designed to introduce students to professional employment and actual planning practice. May be repeated to a maximum of six credits. Prereq: Six to nine hours of planning courses in geography or equivalent.

GEO 485G SOCIAL GEOGRAPHY. (3)
The spatial implications of a broad range of social processes involving housing, crowding, segregation, migration and mobility, crime, social well-being, location of social institutions, human adjustments to natural and technological hazards, and the political and economic forces which shape the social environment. Prereq: GEO 152 and 252, or consent of instructor.

GEO 490G AMERICAN LANDSCAPES. (3)
A review of America's vernacular landscapes from the perspective of the history of settlement by Europeans, evolving political allegiances, the expansion of agricultural and industrial technologies in the context of America's diverse physical environments. Prereq: GEO 252 or consent of instructor.

GEO 505 PRACTICUM IN CARTOGRAPHY. (3)
Experience credit in which a small number of advanced students work under the direct supervision of the faculty or staff cartographer and in conjunction with other faculty members on departmental and contracted projects. May be repeated to a maximum of six hours. Prereq: GEO 305 and GEO 405; or GEO 506.

GEO 506 INTRODUCTION TO COMPUTER CARTOGRAPHY. (3)
This course is a basic introduction to numerical cartography and a review of standard computer mapping programs such as CMAP, SYMAP, and SYMVIEW. Emphasis is given to data compilation for machine presentation of cartographic information. Prereq: GEO 305 or permission of instructor.

GEO 507 REMOTE SENSING IN GEOGRAPHY. (3)
A course designed to acquaint the student with a variety of remote sensing techniques and their application in land-use mapping, urban change detection, inventory of natural resources, detection of environmental planning problems. The material is useful to those in agriculture, forestry, earth sciences, and urban studies. Prereq: GEO 305 or consent of instructor.

GEO 508 GEOGRAPHIC INTERPRETATION OF AERIAL PHOTOGRAPHY. (3)
Aerial photography is commonly used as a means of collecting information and enhancing the analysis of the earth's landscapes. This course provides the technical background necessary to use aerial photography in a research setting and includes the application of the techniques in specialized fields, including agriculture, forestry, geology, and urban studies. Prereq: GEO 305 or equivalent, or consent of instructor.

GEO 542 POLITICAL GEOGRAPHY. (3)
A study of politico-geographic phenomena in their areal context, such as the analysis of boundaries, geographical patterns resulting from the application of governmental authority, the political visibility of state units, and the spatial (territorial) variations and interrelationships of political activities and systems.

GEO 544 POPULATION GEOGRAPHY. (3)
An analysis of population distributions, locational arrangements of growth, densities, and migration flows; spatial relationships between population variables and social, economic, and environmental factors.

GEO 545 TRANSPORTATION GEOGRAPHY. (3)
Examination of the bases for transportation and spatial interaction; structure, growth, and location of networks; analysis of spatial flows. Prereq: GEO 355 or permission of instructor.

GEO 546 SPATIAL DEVELOPMENT AND POLICY. (3)
Problems of spatial inequality, development, and growth; spatial development theory; transport and urbanization in regional development; issues in regional policy. Case studies from developing and developed regions. Prereq: GEO 355, ECO 201, or permission of instructor.

GEO 547 GEOGRAPHY OF INFORMATION AND COMMUNICATIONS. (3)
The increasing role of information, communications, and telecommunications in the economic and social transformations in rural and urban areas. Topics include geographic influences on the growth of information industries, the diffusion of innovations and patterns in newspaper, radio and television systems on economic development, and impacts of satellites and computers on information availability. Prereq: GEO 252 or consent of instructor.

GEO 550 GEOGRAPHY OF ENERGY AND NATURAL RESOURCES. (3)
A study of the locational patterns of industrial mineral and energy resources, their uses, the major producers and consumers, resource management and mismanagement. Also the influence of institutional constraints on resource development, conservation efforts, and the implication of resource utilization for quality of the environment. Prereq: GEO 151 or 152 or consent of instructor.

GEO 560 INDEPENDENT WORK IN GEOGRAPHY. (3)
Individual research involving such problems as (1) materials and methods in teaching geography; (2) the historical evolution of geography; (3) map reading and interpretation; (4) special area studies; (5) other topics may be elected by consent of instructor. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department.

GEO 565 TOPICS IN GEOGRAPHY. (3)
Discussion, readings, and papers focusing on relevant topics in geography directed by a staff member having specific competence for the topics under study. Current research developments in particular geographic subfields will be stressed. Prereq: Consent of instructor.

GEO 585 AGING AND ENVIRONMENT. (3)
Explores the elderly person's changing experience of environment. Physiological, psychological and social changes are related to adjustment within urban and rural community environments, special housing for the elderly, and long-term care environments. Prereq: Graduate or advanced undergraduate standing and consent of instructor. (Same as FAM 585.)

GEO 600 ANALYTICAL METHODS IN GEOGRAPHY. (3)
An introduction to the application of analytical methods to geographic problem solving. Topics cover sampling theory, probability theory and both parametric and nonparametric statistical techniques. Prereq: STA 570 or equivalent or consent of instructor.

GEO 601 FIELD METHODS IN GEOGRAPHY. (3)
Field research methodology. Designed as an aid to advanced students preparing for Master's or Ph.D. level thesis work. Topics include field problem design; source materials; areal sampling; questionnaire composition; interviewing techniques; field mapping; logistics; time table assessment. Organized field exercise. May be repeated to a maximum of six credits. Prereq: Consent of instructor for students in allied subjects such as anthropology, sociology, or psychology.

GEO 640 TRANSPORTATION ANALYSIS. (3)
Analytical and conceptual study of transportation systems. Emphasis on models of network structure, spatial interaction, and flow allocation. Prereq: GEO 545 or consent of instructor.

GEO 643 URBAN TRANSPORTATION PLANNING. (3)
A detailed review of the transportation planning process; inventory methodologies; trip generation, distribution and assignment with associated mathematical models and theories; prediction of future travel; land and use models; modal split; developing and testing proposed systems; simulation. Prereq: CE 543 or equivalent and STA 381 or 681 or equivalent statistics course. (Same as CE 631.)

GEO 652 SOIL CLASSIFICATION AND GEOGRAPHY. (3)
A critical evaluation of the concepts of soil classification, with particular reference to the current U.S. scheme. Study of geographic locations and the nature of their soil associations as related to gross considerations of soil genesis. Prereq: AGR 473G, 581, or consent of instructor. (Same as AGR 652.)

GEO 655 SPECIAL STUDY OF SYSTEMATIC GEOGRAPHY. (3)
The application of the methods of systematic geography to particular special studies in topical areas, such as conservation, urban areas, climatology, cartography, or others. May be repeated to a maximum of six hours. Prereq: Appropriate 500-level course work in systematic or topical geography (e.g., conservation, urban, climatology, cartography).

GEO 700 ADVANCED ANALYTICAL METHODS IN GEOGRAPHY. (3)
A survey of the application of multivariate statistical techniques to geographic problem solving. Prereq: GEO 600 or consent of instructor.

GEO 702 CONCEPTS IN GEOGRAPHY. (3)
Contemporary geographic concepts and theories are examined with emphasis on concepts within human geography, especially with reference to the economic, urban, cultural, and population subfields within the discipline. Prereq: Graduate student status.

GEO 707 SEMINAR IN DEVELOPMENT OF GEOGRAPHIC THOUGHT. (3)
An analytical review of the evolution of geographic thought, in terms of concepts, methodologies and scholars, emphasizing the basic literature through a series of topics. Prereq: Geography major or consent of instructor.

GEO 710 RESEARCH METHODS AND METHODOLOGY IN GEOGRAPHY. (3)
A comprehensive review of the problems involved in designing geographical research, planning field work, analysis of data, and in writing geographic reports. Prereq: GEO 560 or equivalent.

GEO 716 TOPICAL SEMINAR IN CULTURAL GEOGRAPHY (Subtitle required). (3)
Study of selected topics on historic preservation, landscape evolution, regionalism, ethnicity, religion, architecture, and settlement. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 717 TOPICAL SEMINAR IN ECONOMIC AND URBAN GEOGRAPHY (Subtitle required). (3)
Examination of selected topics on location-allocation models, transportation development and impacts, industrial location, financial geography, urban growth, and postindustrial economies. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 718 TOPICAL SEMINAR IN GEOGRAPHY OF ENVIRONMENT AND RESOURCES (Subtitle required). (3)
Study of selected topics on agriculture resource allocation, resource conflict, public land policy, natural hazards, environmental management, energy and biogeography. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 719 TOPICAL SEMINAR IN GEOGRAPHY OF PLANNING AND POLICY (Subtitle required). (3)
Study of selected topics on rural-urban land use change, urban and regional growth management, applied geography in development decisions, spatial decision-making models, and spatial investment allocations. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 721 TOPICAL SEMINAR IN GEOGRAPHIC TECHNIQUES (Subtitle required). (3)
A seminar in different geographic techniques in location-allocation analysis, computer graphics, and remote sensing and their application to geographic problems. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 722 TOPICAL SEMINAR IN SOCIAL AND POLITICAL GEOGRAPHY (Subtitle required). (3)
Examination of selected topics on diffusion of diseases, health care delivery, the elderly, geopolitics, the nation-state, elections, squatters, suburbs, and impacts of technological hazards. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 723 TOPICAL SEMINAR IN GEOGRAPHY OF THE THIRD WORLD (Subtitle required). (3)
Study of selected topics on the cultural, economic, social, urban, political and environmental geography of Latin America, Middle East, Africa, South Asia, and Southeast Asia. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

GEO 740 INTERNSHIP IN APPLIED GEOGRAPHY. (3)
Academically and professionally supervised field experience in specific areas of planning and applied geography, for example, in private industry and government. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

GEO 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

GEO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

GEO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

GEO 771 SEMINAR IN SPECIAL TOPICS IN GEOGRAPHY. (3)
The study of selected topics or current systematic concepts in geography. For Ph.D. candidates. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

GEO 772 SPECIAL RESEARCH PROBLEMS IN GEOGRAPHY. (1-6)
Open to doctoral candidates who have the necessary training and ability to conduct research on a selected problem. May be repeated to a maximum of 12 credits. Prereq: Approval of the director of graduate studies.

GEOLOGICAL SCIENCES

GLY 101 PHYSICAL GEOLOGY. (3)
A first course in the principles of physical geology, including study of minerals and rocks, volcanoes and earthquakes, plate tectonics and the landforms of Earth's surface. Concur: GLY 111.

GLY 102 HISTORICAL GEOLOGY. (3)
The history of Earth: its origin as part of the solar system, and the subsequent evolution of its atmosphere, continents, seas and life as interpreted from the record preserved in the rocks. Attention is given to the development of the basic principles used in this interpretation. Prereq: GLY 101 or equivalent course in physical geology; concur: GLY 112.

GLY 111 LABORATORY FOR PHYSICAL GEOLOGY. (1)
Identification of minerals and rocks in hand specimens, interpretation of landscape features as shown on topographic maps, and an introduction to geologic maps. Laboratory, two hours per week. Concur: GLY 101.

GLY 112 LABORATORY FOR HISTORICAL GEOLOGY. (1)
Interpretation of geologic maps and cross-sections, and elementary study of important invertebrate fossil groups. One three-hour field trip required. Laboratory, two hours per week. Concur: GLY 102.

GLY 140 GENERAL PHYSICAL GEOLOGY. (4)
A first course in the principles of physical geology, including topics from mineralogy, geochemistry, and geophysics. High school chemistry recommended. Lecture, three hours; laboratory, two hours. (Offered in Community College System only.)

GLY 142 GENERAL HISTORICAL GEOLOGY. (4)
A first course in historical geology, including a study of the development of earth's fundamental features and a review of the history of life. Lecture, three hours; laboratory, two hours per week. Prereq: GLY 140 or 144. (Offered in Community College System only.)

GLY 210 EARTH RESOURCES. (3)
A study of the origin, geological occurrence, geographical distribution, conservation, and environmental impact of the production of the world's metallic minerals, industrial minerals, and fuels. Lecture, three hours; laboratory, two hours substituted for each of 4-10 lectures. Prereq: GLY 101 and GLY 111 or equivalent course in physical geology with laboratory.

GLY 225 FIELD METHODS IN GEOLOGY. (3)
An introduction to methods of observation, measurement, evaluation, and mapping of rocks and structures in the field, and reporting skills in geology. Laboratory or field work, nine hours per week. Prereq or concur: GLY 101 and GLY 111, GLY 102 and GLY 112, or consent of instructor.

GLY 240 ELEMENTARY GEOLOGY FOR ENGINEERS. (4)
An introduction to geologic materials and processes with emphasis on their application to engineering practice. Lecture, three hours; laboratory, three hours; one field trip required. Prereq or concur: CE 206.

GLY 242 ENVIRONMENTAL GEOLOGY. (3)
The environment discussed in geologic context, covering such topics as the problems arising from energy and natural resource requirements, land and water use, and development of building sites. Application to community problems. Lecture, three hours; laboratory, two hours substituted for each of up to 10 lectures. Prereq: GLY 101 and GLY 111 or equivalent course in physical geology, or GEO 151.

GLY 243 GEOLOGICAL MAP INTERPRETATION. (2)
The interpretation of geological structures on a variety of map scales. Topics include the relationship of topographic and stratum contours, the interpretation of regions with single and multiple folding, determination of sense of movement on faults, and reconstruction of original sedimentary basins. The use of geophysical and geochemical maps. Lecture, one hour; laboratory, two hours. Prereq: GLY 101 and GLY 111 or equivalent course in physical geology; major in geology; or consent of instructor.

GLY 260 MINERALOGY I. (3)
The introductory study of minerals including classifications, crystallography, physical and chemical properties, occurrence, association and identification. Emphasis is on a thorough knowledge of minerals representative of major groups. Laboratory work includes binocular microscope study of hand specimens. Lecture, two hours per week; laboratory, three hours per week. Prereq: GLY 101 and GLY 111, CHE 105.

GLY 261 MINERALOGY II. (3)
The study of minerals as geochemical and petrologic units. Topics include crystal chemistry, crystal growth, elemental distribution, and phase relations in geologic environments. Laboratory study includes mineral identification of hand specimens and optical properties to use of petrographic microscopes. Lecture, two hours; laboratory, three hours per week. Prereq: GLY 260, CHE 107 (or concurrent).

GLY 262 ELEMENTARY PETROLOGY. (3)
A study of igneous, metamorphic and sedimentary rocks, the processes which form them, their composition, fabric, texture and classification. Lectures emphasize process; laboratories involve the study of hand specimens and a limited number of thin-sections. Lecture, two hours; laboratory, three hours per week. Prereq: GLY 101/111 and 102/112.

GLY 301 INTRODUCTION TO PALEONTOLOGY. (3)
The development of life as revealed in the fossil record: from algae through the evolution of the angiosperms, from microscropic marine animals through the macro-invertebrates of the aquatic environments to the vertebrates of the land, sea and air. A look at the evolution of communities as well as of species. Lecture, two hours; laboratory, three hours per week. Prereq: GLY 102/112 and GLY 260.

GLY 341 LANDFORMS. (3)
A study of the origin and distribution of landforms. Lecture, three hours; laboratory, two hours substituted for some lectures. Prereq: GLY 101 and GLY 111 or equivalent or GEO 151.

GLY 365 CHEMISTRY AND PHYSICS OF THE EARTH. (3)
The application of chemical and physical principles and data to the solution of geologic problems. With plate tectonics serving as a unifying concept, specific topics will deal with Earth's large-scale structure, its seismic, gravitational, magnetic and thermal properties; and with its composition, geochemical cycles of the elements, crystal chemistry and phase equilibria in mineral systems. Prereq: GLY 261 and PHY 203 or PHY 232.

GLY 395 SPECIAL PROBLEMS IN GEOLOGY. (1-3)
Individual work on a special problem in geology. Report required. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

GLY 420G STRUCTURAL GEOLOGY. (3)
An introduction to earth structures. Advanced geologic map interpretation. Lecture, two hours; laboratory, two hours. Prereq: GLY 243 and PHY 203.

GLY 423 FIELD WORK IN REGIONAL GEOLOGY. (6)
Geologic mapping in the field for a six-week period. Description, measurement, and mapping of a wide variety of rocks and structures, and analysis of geologic events in mountainous regions of the Rockies or Appalachians. Includes practice in writing geologic field reports. Offered only during the summer session. At least 40 hours of field-related work per week. Special fee. Prereq: GLY 225, GLY 420G and GLY 450G or consent of instructor.

GLY 430 ENVIRONMENTAL GEOHYDROLOGY. (3)
A course dealing with the occurrence and movement of water on and beneath the land surface, and its place in the hydrosphere, emphasizing the geologic perspective. Prereq: MA 113 or MA 123, three hours of physics, and GLY 242.

GLY 450G STRATIGRAPHY AND SEDIMENTATION. (3)
Basic principles and concepts of stratigraphy and sedimentation. Lithologic correlation and the interpretation of geologic history and paleogeography. Field and laboratory analysis of sedimentary rocks including megascopic and microscopic methods. Lecture, two hours; laboratory, two hours. Prereq: GLY 102 or equivalent course in historical geology.

GLY 461 IGNEOUS AND METAMORPHIC PETROLOGY. (4)
Classification and origins of the common igneous and metamorphic rocks. Lecture material will emphasize the mineralogical, chemical, and physical equilibria within the earth. Laboratory topics will stress hand-specimen and microscopic petrography. Lecture, three hours; laboratory, three hours per week. Prereq: GLY 261.

GLY 470 SENIOR SEMINAR (Subtitle required). (1)
A required seminar course for majors in the geological sciences. Each semester's seminar will be organized around a central theme chosen from research topics of wide interest in the geological sciences at the time. Presentations will be judged on the basis of oral skills and content. May be repeated to a maximum of two credits. Prereq: Senior standing in a Geological Sciences curriculum.

GLY 471 PHYSICS OF THE EARTH. (3)
A basic course in fundamental and current problems of solid-earth geophysics. Topics include geophysical measurements, plate tectonics, elementary seismology, and earthquake prediction. Prereq: MA 114, PHY 203 or equivalent.

GLY 510 ORE DEPOSITS. (3)
Mineral deposits other than petroleum and natural gas. Distribution, mode of occurrence, origin, methods of search for and uses. Lecture, two hours; laboratory, two hours. Lectures are presented more frequently during the portion of the semester when field work is not scheduled. Prereq: GLY 261.

GLY 511 PETROLEUM GEOLOGY. (3)
The origin and accumulation of petroleum and natural gas. A study of geological methods used in exploratory work. Geology of principal producing fields. Prereq: GLY 450G.

GLY 513 REMOTE SENSING AND AERIAL PHOTOGRAPHY. (3)
Geological applications of remote sensing methods including aerial photography and satellite imagery in the visible and infrared wavelengths to geologic structure, mapping, mineral exploration and mine reclamation. Principles of aerial photography, structural and false color enhancement systems, side looking radar, the production of photo mosaics and photo maps and the planning of exploration programs using remote sensing. Lecture, two hours; laboratory, two hours per week. Prereq: GLY 144, GLY 420G, or consent of instructor.

GLY 515 GENERAL COAL GEOLOGY. (3)
The environments of coal deposition, nature of the coal substance and associated sedimentary rocks, and structural geologic phenomena as bases for understanding the distribution and quality of coal and predicting coal mining conditions. Field trips required. Lecture, two hours; laboratory, two hours per week. Prereq: GLY 420G, GLY 450G, or consent of instructor.

GLY 530 LOW TEMPERATURE GEOCHEMISTRY. (3)
An introduction to sedimentary and environmental geochemistry, including carbonate equilibria, coal and petroleum geochemistry, and the geochemistry of aqueous contaminants. Prereq: GLY 260 and MA 114 or consent of instructor.

GLY 531 IGNEOUS AND METAMORPHIC GEOCHEMISTRY. (3)
A discussion of the processes and principles of chemistry as they apply to the mineralogic and petrologic problems associated with the formation of igneous and metamorphic rocks. Prereq: GLY 461, consent of instructor.

GLY 552 SEDIMENTARY PETROLOGY. (3)
Detailed description of sedimentary rock types, their origin and classification. Megascopic and microscopic examination of textures and structures of sediments. Mineralogy of sediments and the significance of sedimentary environments. Lecture, two hours; laboratory, two hours. Prereq: GLY 450G.

GLY 560 OPTICAL MINERALOGY. (3)
A study of the optical properties of minerals by means of the petrographic microscope. Prereq: GLY 261, PHY 203.

GLY 571 APPLICATION OF POTENTIAL METHODS IN APPLIED GEOPHYSICS. (3)
A review of electrical, gravity, and magnetic field methods used in exploration geophysics. Course includes an assigned field problem involving geophysical techniques. Lecture, two hours; laboratory, two hours. Lectures are presented more frequently when field trips are not scheduled. Prereq: MA 114 and PHY 231.

GLY 572 SEISMOLOGY AND SEISMIC EXPLORATION. (3)
A general introduction to geophysics emphasizing exploration and earthquake seismology. Prereq: MA 114 and PHY 231.

GLY 602 PALEOECOLOGY. (3)
Synthesis of paleontology, sedimentology, and stratigraphy in the interpretation of past organism-environment relationshps. One four-day field trip required. Lecture, two hours; laboratory, two hours. Prereq: GLY 401 or consent of instructor.

GLY 603 MICROPALEONTOLOGY. (3)
The study of the microfossil groups, techniques for their extraction and preparation, and their geologic significance. Lecture, two hours; laboratory, two hours. Prereq: GLY 401 or consent of instructor.

GLY 612 MINERAL DEPOSITS. (3)
Genesis and localization of mineral deposits considered as special cases of normal geologic processes. Reports of library and laboratory study of ore suites. Prereq: GLY 510.

GLY 615 COAL MINING AND EXPLORATION GEOLOGY. (3)
Origin and distribution of coal-bearing rocks in Kentucky with emphasis on sedimentological, geophysical and geochemical techniques used in the exploration and production of coal. Pre-mine planning and its application to safe, economic coal mining and effective land reclamation. Field trips required. Lecture, two hours; laboratory, two hours per week. Prereq: GLY 515 or consent of instructor.

GLY 617 COAL PETROLOGY. (3)
The organic geochemical and paleobotanical origin of coal macerals; coal metamorphism; microscope and field description of coal; interaction of coal petrology with coke formation, coal liquefaction, and coal preparation; petrology of oil shales and solid bitumens; applications to geologic problems. Lecture, two hours; laboratory, two hours. Prereq: GLY 515 or consent of instructor.

GLY 620 TECTONICS. (3)
A study of the structural features of the earth's crust with an analysis of the mechanics involved. Prereq: PHY 211, 213; GLY 420G.

GLY 624 MESOSCOPIC STRUCTURES. (3)
The analysis of structures of mesoscopic scale in deformed rocks, particularly metamorphic tectonites, and their extrapolation to larger structures; also the study of certain mesoscopic features in igneous rocks and features in sediments useful in basin analysis and the determination of chronologic sequence and environment of deposition. Lecture, two hours; laboratory, two hours. One four-day field trip required. Prereq: GLY 420G.

GLY 628 BASIN ANALYSIS SEMINAR. (3)
Methods of analysis of large sedimentary volumes from the point of view of mineral exploration. Prereq: Consent of instructor.

GLY 640 ANALYTIC METHODS IN GEOLOGY. (3)
Review of computer methods, statistics, and data processing in geologic research. Discussion of topics relating to the conduct of investigations, including experimental design, analytic techniques, and the organization and presentation of results. Prereq: Consent of instructor.

GLY 650 TERRIGENOUS DEPOSITIONAL SYSTEMS. (3)
Advanced principles and concepts of the origin, transportation, deposition, and post-depositional modification of detrital sediments and sedimentary rocks, emphasizing terrigenous depositional processes, structures, and environments. Up to three two-day field trips will be required. Prereq: GLY 450G or equivalent.

GLY 652 PALEOZOIC STRATIGRAPHY. (3)
Regional stratigraphy with emphasis on field relationships in Kentucky and stratigraphic equivalence of Paleozoic rocks in North America. One three-day field trip required. Lecture, two hours; laboratory, three hours. Prereq: GLY 450G.

GLY 653 MESOZOIC AND CENOZOIC STRATIGRAPHY. (3)
Regional stratigraphy with emphasis on world-wide stratigraphic equivalence and Mesozoic and Cenozoic rocks. Lecture, two hours; laboratory, two hours. Prereq: GLY 450G.

GLY 654 PETROLOGY OF CARBONATE ROCKS. (3)
The composition, classification, and interpretation of environments of deposition and diagenesis of carbonate rocks and modern carbonate sediments. Lecture, two hours; laboratory, three hours. Prereq: GLY 450G.

GLY 660 PETROGRAPHY. (3)
Chiefly the study of igneous and metamorphic rocks with the petrographic microscope, also a consideration of occurrence and classification, and of metamorphic facies. An introduction to the petrography of sedimentary rocks. Lecture, one hour; laboratory, four hours. Prereq: GLY 560.

GLY 662 X-RAY MINERALOGY. (3)
The use of X-ray diffraction and spectroscopy in the qualitative and quantitative analysis of minerals and rocks. Emphasis will be placed upon the rock-forming minerals. Lecture, one hour; laboratory, four hours. Prereq: GLY 261, PHY 203 or equivalent.

GLY 663 METAMORPHIC PETROLOGY. (3)
The occurrence, origin and classification of metamorphic rocks. Phase equilibria and the physical condition of metamorphic processes will be emphasized. Prereq: GLY 531.

GLY 664 IGNEOUS PETROLOGY. (3)
The interpretation of the igneous rocks using a synthesis of tectonic and physico-chemical principles. Prereq: GLY 531.

GLY 670 SELECTED TOPICS IN GEOPHYSICS. (3)
Study of topics of current interest in geophysics. Subject matter will vary from term to term. May be repeated to a maximum of 12 credits. Lecture, two hours; laboratory, two hours. Prereq: GLY 571 or 572.

GLY 671 EARTHQUAKE SEISMOLOGY. (3)
A study of wave propogation and earthquake phenomena stressing both theory and delineation of earth structure. Lecture, two hours; laboratory, two hours. Prereq: GLY 572.

GLY 681 MINERALOGICAL AND CHEMICAL ANALYSIS OF SOILS. (4)
Laboratory emphasis on instrumental methods and techniques used in quantitative and qualitative mineralogical and chemical analysis of soils and relation of these analyses to physical, chemical and biological systems. Lecture, autotutorial; discussion, one hour; laboratory, four hours. Prereq: AGR 581 or equivalent or consent of instructor. (Same as AGR 681.)

GLY 685 HYDROGEOLOGY. (3)
A study of the physical aspects of groundwater, including regional flow, well hydraulics, and computer simulation. Prereq: Consent of instructor.

GLY 703 PALEOECOLOGY SEMINAR. (1-3)
Discussion and study of advanced topics in paleoecology and related fields. One or more field trips required. May be repeated to a total of six hours. Prereq: GLY 602.

GLY 715 COAL GEOLOGY SEMINAR. (2)
Seminar discussion and presentation of current work in coal geology from current literature or ongoing research. May be repeated to a maximum of eight credits. Prereq: GLY 515 or 617 or consent of instructor.

GLY 720 GRADUATE TECTONICS SEMINAR. (3)
Discussion and study of advanced topics in tectonics. May be repeated to a maximum of 12 hours. Prereq: GLY 620 or consent of instructor.

GLY 741 CLAY MINERALOGY. (3)
A comprehensive study of the crystal structures of clay minerals commonly found in soils and sediments. Lecture and discussion, three hours. Prereq: GLY 260 and 662, AGR 581, 681, or consent of instructor. (Same as AGR 741.)

GLY 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

GLY 750 KENTUCKY SEDIMENTOLOGY SEMINAR. (1-3)
Discussion and study of advanced topics in sedimentology, emphasizing current problems or topics pertinent to the sedimentology of Kentucky. One or more field trips required. May be repeated to a maximum of six credits. Prereq: GLY 552 or equivalent.

GLY 760 TOPICS IN IGNEOUS AND METAMORPHIC PETROLOGY. (2)
Selected topics in geochemistry and petrology as they deal with tectonic interpretation, phase equilibria and ore deposition. May be repeated to a maximum of six credits. Prereq: GLY 531.

GLY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

GLY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

GLY 782 INDIVIDUAL WORK IN GEOLOGY. (1-3)
Problems involving independent laboratory and/or library study conforming to the student's special interest under the direction of an appropriate staff member having proficiency in the area selected. May be repeated to a maximum of nine credits. Prereq: Geology major with graduate standing.

GLY 787 RESEARCH IN HYDROGEOLOGY AND LOW-TEMPERATURE GEOCHEMISTRY. (3)
Laboratory and/or field research, literature study, discussion, and/or reports in one or both of these fields selected on the basis of the student's needs. May be repeated to a maximum of nine credits. Prereq: GLY 530, GLY 655, and consent of instructor.

GERMANIC LANGUAGES AND LITERATURES

GER 011 GERMAN FOR READING KNOWLEDGE. (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination, who need a reading knowledge of German in their minor, or who require a review of German grammar.

GER 101 BASIC GERMAN. (4)
Fundamentals of German with development of the four basic skills: reading, writing, listening, and speaking.

GER 102 BASIC GERMAN. (4)
Continuation of GER 101. Prereq: GER 101, or one year of high school German, or equivalent.

GER 111 ELEMENTARY GERMAN. (3)
The essentials of grammar with practice in reading and writing German (correspondence course).

GER 112 ELEMENTARY GERMAN. (3)
Continuation of GER 111 (correspondence course). Prereq: GER 111 or one year of high school German.

GER 201 INTERMEDIATE GERMAN. (3)
Systematic review of grammar and furthering of reading, writing, listening, and speaking skills based upon cultural and literary materials. Prereq: GER 102, or two years of high school German, or equivalent.

GER 202 INTERMEDIATE GERMAN. (3)
Continuation of GER 201. Prereq: GER 201 or three years of high school German, or equivalent.

GER 203 SCIENTIFIC GERMAN. (3)
Fundamentals and practice in reading scientific and technical German. Designed primarily for students with interest in science, this course is an alternate to GER 201. Prereq: GER 102, or two years of high school German, or equivalent.

GER 204 SCIENTIFIC GERMAN. (3)
Continuation of GER 203. Prereq: GER 203, or three years of high school German, or equivalent.

GER 205 READING AND WRITING PRACTICE. (2)
This course concentrates on the development of reading and writing skills. Students learn to build vocabulary systematically and develop strategies for reading texts of varying kinds and levels of difficulty. Writing assignments ranging from brief descriptions and reports to translations and original compositions enable students to develop and sharpen writing skills. Prerequisite for upper division courses. Prereq or concur: GER 202 or equivalent.

GER 206 ORAL PRACTICE. (2)
This course concentrates on the development of speaking and listening skills. Students learn to negotiate everyday communication situations by acquiring verbal strategies and idiomatic expressions needed for meaningful interaction in a German-speaking environment. Prereq or concur: GER 202 or equivalent.

GER 261 MASTERPIECES OF GERMAN LITERATURE IN TRANSLATION. (3)
Focusing on major authors, the course traces the development of German literature along thematic lines. Representative works are read and discussed against the backdrop of German society, culture and intellectual history.

GER 307 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION I. (3)
This course develops listening, speaking and writing skills in German with emphasis on practical communicative needs. It includes a review of grammar, special oral and written projects, class discussion, and practice in a variety of written forms. Prereq: GER 205 or 206 or equivalent.

GER 308 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION II. (3)
Continuation of GER 307. Prereq: GER 307, or equivalent.

GER 310 GERMAN FOR INTERNATIONAL BUSINESS AND PROFESSIONS. (3)
This course will develop written and conversational skills based on communicative needs of international business and professions in German-speaking countries, using materials from banking, computer science, export-import, journalism, government and the public sphere. Prereq: GER 307 or permission of the instructor.

GER 311 INTRODUCTION TO GERMAN LITERATURE: THEMES (Subtitle required). (3)
An introductory course that explores such themes in German literature as Fathers and Daughters, Fathers and Sons, Trials, Judgments and Justice, and Conceptions of the Self. Readings will be drawn from various periods and major genres. Themes vary and will be announced. May be repeated once for a total of six credits by nonmajors if theme changes. Prereq: GER 205 or GER 206 or equivalent.

GER 312 INTRODUCTION TO GERMAN LITERATURE: POPULAR FORMS. (3)
An introductory course that focuses on social, political, anthropological and aesthetic aspects of popular forms of German literature. Readings include fairy tales, folk songs and legends, children's literature, detective stories, comics and other popular literary forms. Prereq: GER 205 or 206 or equivalent.

GER 315 MASTERPIECES OF GERMAN LITERATURE I. (3)
A survey of important and representative works of German literature, with a discussion of the main literary epochs in their historical and cultural setting. Taught in German. Prereq: GER 311, or 312, or equivalent.

GER 316 MASTERPIECES OF GERMAN LITERATURE II. (3)
Continuation of GER 315. Taught in German. Prereq: GER 311 or 312 or equivalent.

GER 317 HISTORY OF GERMAN CULTURE. (3)
An introduction to German culture with emphasis on the epochs important to the development of modern German-speaking countries. Readings in German from philosophy, the sciences, the arts, history, politics and literature. Visual materials documenting high culture and everyday life. Taught in German. Prereq: GER 205 or 206 or equivalent.

GER 319 CONTEMPORARY GERMAN LITERATURE AND CULTURE. (3)
Selected works of post-war German literature by Austrian, East and West German, and Swiss authors are read relative to the economic, social, political, artistic and ideological developments in the four countries of the German-speaking world. Taught in German. Prereq: GER 205 or 206 or equivalent.

GER 361 GERMAN CINEMA. (3)
A history of the cinema in the German-speaking world from its beginnings to the present, emphasizing the evolution of the production, distribution and reception of film in relation to changing political, social, economic, ideological and literary/artistic contexts. Some consideration of film theory and criticism in conjunction with class discussion of individual films. Viewing of films (silent or German dialogue with English subtitles) outside of class is required. Class taught in English.

GER 395 INDEPENDENT WORK IN GERMAN. (3)
This course is designed for students who wish to do advanced work in German on any subject. May be repeated once. Prereq: Major and a standing of 3.0 in the department.

GER 415G MAJOR GERMAN AUTHORS (Subtitle required). (3)
The study of a single author or combination of authors in the social, political and cultural context of their day. Special concerns include the interrelationship between literary production and biography, and author's relation to literary tradition, and his or her historical as well as current relevance. May be repeated once to a maximum of six credits with a new author or complex of authors. Taught in German. Prereq: GER 311 or 312 or equivalent.

GER 416G GENRES OF GERMAN LITERATURE. (3)
The study of a particular genre in German literature with readings of representative examples and with inquiry into concepts of genre in general. May be repeated once to a maximum of six credits with emphasis on a different genre. Taught in German. Prereq: GER 311 or 312 or equivalent.

GER 420G SPECIAL STUDIES IN GERMAN LITERARY AND CULTURAL HISTORY. (3)
Intensive study of selected problems, such as the rise of aesthetic theory in the 18th century, Vienna 1890-1914. Expressionism and the plastic arts. Students are encouraged to propose problems. May be repeated once to a maximum of six credits with new topics. Taught in German. Prereq: Senior standing or consent of instructor.

GER 507 ADVANCED GERMAN COMPOSITION AND CONVERSATION. (3)
Further development of conversational skill and practice in writing stylistically appropriate German. Study of finer points of grammar. Discussion of special topics and theme writing. Prereq: GER 308 or equivalent.

GER 512 INTRODUCTION TO GRADUATE STUDIES. (3)
The course will introduce students to German Studies as a culturally situated discipline. Discussion will focus on contemporary and historical conceptions of the discipline, the relation of current theoretical concerns to methods of analysis, interpretation and evaluation, and on the application of research tools to specific research projects.

GER 520 SPECIAL TOPICS SEMINAR. (3)
Investigation of a topic pertinent to the advanced study of German language, literature and culture. May be repeated once with new topic. Prereq: GER 415G, 416G, 420G or equivalent.

GER 532 HISTORY OF THE GERMAN LANGUAGE. (3)
A survey tracing the development of German from its earliest stages to the present, with introduction to basic concepts of historical linguistics. Prereq: GER 308 or equivalent.

GER 533 INTRODUCTION TO MIDDLE HIGH GERMAN. (3)
Outline of Middle High German phonology and grammar in comparison to modern German. Readings of representative texts with attention to their linguistic as well as their literary-cultural relevance. Prereq: GER 308 or equivalent.

GER 534 LIFE AND WORKS OF GOETHE. (3)
This course follows the unfolding of Goethe's genius from his first lyrics through Faust. His principal literary works will be read and attention devoted to autobiographical material, letters and diaries. Prereq: Six semesters of German.

GER 553 THE TEACHING OF GERMAN. (3)
The couse is designed for teachers and prospective teachers of the language. Theory and practice, with emphasis upon modern methodology and practical problems encountered by the teacher of beginning German. Required of graduate students in German. This course should precede student teaching.

GER 615 STUDIES IN MAJOR AUTHORS. (3)
Explorations into one or several major figures of German literature. Reading of primary texts and pertinent scholarship together with an investigation of the authors' literary, social, or political significance during contemporary or later periods. May be repeated to a maximum of 12 credits.

GER 616 STUDIES IN GENRE. (3)
One major genre or a group of related genres. Readings in genre theory and in the key texts from various periods; study of the development of forms, techniques, and ideas. May be repeated to a maximum of nine credits.

Note: The series of courses GER 620-630 provides a general framework for the systematic study of German literature in its cultural setting and delimits various issues to be investigated further in corresponding 700-level courses. Readings and discussions focus on documents central to the literary life of a given period and to the understanding of its institutional and biographical basis as well as its regional, sociopolitical, motivational, poetological, and ideological diversity. Each course also emphasizes critical methodology and tools of scholarship and identifies new directions for basic research.

GER 620 STUDIES IN THE MIDDLE AGES. (3)
From Carolingian times to the late Middle Ages.

GER 629 STUDIES IN THE 19TH CENTURY. (3)
Romanticism to Naturalism.

GER 630 STUDIES IN THE 20TH CENTURY. (3)
Turn-of-the-century Modernism to the present.

GER 720 SPECIAL TOPICS IN THE MIDDLE AGES. (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

GER 725 SPECIAL TOPICS IN THE 18TH CENTURY. (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

GER 729 SPECIAL TOPICS IN THE 19TH CENTURY. (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

GER 730 SPECIAL TOPICS IN THE 20TH CENTURY. (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

GER 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

GER 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

GER 781 SPECIAL STUDIES IN GERMAN. (3)
Selected studies and investigations in the German language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated to a maximum of 12 credits.

SCANDINAVIAN
(Offered as required)

GER 141 SWEDISH I. (3)
Introduction to Swedish with emphasis on grammar, pronunciation, reading and writing. Basic information on Swedish customs, history, geography, folklore. Students planning to fulfill part of a language requirement should be aware that the scheduling of Swedish III and IV will be subject to student demand and the availability of a qualified instructor.

GER 142 SWEDISH II. (3)
Continuation of Swedish I with additional emphasis on conversation. Prereq: GER 141 or equivalent.

GER 610 OLD ICELANDIC. (3)
Rapid coverage of morphology, phonology and syntax of Old Icelandic, with some attention to linguistic affinities within the Indo-European and Germanic groups of languages. Prereq: Reading knowledge of German; consent of instructor.

GERONTOLOGY

GRN 513 GERIATRIC PHARMACY. (3)
A course designed to educate students in the basic knowledge of attitudes and skills required to meet the pharmaceutical needs of the elderly. Topics include discussions of the aging process, physiological and psychological changes in the elderly, how these changes influence patient compliance and the responses to drug and nondrug treatments, monitoring drug use in long-term care facilities, and special community services available to the elderly. Prereq: PHR 849, 852, 853, 854 and 856 or permission of instructor. (Same as PHR 813.)

GRN 612 BIOLOGY OF AGING. (3)
A multidisciplinary discussion of how the process of aging affects biological systems. Coverage will be quite broad and includes topics such as subcellular and cellular aging, genetics, immunology, anatomy and physiology, animal model of aging, etc. Prereq: Enrollment in a graduate program of a biomedical science department or consent of instructor. (Same as BIO 612.)

GRN 643 BIOMEDICAL ASPECTS OF AGING. (3)
A survey of the normal age-associated changes in biological function, the major disease entities found in the older population, and how the health care delivery system presently addresses these issues. Prereq: Graduate status or permission of the instructor. (Same as SW 643.)

THE GRADUATE SCHOOL

GS 600 SPECIAL TOPICAL GRADUATE COURSE. (1-3)
An interdisciplinary, topical or experimental course to be approved by the Dean of the Graduate School. A particular course can be offered no more than twice under the number GS 600. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HEALTH, PHYSICAL EDUCATION AND RECREATION

PHYSICAL EDUCATION

HPR 100-HPR 107 AND HPR 110-HPR 125 SERVICE COURSES. (1)
Instruction in a variety of motor skills activities. Courses are designed for students at a beginner level. Up to six hours credit may be earned in service courses; however, the same activity may not be repeated for credit.

HPR 126-134 SERVICE COURSES. (1)
Instruction in a variety of motor skills activities. Courses are designed for students at a beginner level. Up to six hours credit may be earned in service courses; however, the same activity may not be repeated for credit.

HPR 142-HPR 143 ADVANCED SERVICE COURSES. (1)
Instruction in a variety of motor skills activities. The courses are designed for students who already possess intermediate skill in the activity. Instructors will assess skill at start of course. Up to six hours credit may be earned in service courses; however, the same activity may not be repeated for credit. Assignment of specific titles will occur internally in the department. Laboratory, three hours. Prereq: Completion of comparable service course or demonstrated competency.

HPR 146 FLAGBALL AND SPEEDBALL. (1)
Designed to familiarize the professional physical education student with the skills, practices, lead-up games, techniques, and theory of flagball and speedball. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach flagball and speedball. Laboratory, six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: Department major or consent of instructor.

HPR 147 DANCE FOUNDATIONS I. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of social, folk and square dancing. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach social, folk, and square dance. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 148 BASKETBALL. (1)
Designed to familiarize the professional physical education student with the skills, practices, and theory of basketball. Development of at least intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach basketball. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 150 SOCCER. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of soccer. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach soccer. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 152 TECHNIQUES OF SWIMMING. (2)
Intermediate level swimming and diving skills. Includes skills relating to survival, lifesaving, synchronized swimming, and skin diving. Lecture, one hour; laboratory, three hours. Prereq: Intermediate skill test first day of class.

HPR 153 VOLLEYBALL. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of volleyball. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach volleyball. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 154 DANCE FOUNDATIONS II. (1)
Designed to familiarize the professional physical education student with the techniques, skills, theory and composition of dance. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach dance and transfer its attributes to sports areas. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 155 PRINCIPLES OF CONDITIONING. (1)
Designed to familiarize the professional physical education student with the theory, techniques, and practices of conditioning. Understanding of the basic principles, and an attainment of above average personal physical fitness status is expected of the students. The primary goal of the course is to equip students with knowledge and skill to design and carry out safe and meaningful physical conditioning programs. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 156 GYMNASTICS. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques and theory of gymnastics. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach gymnastics. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: HPR 115 or demonstrated competence.

HPR 157 TRACK AND FIELD. (2)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of track and field. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach track and field. Laboratory, six hours.

HPR 158 ARCHERY AND SOFTBALL. (1)
Designed to familiarize the professional physical education student with the skills, practices, and theories of archery and softball. Development of at least an intermediate skill level is expected of the students. The goal of the course is to provide the students with the teaching methods and skills to effectively teach archery and softball in the public schools. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 159 TENNIS. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of tennis. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach tennis. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 160 BADMINTON. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of badminton. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach badminton. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 161 GOLF. (1)
Designed to familiarize the professional physical education student with the skills, strategies, rules and teaching techniques of golf. Development of at least an intermediate skill level is expected. The primary goal of the course is to equip the student with skills necessary to effectively teach golf. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester.

HPR 180 PROFESSIONAL ORIENTATION. (2)
Introduction to the fields of health, physical education, and recreation. Required of all students the first fall semester enrolled in the University in physical education.

HPR 181 MODERN DANCE I. (2)
Techniques of creative dance including movement sequences leading to individual and group studies in initial compositional elements. Laboratory, four hours. Prereq: HPR 106 or demonstrated skill for consent of instructor.

HPR 182 MODERN DANCE II. (2)
Advanced techniques for creative dance. Special emphasis on the development of movement themes as motivated by specific content. Laboratory, four hours. Prereq: HPR 181.

HPR 240 NUTRITION AND PHYSICAL FITNESS. (3)
Course focuses on the interrelationship between nutrition and physical fitness. The intent is to provide the student with the information necessary to formulate an individualized plan for the achievement and maintenance of adequate nutrition and physical fitness. Weight control will be discussed in this content. Team taught by nutrition faculty and health, physical education and recreation faculty. Lecture, two hours; laboratory, two hours. (Same as NFS 240.)

HPR 241 BASKETBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals involved in basketball. Laboratory, four hours.

HPR 243 TRACK AND FIELD TEACHING AND COACHING. (2)
Introduction of coaching techniques for track and field events. An understanding of the various administrative duties in conducting a successful track and field program. Lecture, one hour; laboratory, three hours.

HPR 244 BASEBALL AND SOFTBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals involved in baseball and softball. Laboratory, six hours.

HPR 252 WATER SAFETY LEADERSHIP. (2)
Leadership training in the teaching of swimming, lifesaving, diving, synchronized swimming, competitive swimming, camp waterfront, beach and pool operation and exhibition. Laboratory, four hours. Prereq: Current lifesaving certificate or equivalent.

HPR 263 DEVELOPMENTAL SPORTS SKILLS FOR THE ELEMENTARY SCHOOL CHILD. (3)
The study of developmental sports skills and their application in games of low organization, lead-up games, and intramural programs. Lecture, two hours; laboratory, two hours.

HPR 290 HISTORY AND PHILOSOPHY OF THE DANCE. (3)
The study of the evolution of dance through the cultural periods of history and the interrelation of the arts of social structure and dance forms. Open to male students.

HPR 291 FOLK DANCE. (2)
American and European folk dances will be studied with special attention to the longways, circles, squares and couple dance forms. The English country dances will be stressed as well as the Appalachian region traditional forms. Lecture, one hour; laboratory, two hours.

HPR 293 CLASSICAL BALLET I. (2)
The basic techniques and theories of traditional classic dance. Designed for beginning dance students. Lecture, one hour; laboratory, two hours. Prereq: HPR 129 or demonstrated skill for consent of instructor.

HPR 294 CLASSICAL BALLET II. (2)
Intermediate techniques and theories of classical dance. Lecture, one hour; laboratory, two hours. Prereq: HPR 293 or equivalent.

HPR 320 OFFICIATING FOOTBALL. (1)
A course designed to provide the student with the knowledge, interpretation, skills, and mechanical techniques of officiating football. The requirements and standards of officiating of the Kentucky High School Athletic Association (KHSAA) will be emphasized in the course. Instructional methods include lecture, discussion, practical experience, and observation. Independent of course evaluation, students will be given the opportunity to take the KHSAA qualifying examination, and to officiate J.V. or junior high games as a member of the Central Kentucky Football Officials Association. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

HPR 321 OFFICIATING BASKETBALL. (1)
A course designed to provide the student with the knowledge, interpretations, skills, and mechanical techniques of officiating basketball. The standards of officiating as offered by KHSAA or the Affiliated Board of Officials of the National Associations for Girls and Women's Sports will be emphasized in the course. Instructional methods include lecture, discussion, situational drills and observation. Independent of course evaluation, students will be given the opportunity to take KHSAA or ABO qualifying examinations. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

HPR 322 OFFICIATING VOLLEYBALL. (1)
A course designed to provide the student with the knowledge, interpretations, skills, and mechanical techniques of officiating volleyball. The standard of officiating as offered by KHSAA or the Affiliated Boards of Officials of the National Associations for Girls and Women's Sports will be emphasized in the course. Instructional methods include lectures, discussion, situational drills and observation. Independent of course evaluation, students will be given the opportunity take KHSAA or ABO qualifying examinations. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

HPR 323 OFFICIATING BASEBALL-SOFTBALL. (1)
A course designed to provide the student with the knowledge, interpretations, skills, and mechanical techniques of officiating baseball-softball. The standards of officiating as offered by KHSAA or the Affiliated Boards of Officials of the National Associations for Girls and Women's Sports will be emphasized in the course. Instructional methods include lecture, discussion, situational drills, and observation. Independent of course evaluation, students will be given the opportunity to take the KHSAA or ABO qualifying examinations. Two hours lecture per week for one-half semester; two hours laboratory per week for one-half semester.

HPR 340 ATHLETIC TRAINING. (2)
Consideration is given to the prevention, treatment and rehabilitation of injuries. Films and other visuals, visiting physicians and team trainers will be used to supplement instruction. The student will have an opportunity to gain practical experience. Lecture, one hour; laboratory, three hours.

HPR 344 PHYSICAL EDUCATION IN THE SECONDARY SCHOOL. (3)
Required for teacher certification in physical education. Theory and practice in methods of teaching physical education activities and supervising programs in the secondary school. Lecture, one hour; laboratory, four hours. May be repeated to a maximum of six credits by women. Prereq: Admission to the Teacher Education Program or permission of the instructor.

HPR 360 PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL. (3)
An introduction to the necessary skills needed for the planning and conduct of modern elementary physical education programs. Emphasis is placed on teaching basic movement skills, fundamental rhythmic and sports skills. Lecture, two hours; laboratory, two hours. Prereq: EDP 202 and EDF 301, or consent of instructor.

HPR 361 FIELD EXPERIENCES WITH ELEMENTARY SCHOOL CHILDREN. (1)
Field experience with elementary school age children in programs of sports, physical education and recreation. Prereq: HPR 360 or equivalent experience or consent of field experience director.

HPR 362 FIELD EXPERIENCES IN SECONDARY EDUCATION. (1)
Supervised experiences in school, agency, and recreation department programs of secondary education. Required of all majors in Secondary Teacher Education Programs in the Department of Health, Physical Education and Recreation. Includes field trip, inspection of programs and professional organizations. Prereq: Admission to the Teacher Education Program.

HPR 369 STUDENT TEACHING IN PHYSICAL EDUCATION. (3-12)
For students who expect to teach and who meet the requirements for a major in physical education. Experience in working with children in physical education activities comprises basic part of course. Safety education also included. To be offered only on a pass-fail basis. Prereq: Admission to the Teacher Education Program or permission of instructor.

HPR 382 PHYSICAL EDUCATION FOR ELEMENTARY SCHOOL TEACHERS. (2)
Provides physical education concepts and content to be taught to the elementary students. Includes instructional methods and management techniques appropriate for physical education programs at the elementary school level. Lecture, one hour; laboratory, two hours per week. Prereq: Admission to elementary or early childhood teacher education program or consent of instructor.

HPR 390 DANCE ACTIVITIES IN THE ELEMENTARY SCHOOL. (2)
Designed for teachers of elementary children to give depth in significant phases of physical education of the elementary child. Special emphasis is given to acquisition of skills and understandings of the total dance program. Lecture, one hour; laboratory, two hours. Prereq: HPR 360 or consent of instructor.

HPR 391 THEATER DANCE I. (2)
Theory and practice of theater dance from the primitive era to the 20th century. Lecture, one hour; laboratory, two hours.

HPR 392 THEATER DANCE II. (2)
Intermediate theater dance, modern dance, dance for television, musical comedy, and stage plays. Lecture, one hour; laboratory, two hours. Prereq: HPR 391 or equivalent.

HPR 395 INDEPENDENT WORK IN HEALTH AND SAFETY OR PHYSICAL EDUCATION OR RECREATION. (3)
May be repeated to a maximum of 12 credits. Prereq: Major and 3.0 standing in area or consent of instructor.

HPR 420G PHYSIOLOGY OF EXERCISE. (3)
An in-depth study of the immediate and long-term effects of exercise on the human organism. Lecture, two hours; laboratory, two hours. Prereq: ANA 206, PGY 206 or equivalent.

HPR 440 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION. (3)
Policies and procedures of administration on the secondary school and collegiate levels. Special emphasis on construction and care of facilities, equipment, and supervision of personnel. Prereq: HPR 344 or equivalent.

HPR 445 INTRODUCTION TO TESTS AND MEASUREMENTS. (3)
An analysis of written and motor performance tests in health, safety, physical education, and recreation. Laboratory experiences in the administration, scoring, and interpretation of motor performance tests are provided. Lecture, two hours; laboratory, two hours.

HPR 515 ANATOMICAL AND MECHANICAL KINESIOLOGY. (3)
A quantitative and qualitative study of human motion as it relates to locomotor and physical education activities. Lecture, two hours; laboratory, two hours. Prereq: ANA 206, PGY 206, or equivalent and consent of instructor.

HPR 546 PHYSICAL EDUCATION WORKSHOP. (1-3)
A concentrated study in a specific sport or activity or field of emphasis in physical education. May be repeated to a maximum of six credits.

HPR 547 PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY. (3)
An analysis of research findings in the psychology of teaching and coaching with emphasis placed on those factors which influence the acquisition of motor skills as well as on the psychological benefits of exercise and sport. Prereq: Undergraduate psychology course and basic statistics or consent of instructor.

HPR 549 SPECIAL TOPICS IN PHYSICAL EDUCATION. (1-3)
The study of selected topics of contemporary importance in physical education. Topics to be addressed will be published in advance. May be repeated to a maximum of six credits.

HPR 560 MOTOR DEVELOPMENT IN INFANTS AND YOUNG CHILDREN. (3)
An analysis of the processes of learning to move and moving to learn in infants and young children. Emerging interrelationshps among motor, social, emotional, and cognitive forms of behavior are explored. Laboratory experiences are provided in early childhood education programs. Prereq: PSY 100.

HPR 579 ADAPTED PHYSICAL EDUCATION. (3)
A study of programs of adapted and developmental physical education for the handicapped. Experiences will include the appraisal of psychomotor functioning, design of instructional intervention, and program implementation and evaluation. Lecture, two hours; laboratory, two hours. Prereq: HPR 472, or consent of instructor.

HPR 592 CHOREOGRAPHY. (2)
Creation and production of dances in ballet, modern, and theater dance forms. Lecture, one hour; laboratory, two hours. Prereq: Beginning ballet, modern and theater dance.

GRADUATE COURSES

HPR 600 EXERCISE STRESS TESTING AND PRESCRIPTION. (3)
Knowledge required for the administration of an exercise stress test with implications for writing an exercise prescription. Content covers healthy individuals as well as those with various health problems such as heart disease, hypertension, mental illness, and diabetes. Course implements the Guidelines of the American College of Sportsmedicine in preparing a specialist in exercise stress testing. Lecture, two hours; laboratory, two hours per week. Prereq: PGY 206, HPR 420G, consent of instructor.

HPR 610 THE ORGANIZATION AND ADMINISTRATION OF THERAPEUTIC RECREATION PROGRAMS. (3)
The organization, coordination and administration of recreation programs designed to meet the needs of aging, mentally retarded, physically disabled, emotionally disturbed and socially deviant persons residing in treatment centers and in the community. Prereq: HPR 571, 575 or consent of instructor.

HPR 611 THERAPEUTIC APPLICATIONS OF RECREATION. (3)
A study of recreation as a therapeutic agent in the management of ill and/or disabled persons, including the mentally ill, physically handicapped, medically incapacitated and mentally retarded. Prereq: HPR 571, 575 or consent of instructor.

HPR 615 BIOMECHANICS OF FUNDAMENTAL MOVEMENTS. (3)
A research oriented, qualitative and quantitative investigation into the fundamental human movement patterns of ambulation, jumping, throwing, and striking. Lecture, two hours; laboratory, two hours. Prereq: An introductory course in physics, HPR 515, and consent of instructor.

HPR 616 BIOMECHANICS OF SPORT. (3)
An application oriented, qualitative investigation into the mechanics of a broad number of sport skills. Emphasis will be placed on the teaching/coaching aspects of each skill. Prereq: HPR 515, HPR 615, and consent of instructor.

HPR 620 ADVANCED EXERCISE PHYSIOLOGY. (3)
Aimed at development of an in-depth understanding of the acute and chronic adaptations of the human body to the stress of exercise. Lecture, two hours; laboratory, two hours. Prereq: HPR 420G or consent of instructor.

HPR 621 EXERCISE AND CORONARY HEART DISEASE. (3)
An examination and analysis of the theories relating the level of physical activity to the development of heart disease. Discussion of the role of exercise in the diagnosis, prevention and rehabilitation of heart disease. Prereq: HPR 420G, 445 or consent of instructor.

HPR 622 PHYSICAL FITNESS AND RELATED CONCEPTS. (3)
An in-depth analysis of the components of and concepts related to physical fitness. Topical areas including physiological components, philosophical elements, definitional development, assessment, and significance for modern society will be studied. Prereq: HPR 420G and HPR 445.

HPR 644 RESEARCH TECHNIQUES APPLIED TO HEALTH, PHYSICAL EDUCATION AND RECREATION. (3)
A critique of research procedures for purposes of developing more efficient research designs applicable to problems in health, physical education and recreation. Should be preceded or accompanied by basic statistics and introduction to measurement.

HPR 645 MEASUREMENT THEORY IN HEALTH, PHYSICAL EDUCATION AND RECREATION. (3)
An analysis of the various procedures employed in constructing and using measuring instruments in teaching and research programs in health, physical education and recreation. Should be preceded or accompanied by basic statistics and introduction to measurement.

HPR 647 MOTOR LEARNING. (3)
An examination of the theoretical bases underlying the acquisition of motor skills. Literature dealing with the state of the learner, nature of motor skills to be learned, and relevant methods of instruction is explored in depth. Relevant motor learning problems are investigated in laboratory session. Lecture, two hours; laboratory, two hours. Prereq: PSY 100, EDP 202, and HPR 344, or their equivalents, or consent of instructor.

HPR 676 CURRENT ISSUES IN RECREATION. (3)
An in-depth analysis into the pertinent issues and challenges confronting the recreation profession.

HPR 685 ADMINISTRATIVE PRACTICES IN RECREATION. (3)
A study of administrative functions concerned with policy determination, public relations, personnel practices, and routine details confronting the chief recreation officer and his staff associates. Prereq: HPR 580 or consent of instructor.

HPR 695 INDEPENDENT STUDY IN PHYSICAL EDUCATION. (1-3)
A specific topic in physical education related to the student's interests and program needs is selected for intensive study. Work to be supervised by a graduate faculty member proficient in the area under investigation. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HPR 696 INDEPENDENT STUDY IN RECREATION. (1-3)
A specific topic in recreation related to the student's interests and program needs is selected for intensive study. Work supervised by a graduate faculty member proficient in the area under investigation. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HPR 720 SPORTS MEDICINE. (3)
A study of the basic areas covered in sports medicine with readings and discussions of current international trends in the research and practice in this field. Prereq: Twelve semester hours; credit in the field of biological sciences; consent of instructor.

HPR 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

HPR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

HPR 769 RESIDENCE CREDIT FOR THE DOCTORAL DEGREE. (0-12)
May be repeated indefinitely.

HPR 770 SEMINAR IN PHYSICAL EDUCATION. (3)
Each semester some contemporary topic in the field of physical education will be studied intensively. May be repeated to a maximum of nine credits.

HPR 780 SEMINAR IN RECREATION. (3)
Each semester some contemporary topic in the field of recreation will be studied intensively. May be repeated to a maximum of nine credits.

HPR 782 INDEPENDENT RESEARCH. (3)
Systematic investigation of a problem selected from the areas of health, safety, physical education or recreation. Satisfies the research requirement for the Master's Degree in Plan B. Repeatable with new problem. May be repeated to a maximum of nine credits.

RECREATION

HPR 170 INTRODUCTION TO COMMUNITY RECREATION. (3)
Designed to give the student an understanding of the principles and practices by which recreation agencies function, and acquaint him with the foundation upon which the profession is built.

HPR 280 RECREATION PROGRAM PLANNING AND LEADERSHIP. (3)
A study of the essential elements and basic principles involved in the organization, supervision, promotion and evaluation of various types of recreation programs.

HPR 370 FUNDAMENTALS OF CAMPING. (2)
An introduction to camping as an educational program. Qualifying for the American Camping Association's Camp Crafts Award is required.

HPR 374 PRINCIPLES OF OUTDOOR RECREATION AND PARK MANAGEMENT. (3)
Essential elements and basic principles involved in the planning and utilization of natural resources for outdoor recreation. Consideration of social and economic forces affecting the planning of outdoor recreation and the acquisition and development of appropriate space and facilities. Lecture, two hours; laboratory, two hours. Prereq: HPR 170 and HPR 280 or consent of instructor.

HPR 379 FIELD STUDIES IN RECREATION. (2)
This course provides opportunities to study the objectives, programs and methods of agencies providing recreation services. Supervised observations will be supplemented by short-term volunteer service in several agencies. May be repeated to a maximum of four hours. Lecture, one hour; laboratory, two hours. This course will only be offered on a Pass-Fail basis.

HPR 381 LEISURE SERVICES FOR SPECIAL POPULATIONS. (3)
Examines the scope of recreation programming and leisure services in institutions and communities for aging, mentally retarded, physically disabled, emotionally disturbed, and socially deviant individuals. Focuses on defining special populations, distribution within the general population, factors affecting program design, programming concepts and guidelines. Prereq: HPR 170.

HPR 471 OUTDOOR EDUCATION THROUGH CAMPING. (2)
The theory and practice of the use of camping as an adjunct to the classroom in achieving educational objectives. Prereq: HPR 370 or consent of instructor.

HPR 478 SENIOR SEMINAR IN RECREATION. (3)
Readings and reports on special topics in recreation and parks. Required of all senior recreation majors.

HPR 481 THERAPEUTIC RECREATION SERVICES. (3)
An in-depth examination of the field of therapeutic recreation. The course focuses on definitions, purposes and goals of therapeutic recreation, terminology, philosophy and history, settings and service models. Professional development and current issues and problems in therapeutic recreation. Prereq: HPR 381 or consent of instructor.

HPR 548 SPECIAL TOPICS IN RECREATION AND LEISURE STUDIES. (1-3)
The study of selected topics of contemporary importance in recreation and leisure studies. Topics to be addressed will be published in advance. May be repeated to a maximum of six credits.

HPR 570 PLANNING OF RECREATION FACILITIES AND AREAS. (3)
An introduction to the planning and design of recreation facilities and areas. Course will focus on site planning, construction concerns, program design factors, environmental issues, maintenance procedures and operations management. Prereq: HPR 170, HPR 280 or consent of instructor.

HPR 572 PRINCIPLES AND PRACTICES IN THERAPEUTIC RECREATION. (3)
A study of the principles and practices involved in providing leisure services for special populations in institutional and community settings. Content includes methods and techniques of needs assessment, program planning, and evaluation, supervision, administration, consultation and staff development. Prereq: HPR 381 or equivalent or consent of instructor.

HPR 573 ADMINISTRATION AND ORGANIZATION OF RECREATION. (3)
This course is designed to equip students and community leaders with workable procedures for developing and operating recreation programs in communities of various sizes and varying political and social structures.

HPR 575 INTERPRETATIONS OF LEISURE AND RECREATION. (3)
Designed to provide students interested in recreation as a profession, as an adjunct to other work, or as informed citizens with a basic understanding of the significance of leisure and the objectives of recreation.

HPR 576 INTRAMURAL PROGRAMMING AND ADMINISTRATION. (3)
This course will provide the student with a broad theoretical base in intramural programming and administration, together with an opportunity for practical experience. Philosophy and objectives, administrative concerns, and programming strategies will be addressed. Prereq: HPR 170, HPR 280 or consent of instructor.

HPR 577 PRACTICUM IN RECREATION. (3-9)
Extensive practical work experiences under the immediate supervision of qualified practitioners and recreation faculty coordinator. Prereq: Recreation major only.

HEALTH AND SAFETY

HPR 190 FIRST AID AND EMERGENCY CARE. (2)
A study of first aid subject matter and orientation in the various first aid teaching methods. Lectures and demonstrations on first aid measures with skill training. American Red Cross Certificate made available. Lecture, one hour; laboratory, two hours.

HPR 220 SCHOOL HEALTH CURRICULUM: TEACHING SEXUAL HEALTH AND SUBSTANCE ABUSE IN THE SCHOOLS. (3)
The course deals with the preparation of educators to teach sex education and drug education in the schools. Consideration is given to the educator's responsibility to himself, the individual child, the child's parents, the school administrators, and to the law. Emphasis is on content, applicability, relevancy, and implications of sex education and drug education in the school system.

HPR 230 PROBLEMS AND ISSUES IN SCHOOL HEALTH EDUCATION. (3)
The course deals with health problems and issues that should be presented in high school health education courses. Issues may include consumer health education, death education, dental health education, and/or other contemporary issues not covered in existing school health courses.

HPR 307 INTRODUCTION TO SAFETY EDUCATION. (3)
The history and philosophy of the accident prevention movement. Designed to acquaint the student with the underlying factors and theories of accident prevention. Special emphasis is given to the administration and supervision of physical education, athletic, recreation and other school safety programs. Two hours lecture per week; two hours lab per week.

HPR 330 SCHOOL HEALTH EDUCATION. (3)
A study of personal health problems with emphasis upon student-teacher relationships. Prereq: HPR 220, HPR 230, or equivalent, or permission of instructor.

HPR 371 STUDENT TEACHING IN HEALTH EDUCATION. (3-12)
For students who expect to teach and who meet the requirements for a teaching certificate in Health Education. Includes objectives, courses of study, methods, materials, and testing in Health Education. The course includes observation, practice, safety education, audio-visual aids and planning conferences with supervising teachers. Six-24 lab hours per week. May be taken on a pass/fail basis only. Prereq: Admission to Health Education Program.

HPR 380 HEALTH EDUCATION IN THE ELEMENTARY SCHOOL. (2)
Presents health concepts to be taught in the elementary school. A brief discussion of the school health program and a review of instructional methods appropriate to health education in the elementary school are presented. Prereq: Admission to elementary or early childhood teacher education program or consent of instructor.

HPR 407 DRIVER AND TRAFFIC SAFETY EDUCATION I. (3)
Analysis of traffic accidents, attitude factors, essential knowledge of automobile operation and traffic laws and regulations. Laboratory experience is devoted to improvement of the students' driving skill and an understanding of how to structure laboratory lessons in the dual control automobile.

HPR 408 DRIVER AND TRAFFIC SAFETY EDUCATION II. (3)
An intermediate course to meet the traffic safety needs of schools and community. Special emphasis on problems related to administration and content of the driver and traffic safety education program in secondary schools. Two hours lecture per week, two hours lab per week. Prereq: HPR 407 or equivalent.

HPR 410 ADVANCED TOPICS IN DRIVER AND TRAFFIC SAFETY EDUCATION. (3)
This course emphasizes the utilization of instructional and laboratory techniques in driver and traffic safety education. Special emphasis will be given to the study, design, and use of selected instructional and laboratory technology. Two hours lecture per week; two hours lab per week. Prereq: HPR 408 or equivalent.

HPR 430 METHODS OF TEACHING HEALTH EDUCATION. (3)
Basic organization and planning of elementary and secondary school health and safety programs for the classroom teacher. Major emphasis on curriculum development and teaching techniques. Prereq: HPR 220, HPR 230, or equivalent or permission of instructor.

HPR 509 WORKSHOP IN HEALTH AND SAFETY. (1-3)
Designed as a variable topic course including aspects of school health or safety education with emphasis upon the needs of teachers. May be repeated to a maximum of six credits.

HPR 535 SCHOOL HEALTH DILEMMAS OF SPECIAL POPULATIONS. (3)
The course studies the physical, emotional, cognitive, moral and social health dilemmas of special populations. Emphasis is on the health dilemmas of special groups that the prospective teacher may encounter in the classroom (i.e., poor, disabled, migrants, rural children, urban children, children from single parent homes, abused children, etc.) Prereq: HPR 220, HPR 230 or permission of instructor.

HPR 609 SEMINAR IN HEALTH AND SAFETY EDUCATION. (3)
Overview of the problems confronting persons in these fields and selected research findings applicable to these areas. Emphasis is given to gaining a better understanding of research data and to a greater utilization of research findings in both school and community health and safety endeavors. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

HPR 694 INDEPENDENT STUDY IN HEALTH EDUCATION. (1-3)
A specific topic in Health Education related to the student's interests and program needs is selected for intensive study. Work to be supervised by a graduate faculty member proficient in the area under investigation. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HPR 781 PRO SEMINAR IN HPR (Subtitle required). (1-3)
Advanced study of topics of current importance in health education, physical education and recreation. May be repeated under a different subtitle to a maximum of nine credits. Prereq: Consent of instructor.

HEALTH RADIATION SCIENCES

HRS 395 INDEPENDENT WORK IN MEDICAL PHYSICS AND RADIOLOGICAL HEALTH. (1-3)
Students may select an approved topic for study under the direction of a faculty member in Health Radiation Sciences. May be repeated to a maximum of six credits. Prereq: Upper division standing in Radiological Health or a related field, and consent of faculty adviser.

HRS 545 RADIATION HAZARDS AND PROTECTION. (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and nonionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as PHY/RM 545.)

HRS 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as PHY/RM 546.)

HRS 575 APPLIED HEALTH PHYSICS LABORATORY. (2)
Advanced laboratory analysis of common applied health physics problems. Laboratory, four hours per week. Prereq: HRS/PHY/RM 545 and upper division or graduate standing in a physical science, or consent of instructor.

HRS 601 ADVANCED RADIATION DOSIMETRY. (2)
Advanced aspects of the interaction of radiation with matter and specialized topics in the dosimetry of ionizing radiations. Modifications of Bragg-Gray theory for application to megavoltage sources. Beta dosimetry. Specialized calibration techniques. Relative response functions of various media. Nontraditional techniques. Dosimetry of radiation fields including complex spectra. Prereq: PHY 472G, RM 546, or equivalent. (Same as RM 601.)

HRS 647 PHYSICS OF DIAGNOSTIC IMAGING I. (3)
Specialized and advanced topics in diagnostic imaging, including modulation transfer function analysis, image processing algorithms, acceptance testing, CT, NMR, ultrasound, etc. Prereq: PHY/RM/HRS 546 or consent of instructor. (Same as RM 647.)

HRS 648 PHYSICS OF DIAGNOSTIC IMAGING II. (3)
A continuation of HRS/RM 647, with laboratory. Specialized and advanced topics in nuclear medicine imaging physics. Quality control protocols in imaging physics. Laboratory experiences with diagnostic imaging using standard and fluoroscopic X-ray units, CT, ultrasound, NMR, and Anger cameras. Lecture, two hours; laboratory, three hours per week. Prereq: HRS/RM 647 or consent of instructor. (Same as RM 648.)

HRS 649 PHYSICS OF RADIATION THERAPY. (2)
Specialized beam and brachy therapy treatment planning; therapy facility shielding design; advanced Bragg-Gray cavity theory applications; calibration, acceptance testing, and quality control procedures. Prereq: HRS/PHY/RM 546 or consent of instructor. (Same as RM 649.)

HRS 690 RESEARCH IN RADIOLOGICAL HEALTH. (1-3)
Research in the area of radiological health. Prereq: Graduate standing in the bioradiation sciences.

HRS 695 RESEARCH IN RADIATION DOSIMETRY. (1-3)
Independent directed research on theoretical and practical problems in the measurement of radiation. Prereq: Graduate standing in one of the bioradiation sciences.

HRS 710 RADIATION SCIENCE SEMINAR (Subtitle required). (1)
Topics of current interest relating to radiation and its applications in the areas of radiological medical physics and health physics. May be repeated to a maximum of four credit hours with consent of instructor. Prereq: Graduate standing in a radiation-related science.

HRS 715 ADVANCED PROBLEMS IN RADIATION DOSIMETRY. (2-6)
Advanced problems in radiation dosimetry. To be taken concurrently with supervised individual study. Problems in radiation measurement, distribution of energy, computation of dose, and biological and medical effects of an advanced nature will be analyzed, discussed, and described in written reports. Problems will require literature search and utilization of advanced analytical techniques. Prereq: Completion of formal course work in medical radiation dosimetry program or consent of instructor.

HRS 720 ADVANCED PROBLEMS IN RADIOLOGICAL HEALTH. (2-4)
Advanced problems in radiological health and related areas in physics, biology, or medicine will be analyzed. Prereq: Completion of formal course work in radiological health specialty program or consent of instructor.

HISTORY

I. INTRODUCTORY COURSES

HIS 104 A HISTORY OF EUROPE THROUGH THE MID-SEVENTEENTH CENTURY. (3)
This course is a survey of the development of European politics, society, and culture through the Age of Religious Conflict.

HIS 105 A HISTORY OF EUROPE FROM THE MID-SEVENTEENTH CENTURY TO THE PRESENT. (3)
This course is a survey of the development of European politics, society, and culture from the Age of Absolutism to the present. It is a continuation of HIS 104.

HIS 106 WESTERN CULTURE: SCIENCE AND TECHNOLOGY I. (3)
Presents the interactions of science and technology with the social and cultural development of Western civilization; the values in scientific inquiry as compared with other kinds of inquiry; the importance of science and technology in modifying social organization and human expectations. Emphasizes the period to the Industrial Revolution.

HIS 107 WESTERN CULTURE: SCIENCE AND TECHNOLOGY II. (3)
Presents the interactions of science and technology with the social and cultural development of Western civilization; the values in scientific inquiry as compared with other kinds of inquiry; the importance of science and technology in modifying social organization and human expectations. Emphasizes the period since the Industrial Revolution.

HIS 108 HISTORY OF THE UNITED STATES THROUGH 1865. (3)
This course traces the nation's development through the Civil War. It is designed to meet the demands for a general understanding of American history. This course fulfills the requirements for the elementary teachers' certificate.

HIS 109 HISTORY OF THE UNITED STATES SINCE 1865. (3)
A continuation of HIS 108, from 1865 to present.

II. UNDERGRADUATE SEMINARS, STUDIES AND INDEPENDENT WORK

HIS 316 JUNIOR SEMINAR: HISTORICAL METHOD AND LITERATURE. (3)
An introduction to research and writing in the field of history with attention given to the problems of historical thought and interpretation. Preferably to be taken during the first semester of the junior year. Required of all history majors.

HIS 330 A HISTORY OF WESTERN RELIGIOUS THOUGHT (I). (3)
A history of Judeo-Christian religious thought from the rise of Judaism through the Protestant Reformation.

HIS 331 A HISTORY OF WESTERN RELIGIOUS THOUGHT (II). (3)
The history of Judeo-Christian religious thought from the Protestant Reformation to present.

HIS 350 TOPICS IN U.S. HISTORY BEFORE 1789. (3)
Readings, research, and discussions in seminar format to illuminate problems of historical and contemporary significance, in areas of special faculty competence. May be repeated once. Lecture, two hours; conference, one hour. Prereq: Consent of instructor mandatory.

HIS 351 TOPICS IN U.S. HISTORY SINCE 1789. (3)
Same as HIS 350. Prereq: Consent of instructor mandatory.

HIS 352 TOPICS IN EUROPEAN HISTORY BEFORE 1789. (3)
Same as HIS 350. Prereq: Consent of instructor mandatory.

HIS 353 TOPICS IN EUROPEAN HISTORY SINCE 1789. (3)
Same as HIS 350. Prereq: Consent of instructor mandatory.

HIS 395 INDEPENDENT WORK. (1-3)
Under special conditions selected students may investigate problems with weekly reports to the instructor. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department.

HIS 595 STUDIES IN HISTORY. (3)
Professors will offer lecture and discussion courses in areas in which they have special teaching interest. May be repeated to a maximum of six credits. Prereq: To be denoted by the instructor.

III. NON-WESTERN HISTORY

A. AFRICA

HIS 254 HISTORY OF SUB-SAHARAN AFRICA. (3)
A survey of the social institutions, value systems and political organization of Sub-Saharan Africa since the 16th century but with particular emphasis on the 19th and 20th centuries.

B. LATIN AMERICA

HIS 201 INTRODUCTION TO LATIN AMERICA. (3)
An interdisciplinary approach to the history, culture, and development of the Latin American republics and their people. Attention will be concentrated on significant aspects of the geography of Latin America, its history, society and values, politics, economics, and culture. Team taught. (Same as LAS 201.)

HIS 585 SPAIN AND PORTUGAL IN AMERICA. (3)
After a survey of pre-Columbian Amerindian cultures, study of the origins and development of the Spanish and Portuguese colonies in America; their relationship with Iberian and other European states; Spanish-Amerindian relations; slavery; domestic economies; independence movements in the two empires. Prereq: HIS/LAS 201 or equivalent or consent of instructor.

HIS 586 MODERN MEXICO. (3)
Following a brief survey of Mexican political history from Independence to the present, this course will examine topically major historical themes, such as landholding and agrarian problems, church and state, and assessment of the 1910 Revolution. Prereq: HIS/LAS 201 or equivalent or consent of instructor.

HIS 587 MODERN VENEZUELA, COLOMBIA, AND LATIN CARIBBEAN. (3)
This course will examine the struggle for identity, nationhood, and social justice in five countries of the circum-Caribbean area during the 19th and 20th centuries. It will emphasize such themes as Venezuela's oil prosperity and evolution toward democracy, Colombia's trial by violence, Cuba's Revolution, and Haiti's and the Dominican Republic's dependence on the United States. Prereq: HIS/LAS 201 or equivalent or consent of instructor.

C. MIDDLE EAST

HIS 247 HISTORY OF ISLAM AND MIDDLE EAST PEOPLES, 500-1250, A.D. (3)
A survey of the origins and development of the Islamic civilization from the time of the Prophet Muhammad to 1250, with special concentration on the role of the Arab, Iranian and Turkic peoples.

HIS 248 HISTORY OF ISLAM AND MIDDLE EAST PEOPLES, 1250 TO THE PRESENT. (3)
A continuation of HIS 247. A survey of the religion and institutions of the Islamic world in the Middle East with special emphasis on the Mongol, Ottoman, Safavid and Qajar empires. The demise of these empires, the response of the Middle East peoples to European imperialism, and their national development up to the present will be considered.

HIS 548 HISTORY OF THE MIDDLE EAST: 1916-1952. (3)
A history of Middle Eastern countries—Jordan, Syria, Lebanon, Egypt, Saudi Arabia, the Persian Gulf, Iran, Turkey and Israel. Emphasis will be on Arab nationalism, the creation of independent Arab countries and the creation of Israel.

HIS 549 HISTORY OF THE MIDDLE EAST: 1952 TO THE PRESENT. (3)
The history of Middle Eastern countries—Jordan, Syria, Lebanon, Israel, Egypt, Saudi Arabia, the Persian Gulf, Iran, and Turkey—1952 to the present.

D. EAST ASIA

HIS 295 EAST ASIA TO 1800. (3)
A survey of Chinese, Japanese and Korean history from earliest times to 1800. Emphasis on political, economic, social and intellectual developments.

HIS 296 EAST ASIA SINCE 1800. (3)
A continuation of HIS 295. A survey of the political and economic modernization of traditional East Asian society with emphasis on nationalistic reactions to Western pressure and international rivalry in East Asia.

HIS 590 JAPANESE HISTORY TO 1800. (3)
A broad survey of Japanese history from the earliest times to the zenith of shogunate rule under the Tokugawa family. In addition to tracing the major developments in Japanese political, social, and economic history, this course also emphasizes Shinto, Buddhism, Confucianism, and the introduction of Christianity.

HIS 591 JAPANESE HISTORY SINCE 1800. (3)
A continuation of HIS 590, from 1800 to present.

HIS 592 DIPLOMATIC HISTORY OF EAST ASIA SINCE 1787. (3)
A study of the international relations between China, Japan, and Korea and their relations with the major Western powers.

HIS 593 EAST ASIAN HISTORY SINCE WORLD WAR II. (3)
A study of the revolutionary political, economic and social changes occurring in China, Japan, and Korea in the aftermath of World War II. Important political and institutional developments and their relations to pre-war trends will be emphasized.

IV. EUROPEAN AND BRITISH HISTORY

A. SCIENCE AND WESTERN CULTURE

HIS 390 TECHNOLOGY AND CULTURE. (3)
Interaction of technology and culture with illustrations from the classical, medieval, Renaissance, Enlightenment, 19th century, and modern periods; also non-Western cultures. Emphasis on the character of the interactions. Prereq: HIS 106 or HIS 107 or consent of instructor.

HIS 504 GREEK AND ROMAN MEDICINE. (3)
An historical introduction to the development of Greek and Roman medicine, from the pre-Socratic philosophers through Oribasius and early medieval influences. Prereq: A course in ancient history, or classics, or ancient philosophy, or consent of instructor.

HIS 516 ORIGINS OF THE SCIENTIFIC WORLD VIEW. (3)
Ideas of natural order and man's place in the cosmos, the interactions of man and environment, the relationships of scientific thought and cultural values, from the ancients to the 18th century. Prereq: HIS 106 or consent of instructor.

For courses on American Science and Medicine, see HIS 583 and HIS 584.

B. EAST EUROPE AND RUSSIA

HIS 285 HISTORY OF RUSSIA TO 1825. (3)
A broad survey of the life of the Russian people and the development of the state from the ninth century through the reign of Alexander I. Although emphasis will be placed on political, economic, and social trends, cultural and intellectual achievements will also be discussed.

HIS 286 HISTORY OF RUSSIA SINCE 1825. (3)
A continuation of HIS 285, this course covers the last century of the Tsarist regime (1825-1917) and the evolution of the Soviet system that followed. Emphasis will be placed on the problems that led to the collapse of the monarchy, on the revolutionary movement, and on the Communist state and society under Lenin and Stalin.

HIS 534 RUSSIA IN THE 20TH CENTURY I. (3)
A survey of the reign of Nicholas II (1894-1917), the Revolutionary and Civil War period (1917-1921), and the consolidation of the Soviet regime to the beginning of Stalin's dictatorship in the late 1920's. Prereq: HIS 105 or equivalent.

HIS 535 RUSSIA IN THE 20TH CENTURY II. (3)
A continuation of HIS 534, this course examines the principal features of Soviet society under Stalin's dictatorship and the evolution of Soviet internal and external policy under his successors. Prereq: HIS 105 or equivalent.

HIS 536 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA TO 1800. (3)
A study of Russian culture to 1800 emphasizing Slavic paganism, Orthodox Christian culture in Kiev, Novgorod, and Muscovy, and the impact of the West in the Seventeenth and Eighteenth Centuries.

HIS 537 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA FROM 1800 TO THE PRESENT. (3)
A study of Russian culture from 1800 to the present emphasizing the conservative as well as the revolutionary tradition, the Russian avant-garde, Stalinist culture, and the Dissident Movement.

HIS 538 MARXISM: THE HISTORY OF SOCIALISM AND COMMUNISM. (3)
The life and thought of Karl Marx will be emphasized. Other topics include Marxism in Europe to 1914 and the rise of Communism on a world scale after the Bolshevik Revolution in Russia.

HIS 546 THE BYZANTINE EMPIRE. (3)
A study of Byzantine history from the time of Constantine the Great to the capture of Constantinople by the Turks in 1453. Prereq: HIS 104 or 247.

C. BRITAIN AND THE BRITISH EMPIRE

HIS 202 HISTORY OF BRITISH PEOPLE TO THE RESTORATION. (3)
From the Roman period to the Stuart period. A general survey of the various epochs and phases of the English people at home and abroad.

HIS 203 HISTORY OF THE BRITISH PEOPLE SINCE THE RESTORATION. (3)
From the Stuart period to the present. A continuation of HIS 202.

HIS 551 ENGLISH CONSTITUTIONAL HISTORY. (3)
After a survey of medieval background, the course will analyze the great constitutional crisis of 16th and 17th century England. Emphasis will be placed on studying legal developments in their social and political context.

HIS 553 EIGHTEENTH CENTURY BRITAIN. (3)
An analysis of English society and politics in an important transition period when the country was transformed by the Industrial Revolution and challenged by the French Revolution.

HIS 554 BRITISH HISTORY 1815-1901. (3)
A detailed study of Britain's political, social, diplomatic and industrial development in the 19th century.

HIS 555 BRITISH HISTORY SINCE 1901. (3)
A detailed study of Britain in the 20th century with special consideration of Britain in World War I and World War II, and her position in the contemporary world.

HIS 557 THE BRITISH EMPIRE AND COMMONWEALTH AFTER 1870. (3)
The British Empire, comprising 25 percent of the world's population and land surface at its height, was the largest and most powerful example of formal imperialism in recent times. The study of its history after 1870 involves an examination of power used to consolidate and defend, not to assert and expand: its history is that of an Empire. Among the specific topics to be investigated are Britain and the partition of Africa; British rule in India; imperial unity and the white Commonwealth; racism and Empire, the Irish question in imperial affairs; and the end of the British Empire.

D. WESTERN EUROPE

HIS 229 THE ANCIENT NEAR EAST AND GREECE TO THE DEATH OF ALEXANDER THE GREAT. (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the ancient Near East and Greece to the conquest of Greece by Philip of Macedon. (Same as CLA 229.)

HIS 230 THE HELLENISTIC WORLD AND ROME TO THE DEATH OF CONSTANTINE. (3)
Covers the conquests of Alexander the Great, and the main features of the Hellenistic world, the Roman Republic, and the Roman Empire to the death of Constantine. (Same as CLA 230.)

HIS 269 HISTORY OF THE JEWISH PEOPLE, 1492 TO PRESENT. (3)
A survey of Jewish history since the exclusion from Spain in 1492, concentrating on the structure of the Jewish community, the role of Jews in political, intellectual, artistic, and economic development, the process of Jewish emancipation, the rise of modern antisemitism, the Holocaust, and the establishment of Israel.

HIS 270 EARLY MIDDLE AGES. (3)
A survey of European history from the fourth through the mid-10th centuries.

HIS 271 LATER MIDDLE AGES. (3)
A survey of European history from the mid-10th through the 15th centuries.

HIS 500 PRECLASSICAL AND CLASSICAL GREECE. (3)
A history of Greece from earliest times to the death of Alexander the Great.

HIS 501 FOURTH-CENTURY GREECE AND THE HELLENISTIC WORLD. (3)
A history of Greece and the Greek world from the death of Alexander to the Roman conquest of Egypt. Prereq: HIS 500 or consent of instructor.

HIS 502 A HISTORY OF THE ROMAN REPUBLIC. (3)
A history of Rome from earliest times to the fall of the Republic. Emphasis will be placed upon the territorial expansion of Rome and the effects of this expansion on republican institutions.

HIS 503 A HISTORY OF THE ROMAN EMPIRE. (3)
A study of the foundation of the Roman Empire, the development of Imperial institutions, social and intellectual developments of the Graeco-Roman world. The decline of Rome and the barbarian invasions of the fourth century. Prereq: HIS 502 or consent of instructor.

HIS 509 ROMAN LAW. (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. Prereq: A course in ancient history or classics, or consent of instructor. (Same as CLA 509.)

HIS 510 MEDIEVAL CIVILIZATION I. (3)
Selected topics in the cultural and intellectual history of Latin Europe during the Middle Ages. The specific topics for a given semester will be listed in the schedule book.

HIS 511 MEDIEVAL CIVILIZATION II. (3)
A continuation of HIS 510. The specific topics for a given semester will be listed in the class schedule book.

HIS 512 MEDIEVAL INSTITUTIONS TO THE MID-10TH CENTURY. (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the fourth century to the breakup of the Carolingian Empire.

HIS 513 MEDIEVAL INSTITUTIONS SINCE THE MID-10TH CENTURY. (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the beginning of the High Middle Ages to the middle of the 15th century.

HIS 519 THE ERA OF THE RENAISSANCE. (3)
An historical description and analysis of the development of political, economic, social, religious, intellectual and cultural institutions of Europe from Petrarch to Erasmus.

HIS 520 THE ERA OF THE REFORMATION. (3)
An historical description and analysis of the development of the religious, intellectual, cultural, political, economic and social institutions of Europe from Luther to the Treaty of Westphalia.

HIS 522 THE FRENCH AND EUROPEAN REVOLUTIONS, 1760-1815. (3)
A study of the origins and development of the French Revolution and the influence of the Revolution and Napoleon on Europe.

HIS 523 NINETEENTH CENTURY EUROPE. (3)
An analytical study of European politics, society, and culture in the age of industrialization, liberalism, and national unification. Particular emphasis on the goals and achievements of the middle classes and on the challenges to these raised by the working class, women, and intellectuals.

HIS 524 EUROPEAN DIPLOMACY 1870-1918. (3)
An analysis of diplomatic policy of the great continental powers in the period indicated. Domestic developments are considered when appropriate to an understanding of international affairs. Prereq: HIS 105 or consent of instructor.

HIS 525 EUROPEAN DIPLOMACY SINCE 1918. (3)
A study of the origins and consequences of the two World Wars with special emphasis on diplomatic affairs and the impact of modern totalitarianism on them. Prereq: HIS 105 or consent of instructor.

HIS 526 EUROPE SINCE WORLD WAR II. (3)
An examination of significant developments and changes in Western European states since 1940. Among the problems considered are political growth, evolution of diplomatic policy, European integration, and disarmament. Prereq: HIS 105 or consent of instructor.

HIS 528 CULTURAL AND INTELLECTUAL HISTORY OF EUROPE FROM THE RENAISSANCE TO THE FRENCH REVOLUTION. (3)
An interpretive analysis of the growth of ideas in Europe within their cultural setting. Emphasis upon the 17th and 19th centuries.

HIS 529 THE CULTURAL AND INTELLECTUAL HISTORY OF EUROPE SINCE 1800. (3)
An interpretive survey of European thought since the Romantic era. The course will combine discussion of major individuals, such as Marx, Darwin and Freud with examination of broader themes such as political ideologies, historicism, positivism, realism, and existentialism. Prereq: HIS 105 or permission of the instructor.

HIS 533 MODERN EUROPEAN IMPERIALISM. (3)
A comparative analysis of the motives, policies and sociopolitical effects of European overseas expansion in the 19th and 20th centuries. Prereq: HIS 105.

HIS 540 HISTORY OF MODERN FRANCE TO 1815. (3)
The course of French history to 1815, including the development of French political, administrative, legal, social, economic and cultural achievements and institutions and their contribution to the modern world. Prereq: Consent of instructor.

HIS 541 HISTORY OF MODERN FRANCE SINCE 1815. (3)
Continuation of HIS 540.

HIS 542 GERMAN HISTORY 1815-1914. (3)
This course is designed as a study of domestic development in Germany. While political history is emphasized, due consideration is given to social, economic and intellectual trends. Prereq: HIS 104, 105 or consent of instructor.

HIS 543 GERMAN HISTORY SINCE 1914. (3)
Examines the fall of Imperial Germany, the Weimar Republic, Hitlerian period, and the post-1945 era. The course is primarily concerned with internal affairs, but attention is directed to the international scene when crucial. Prereq: HIS 104, 105 or consent of instructor.

V. AMERICAN HISTORY.

HIS 240 HISTORY OF KENTUCKY. (3)
A general survey of the chief periods of Kentucky's growth and development from 1750 to the present.

HIS 260 AFRO-AMERICAN HISTORY TO 1865. (3)
A study of the Black experience in America through the Civil War. An examination of the African heritage, slavery, and the growth of Black institutions.

HIS 261 AFRO-AMERICAN HISTORY 1865-PRESENT. (3)
This course traces the Black experience from Reconstruction to the Civil Rights Movement of the 1960's. The rise of segregation and the ghetto and aspects of race relations are examined.

HIS 265 HISTORY OF WOMEN IN AMERICA. (3)
History of American women, with particular emphasis on the mid-19th through the mid-20th centuries. Major themes include the family, work, social ideas about women, and feminism. Prereq: HIS 109 or consent of instructor.

HIS 311 WAR AND PEACE IN AMERICAN SOCIETY. (3)
A consideration of the impact of war on the fabric of American society. America's involvements in and extrications from her various wars, in their diplomatic, economic, political and strategic dimensions, will be emphasized. Prereq: HIS 105; or HIS 108-109; or MS 301 and 302. (Same as MS 311.)

HIS 460 COLONIAL AMERICA TO 1763. (3)
This course explores a number of important themes in early America: the comparative view of Western European colonization efforts; the dynamics of a multiracial environment; the character of family, community and religious life; regional distinctiveness in social/economic life; and the maturation of the colonies in the 18th century.

HIS 461 THE AMERICAN REVOLUTION, 1763-1789. (3)
A study of the disagreement between Great Britain and the 13 colonies, the decision for independence, and the progress of revolutionary change through the ratification of the Federal Constitution.

HIS 462 THE NEW REPUBLIC, 1789-1820. (3)
An intensive study of the launching of the federal government, the rise of America's first parties, and the conflict over the completion of the revolutionary experiment.

HIS 463 EXPANSION AND CONFLICT, 1820-1860. (3)
A social and political study of the United States from 1820 to 1860, with special attention to the growth of Jacksonian democracy, territorial expansion, and the rise of the sectional controversy over slavery.

HIS 464 CIVIL WAR AND RECONSTRUCTION, 1860 TO 1877. (3)
A study of events immmediately preceding the outbreak of conflict, of the military campaigns, and of the social, economic, and political developments during the periods of war and reconstruction.

HIS 465 EMERGENCE OF MODERN AMERICA, 1877-1917. (3)
A study of the transformation of the U.S. from an agrarian society into an industrial nation covering the years from the Gilded Age to the American entry into World War I. This course emphasizes the growth of corporate capitalism, the emergence of modern political institutions, and the development of modern American foreign policy. It also explores how various Americans—workers, farmers, immigrants, women—responded to and were affected by industrialization.

HIS 466 MODERN AMERICAN HISTORY FROM WW I TO PEARL HARBOR, 1917-1941. (3)
A study of America in World War I and the interwar era, emphasizing political, economic, diplomatic, and social developments. The course examines the impact of the first world war and the great depression on America and the nature of the New Era and the New Deal.

HIS 467 MODERN AMERICAN HISTORY SINCE 1941. (3)
An intensive study of the United States from the American entry into World War II to the present, emphasizing diplomatic, military, political, economic, and sociocultural changes.

HIS 108 HISTORY OF THE UNITED STATES THROUGH 1865. (3)
This course traces the nation's development through the Civil War. It is designed to meet the demands for a general understanding of American history. This course fulfills the requirements for the elementary teachers' certificate.

HIS 109 HISTORY OF THE UNITED STATES SINCE 1865. (3)
A continuation of HIS 108, from 1865 to present.

II. UNDERGRADUATE SEMINARS, STUDIES AND INDEPENDENT WORK

HIS 316 JUNIOR SEMINAR: HISTORICAL METHOD AND LITERATURE. (3)
An introduction to research and writing in the field of history with attention given to the problems of historical thought and interpretation. Preferably to be taken during the first semester of the junior year. Required of all history majors.

HIS 330 A HISTORY OF WESTERN RELIGIOUS THOUGHT (I). (3)
A history of Judeo-Christian religious thought from the rise of Judaism through the Protestant Reformation.

HIS 331 A HISTORY OF WESTERN RELIGIOUS THOUGHT (II). (3)
The history of Judeo-Christian religious thought from the Protestant Reformation to present.

HIS 350 TOPICS IN U.S. HISTORY BEFORE 1789. (3)
Readings, research, and discussions in seminar format to illuminate problems of historical and contemporary significance, in areas of special faculty competence. May be repeated once. Lecture, two hours; conference, one hour. Prereq: Consent of instructor mandatory.

HIS 351 TOPICS IN U.S. HISTORY SINCE 1789. (3)
Same as HIS 350. Prereq: Consent of instructor mandatory.

HIS 352 TOPICS IN EUROPEAN HISTORY BEFORE 1789. (3)
Same as HIS 350. Prereq: Consent of instructor mandatory.

HIS 353 TOPICS IN EUROPEAN HISTORY SINCE 1789. (3)
Same as HIS 350. Prereq: Consent of instructor mandatory.

HIS 395 INDEPENDENT WORK. (1-3)
Under special conditions selected students may investigate problems with weekly reports to the instructor. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department.

HIS 595 STUDIES IN HISTORY. (3)
Professors will offer lecture and discussion courses in areas in which they have special teaching interest. May be repeated to a maximum of six credits. Prereq: To be denoted by the instructor.

III. NON-WESTERN HISTORY

A. AFRICA

HIS 254 HISTORY OF SUB-SAHARAN AFRICA. (3)
A survey of the social institutions, value systems and political organization of Sub-Saharan Africa since the 16th century but with particular emphasis on the 19th and 20th centuries.

B. LATIN AMERICA

HIS 201 INTRODUCTION TO LATIN AMERICA. (3)
An interdisciplinary approach to the history, culture, and development of the Latin American republics and their people. Attention will be concentrated on significant aspects of the geography of Latin America, its history, society and values, politics, economics, and culture. Team taught. (Same as LAS 201.)

HIS 585 SPAIN AND PORTUGAL IN AMERICA. (3)
After a survey of pre-Columbian Amerindian cultures, study of the origins and development of the Spanish and Portuguese colonies in America; their relationship with Iberian and other European states; Spanish-Amerindian relations; slavery; domestic economies; independence movements in the two empires. Prereq: HIS/LAS 201 or equivalent or consent of instructor.

HIS 586 MODERN MEXICO. (3)
Following a brief survey of Mexican political history from Independence to the present, this course will examine topically major historical themes, such as landholding and agrarian problems, church and state, and assessment of the 1910 Revolution. Prereq: HIS/LAS 201 or equivalent or consent of instructor.

HIS 587 MODERN VENEZUELA, COLOMBIA, AND LATIN CARIBBEAN. (3)
This course will examine the struggle for identity, nationhood, and social justice in five countries of the circum-Caribbean area during the 19th and 20th centuries. It will emphasize such themes as Venezuela's oil prosperity and evolution toward democracy, Colombia's trial by violence, Cuba's Revolution, and Haiti's and the Dominican Republic's dependence on the United States. Prereq: HIS/LAS 201 or equivalent or consent of instructor.

C. MIDDLE EAST

HIS 247 HISTORY OF ISLAM AND MIDDLE EAST PEOPLES, 500-1250, A.D. (3)
A survey of the origins and development of the Islamic civilization from the time of the Prophet Muhammad to 1250, with special concentration on the role of the Arab, Iranian and Turkic peoples.

HIS 248 HISTORY OF ISLAM AND MIDDLE EAST PEOPLES, 1250 TO THE PRESENT. (3)
A continuation of HIS 247. A survey of the religion and institutions of the Islamic world in the Middle East with special emphasis on the Mongol, Ottoman, Safavid and Qajar empires. The demise of these empires, the response of the Middle East peoples to European imperialism, and their national development up to the present will be considered.

HIS 548 HISTORY OF THE MIDDLE EAST: 1916-1952. (3)
A history of Middle Eastern countries—Jordan, Syria, Lebanon, Egypt, Saudi Arabia, the Persian Gulf, Iran, Turkey and Israel. Emphasis will be on Arab nationalism, the creation of independent Arab countries and the creation of Israel.

HIS 549 HISTORY OF THE MIDDLE EAST: 1952 TO THE PRESENT. (3)
The history of Middle Eastern countries—Jordan, Syria, Lebanon, Israel, Egypt, Saudi Arabia, the Persian Gulf, Iran, and Turkey—1952 to the present.

D. EAST ASIA

HIS 295 EAST ASIA TO 1800. (3)
A survey of Chinese, Japanese and Korean history from earliest times to 1800. Emphasis on political, economic, social and intellectual developments.

HIS 296 EAST ASIA SINCE 1800. (3)
A continuation of HIS 295. A survey of the political and economic modernization of traditional East Asian society with emphasis on nationalistic reactions to Western pressure and international rivalry in East Asia.

HIS 590 JAPANESE HISTORY TO 1800. (3)
A broad survey of Japanese history from the earliest times to the zenith of shogunate rule under the Tokugawa family. In addition to tracing the major developments in Japanese political, social, and economic history, this course also emphasizes Shinto, Buddhism, Confucianism, and the introduction of Christianity.

HIS 591 JAPANESE HISTORY SINCE 1800. (3)
A continuation of HIS 590, from 1800 to present.

HIS 592 DIPLOMATIC HISTORY OF EAST ASIA SINCE 1787. (3)
A study of the international relations between China, Japan, and Korea and their relations with the major Western powers.

HIS 593 EAST ASIAN HISTORY SINCE WORLD WAR II. (3)
A study of the revolutionary political, economic and social changes occurring in China, Japan, and Korea in the aftermath of World War II. Important political and institutional developments and their relations to pre-war trends will be emphasized.

IV. EUROPEAN AND BRITISH HISTORY

A. SCIENCE AND WESTERN CULTURE

HIS 390 TECHNOLOGY AND CULTURE. (3)
Interaction of technology and culture with illustrations from the classical, medieval, Renaissance, Enlightenment, 19th century, and modern periods; also non-Western cultures. Emphasis on the character of the interactions. Prereq: HIS 106 or HIS 107 or consent of instructor.

HIS 504 GREEK AND ROMAN MEDICINE. (3)
An historical introduction to the development of Greek and Roman medicine, from the pre-Socratic philosophers through Oribasius and early medieval influences. Prereq: A course in ancient history, or classics, or ancient philosophy, or consent of instructor.

HIS 516 ORIGINS OF THE SCIENTIFIC WORLD VIEW. (3)
Ideas of natural order and man's place in the cosmos, the interactions of man and environment, the relationships of scientific thought and cultural values, from the ancients to the 18th century. Prereq: HIS 106 or consent of instructor.

For courses on American Science and Medicine, see HIS 583 and HIS 584.

B. EAST EUROPE AND RUSSIA

HIS 285 HISTORY OF RUSSIA TO 1825. (3)
A broad survey of the life of the Russian people and the development of the state from the ninth century through the reign of Alexander I. Although emphasis will be placed on political, economic, and social trends, cultural and intellectual achievements will also be discussed.

HIS 286 HISTORY OF RUSSIA SINCE 1825. (3)
A continuation of HIS 285, this course covers the last century of the Tsarist regime (1825-1917) and the evolution of the Soviet system that followed. Emphasis will be placed on the problems that led to the collapse of the monarchy, on the revolutionary movement, and on the Communist state and society under Lenin and Stalin.

HIS 534 RUSSIA IN THE 20TH CENTURY I. (3)
A survey of the reign of Nicholas II (1894-1917), the Revolutionary and Civil War period (1917-1921), and the consolidation of the Soviet regime to the beginning of Stalin's dictatorship in the late 1920's. Prereq: HIS 105 or equivalent.

HIS 535 RUSSIA IN THE 20TH CENTURY II. (3)
A continuation of HIS 534, this course examines the principal features of Soviet society under Stalin's dictatorship and the evolution of Soviet internal and external policy under his successors. Prereq: HIS 105 or equivalent.

HIS 536 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA TO 1800. (3)
A study of Russian culture to 1800 emphasizing Slavic paganism, Orthodox Christian culture in Kiev, Novgorod, and Muscovy, and the impact of the West in the Seventeenth and Eighteenth Centuries.

HIS 537 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA FROM 1800 TO THE PRESENT. (3)
A study of Russian culture from 1800 to the present emphasizing the conservative as well as the revolutionary tradition, the Russian avant-garde, Stalinist culture, and the Dissident Movement.

HIS 538 MARXISM: THE HISTORY OF SOCIALISM AND COMMUNISM. (3)
The life and thought of Karl Marx will be emphasized. Other topics include Marxism in Europe to 1914 and the rise of Communism on a world scale after the Bolshevik Revolution in Russia.

HIS 546 THE BYZANTINE EMPIRE. (3)
A study of Byzantine history from the time of Constantine the Great to the capture of Constantinople by the Turks in 1453. Prereq: HIS 104 or 247.

C. BRITAIN AND THE BRITISH EMPIRE

HIS 202 HISTORY OF BRITISH PEOPLE TO THE RESTORATION. (3)
From the Roman period to the Stuart period. A general survey of the various epochs and phases of the English people at home and abroad.

HIS 203 HISTORY OF THE BRITISH PEOPLE SINCE THE RESTORATION. (3)
From the Stuart period to the present. A continuation of HIS 202.

HIS 551 ENGLISH CONSTITUTIONAL HISTORY. (3)
After a survey of medieval background, the course will analyze the great constitutional crisis of 16th and 17th century England. Emphasis will be placed on studying legal developments in their social and political context.

HIS 553 EIGHTEENTH CENTURY BRITAIN. (3)
An analysis of English society and politics in an important transition period when the country was transformed by the Industrial Revolution and challenged by the French Revolution.

HIS 554 BRITISH HISTORY 1815-1901. (3)
A detailed study of Britain's political, social, diplomatic and industrial development in the 19th century.

HIS 555 BRITISH HISTORY SINCE 1901. (3)
A detailed study of Britain in the 20th century with special consideration of Britain in World War I and World War II, and her position in the contemporary world.

HIS 557 THE BRITISH EMPIRE AND COMMONWEALTH AFTER 1870. (3)
The British Empire, comprising 25 percent of the world's population and land surface at its height, was the largest and most powerful example of formal imperialism in recent times. The study of its history after 1870 involves an examination of power used to consolidate and defend, not to assert and expand: its history is that of an Empire. Among the specific topics to be investigated are Britain and the partition of Africa; British rule in India; imperial unity and the white Commonwealth; racism and Empire, the Irish question in imperial affairs; and the end of the British Empire.

D. WESTERN EUROPE

HIS 229 THE ANCIENT NEAR EAST AND GREECE TO THE DEATH OF ALEXANDER THE GREAT. (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the ancient Near East and Greece to the conquest of Greece by Philip of Macedon. (Same as CLA 229.)

HIS 230 THE HELLENISTIC WORLD AND ROME TO THE DEATH OF CONSTANTINE. (3)
Covers the conquests of Alexander the Great, and the main features of the Hellenistic world, the Roman Republic, and the Roman Empire to the death of Constantine. (Same as CLA 230.)

HIS 269 HISTORY OF THE JEWISH PEOPLE, 1492 TO PRESENT. (3)
A survey of Jewish history since the exclusion from Spain in 1492, concentrating on the structure of the Jewish community, the role of Jews in political, intellectual, artistic, and economic development, the process of Jewish emancipation, the rise of modern antisemitism, the Holocaust, and the establishment of Israel.

HIS 270 EARLY MIDDLE AGES. (3)
A survey of European history from the fourth through the mid-10th centuries.

HIS 271 LATER MIDDLE AGES. (3)
A survey of European history from the mid-10th through the 15th centuries.

HIS 500 PRECLASSICAL AND CLASSICAL GREECE. (3)
A history of Greece from earliest times to the death of Alexander the Great.

HIS 501 FOURTH-CENTURY GREECE AND THE HELLENISTIC WORLD. (3)
A history of Greece and the Greek world from the death of Alexander to the Roman conquest of Egypt. Prereq: HIS 500 or consent of instructor.

HIS 502 A HISTORY OF THE ROMAN REPUBLIC. (3)
A history of Rome from earliest times to the fall of the Republic. Emphasis will be placed upon the territorial expansion of Rome and the effects of this expansion on republican institutions.

HIS 503 A HISTORY OF THE ROMAN EMPIRE. (3)
A study of the foundation of the Roman Empire, the development of Imperial institutions, social and intellectual developments of the Graeco-Roman world. The decline of Rome and the barbarian invasions of the fourth century. Prereq: HIS 502 or consent of instructor.

HIS 509 ROMAN LAW. (3)
An historical introduction to the development of Roman law, from the Twelve Tables through the Codex Justinianus. Prereq: A course in ancient history or classics, or consent of instructor. (Same as CLA 509.)

HIS 510 MEDIEVAL CIVILIZATION I. (3)
Selected topics in the cultural and intellectual history of Latin Europe during the Middle Ages. The specific topics for a given semester will be listed in the schedule book.

HIS 511 MEDIEVAL CIVILIZATION II. (3)
A continuation of HIS 510. The specific topics for a given semester will be listed in the class schedule book.

HIS 512 MEDIEVAL INSTITUTIONS TO THE MID-10TH CENTURY. (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the fourth century to the breakup of the Carolingian Empire.

HIS 513 MEDIEVAL INSTITUTIONS SINCE THE MID-10TH CENTURY. (3)
A survey of medieval political, social, economic and ecclesiastical institutions from the beginning of the High Middle Ages to the middle of the 15th century.

HIS 519 THE ERA OF THE RENAISSANCE. (3)
An historical description and analysis of the development of political, economic, social, religious, intellectual and cultural institutions of Europe from Petrarch to Erasmus.

HIS 520 THE ERA OF THE REFORMATION. (3)
An historical description and analysis of the development of the religious, intellectual, cultural, political, economic and social institutions of Europe from Luther to the Treaty of Westphalia.

HIS 522 THE FRENCH AND EUROPEAN REVOLUTIONS, 1760-1815. (3)
A study of the origins and development of the French Revolution and the influence of the Revolution and Napoleon on Europe.

HIS 523 NINETEENTH CENTURY EUROPE. (3)
An analytical study of European politics, society, and culture in the age of industrialization, liberalism, and national unification. Particular emphasis on the goals and achievements of the middle classes and on the challenges to these raised by the working class, women, and intellectuals.

HIS 524 EUROPEAN DIPLOMACY 1870-1918. (3)
An analysis of diplomatic policy of the great continental powers in the period indicated. Domestic developments are considered when appropriate to an understanding of international affairs. Prereq: HIS 105 or consent of instructor.

HIS 525 EUROPEAN DIPLOMACY SINCE 1918. (3)
A study of the origins and consequences of the two World Wars with special emphasis on diplomatic affairs and the impact of modern totalitarianism on them. Prereq: HIS 105 or consent of instructor.

HIS 526 EUROPE SINCE WORLD WAR II. (3)
An examination of significant developments and changes in Western European states since 1940. Among the problems considered are political growth, evolution of diplomatic policy, European integration, and disarmament. Prereq: HIS 105 or consent of instructor.

HIS 528 CULTURAL AND INTELLECTUAL HISTORY OF EUROPE FROM THE RENAISSANCE TO THE FRENCH REVOLUTION. (3)
An interpretive analysis of the growth of ideas in Europe within their cultural setting. Emphasis upon the 17th and 19th centuries.

HIS 529 THE CULTURAL AND INTELLECTUAL HISTORY OF EUROPE SINCE 1800. (3)
An interpretive survey of European thought since the Romantic era. The course will combine discussion of major individuals, such as Marx, Darwin and Freud with examination of broader themes such as political ideologies, historicism, positivism, realism, and existentialism. Prereq: HIS 105 or permission of the instructor.

HIS 533 MODERN EUROPEAN IMPERIALISM. (3)
A comparative analysis of the motives, policies and sociopolitical effects of European overseas expansion in the 19th and 20th centuries. Prereq: HIS 105.

HIS 540 HISTORY OF MODERN FRANCE TO 1815. (3)
The course of French history to 1815, including the development of French political, administrative, legal, social, economic and cultural achievements and institutions and their contribution to the modern world. Prereq: Consent of instructor.

HIS 541 HISTORY OF MODERN FRANCE SINCE 1815. (3)
Continuation of HIS 540.

HIS 542 GERMAN HISTORY 1815-1914. (3)
This course is designed as a study of domestic development in Germany. While political history is emphasized, due consideration is given to social, economic and intellectual trends. Prereq: HIS 104, 105 or consent of instructor.

HIS 543 GERMAN HISTORY SINCE 1914. (3)
Examines the fall of Imperial Germany, the Weimar Republic, Hitlerian period, and the post-1945 era. The course is primarily concerned with internal affairs, but attention is directed to the international scene when crucial. Prereq: HIS 104, 105 or consent of instructor.

V. AMERICAN HISTORY.

HIS 240 HISTORY OF KENTUCKY. (3)
A general survey of the chief periods of Kentucky's growth and development from 1750 to the present.

HIS 260 AFRO-AMERICAN HISTORY TO 1865. (3)
A study of the Black experience in America through the Civil War. An examination of the African heritage, slavery, and the growth of Black institutions.

HIS 261 AFRO-AMERICAN HISTORY 1865-PRESENT. (3)
This course traces the Black experience from Reconstruction to the Civil Rights Movement of the 1960's. The rise of segregation and the ghetto and aspects of race relations are examined.

HIS 265 HISTORY OF WOMEN IN AMERICA. (3)
History of American women, with particular emphasis on the mid-19th through the mid-20th centuries. Major themes include the family, work, social ideas about women, and feminism. Prereq: HIS 109 or consent of instructor.

HIS 311 WAR AND PEACE IN AMERICAN SOCIETY. (3)
A consideration of the impact of war on the fabric of American society. America's involvements in and extrications from her various wars, in their diplomatic, economic, political and strategic dimensions, will be emphasized. Prereq: HIS 105; or HIS 108-109; or MS 301 and 302. (Same as MS 311.)

HIS 460 COLONIAL AMERICA TO 1763. (3)
This course explores a number of important themes in early America: the comparative view of Western European colonization efforts; the dynamics of a multiracial environment; the character of family, community and religious life; regional distinctiveness in social/economic life; and the maturation of the colonies in the 18th century.

HIS 461 THE AMERICAN REVOLUTION, 1763-1789. (3)
A study of the disagreement between Great Britain and the 13 colonies, the decision for independence, and the progress of revolutionary change through the ratification of the Federal Constitution.

HIS 462 THE NEW REPUBLIC, 1789-1820. (3)
An intensive study of the launching of the federal government, the rise of America's first parties, and the conflict over the completion of the revolutionary experiment.

HIS 463 EXPANSION AND CONFLICT, 1820-1860. (3)
A social and political study of the United States from 1820 to 1860, with special attention to the growth of Jacksonian democracy, territorial expansion, and the rise of the sectional controversy over slavery.

HIS 464 CIVIL WAR AND RECONSTRUCTION, 1860 TO 1877. (3)
A study of events immmediately preceding the outbreak of conflict, of the military campaigns, and of the social, economic, and political developments during the periods of war and reconstruction.

HIS 465 EMERGENCE OF MODERN AMERICA, 1877-1917. (3)
A study of the transformation of the U.S. from an agrarian society into an industrial nation covering the years from the Gilded Age to the American entry into World War I. This course emphasizes the growth of corporate capitalism, the emergence of modern political institutions, and the development of modern American foreign policy. It also explores how various Americans—workers, farmers, immigrants, women—responded to and were affected by industrialization.

HIS 466 MODERN AMERICAN HISTORY FROM WW I TO PEARL HARBOR, 1917-1941. (3)
A study of America in World War I and the interwar era, emphasizing political, economic, diplomatic, and social developments. The course examines the impact of the first world war and the great depression on America and the nature of the New Era and the New Deal.

HIS 467 MODERN AMERICAN HISTORY SINCE 1941. (3)
An intensive study of the United States from the American entry into World War II to the present, emphasizing diplomatic, military, political, economic, and sociocultural changes.

HIS 571 ECONOMIC HISTORY OF THE UNITED STATES-SINCE 1865. (3)
Emphasis is placed on post-Civil War economic and political changes caused by technology, internal and external business modification, the growing productivity of the United States, and, most importantly, the increasing role of government. Prereq: HIS 108 and 109, or consent of instructor.

HIS 572 AMERICAN LEGAL HISTORY. (3)
A history of law in the United States, emphasizing interrelationship of law and society. Particular attention given to law and economic growth, the criminal justice system, legal reform, the bar, and minorities and the law.

HIS 573 AMERICAN CONSTITUTIONAL HISTORY. (3)
A study of constitutional development in the United States from the colonial period to current times, with emphasis on the Supreme Court.

HIS 574 THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES TO 1919. (3)
A survey designed to acquaint the student with the principles of American foreign policy and its historical evolution. Prereq: HIS 108 or equivalent.

HIS 575 THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES SINCE 1919. (3)
A continuation of HIS 574. Foreign policy after the United States became a world power. Prereq: HIS 109 or equivalent.

HIS 578 HISTORY OF THE OLD SOUTH. (3)
A study of the colonial beginnings and expansion of southern life, economics, and society. The growth of slavery, staple agriculture, and sectional politics will constitute the major interest. Prereq: HIS 108.

HIS 579 HISTORY OF THE NEW SOUTH. (3)
The evolution of southern life and society, agrarian politics, relationships with other sections, industrial growth, and new leadership.

HIS 580 HISTORY OF APPALACHIA. (3)
A survey of the social, economic, and cultural history of Appalachia from the colonial period to the present with emphasis on the interaction of this social state region with the broader forces of social change at work in modern America. Prereq: HIS 108, 109 or consent of instructor.

HIS 581 U.S. URBAN HISTORY SINCE 1865. (3)
A study of urban America since 1865, emphasizing the impact of cities in the development of the United States, the processes by which cities grew and the effects of urbanization on city dwellers.

HIS 582 IMMIGRATION AND AMERICAN HISTORY, 1815 TO THE PRESENT. (3)
A study of the role of the immigrant in American history, emphasizing the impact of large scale immigration upon the receiving society and changes effected by the migration upon the new arrivals themselves, in the century after 1815, and the consequences of restriction in the decades since World War I.

HIS 584 THE RISE OF SCIENTIFIC MEDICINE IN THE UNITED STATES. (3)
A survey of the emergence of modern professional medicine in America, from colonial time to the present. Emphasis will be placed on the social and scientific context of medical thought, education, organization, and regulation. Prereq: HIS 390 or HIS 583 recommended, or by consent of instructor.

HIS 589 AMERICAN SOCIAL HISTORY SINCE 1865. (3)
Will examine developments in United States social history from the mid-19th century to the present. Emphasis will be placed on the impact of technology on work patterns and family life. Prereq: HIS 109 or consent of instructor.

HIS 596 THE U.S. FAMILY IN HISTORICAL PERSPECTIVE. (3)
A study of American family experience and values from its pre-industrial Anglo-European roots to the present. Using an interdisciplinary focus, the course will examine the shifting boundary between family and community and the interaction between domestic life and demographic, religious, and economic influences in American history. Prereq: FAM 353 or SOC 409 or equivalent, or consent of instructor. (Same as FAM 509, SOC 509.)

THE GRADUATE GROUP

SEMINARS

These seminars are designed to acquaint students with the problems, sources and secondary literature in the designated fields in order to prepare them for the graduate written and oral examinations.

HIS 606 HISTORICAL CRITICISM. (3)
Required of every entering graduate student in history.

HIS 611 READINGS IN ANCIENT HISTORY. (3)
An intensive study of the bibliography of Greek and Roman history, primary (in translation) and secondary, criticism and analysis of selected books, and of recent articles in professional journals. Prereq: Consent of instructor.

HIS 613 READINGS IN EARLY MEDIEVAL HISTORY. (3)
The problems, major sources and secondary literature in the period from the beginning of the fifth century to the end of the 10th century will be covered. Primary emphasis will be given to the Latin West. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another.

HIS 614 READINGS IN HIGH AND LATE MEDIEVAL HISTORY. (3)
Major source collections, selected problems and the secondary literature concerning these problems will be covered, from the middle of the 10th century to the end of the 15th century. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another.

HIS 615 READINGS IN HISTORY OF SCIENCE AND MEDICINE (THROUGH THE RENAISSANCE). (3)
An intensive study of bibliography and analytical reading of secondary literature for the areas of Antiquity, Middle Ages, and Renaissance. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HIS 616 READINGS IN HISTORY OF SCIENCE AND MEDICINE (SINCE THE RENAISSANCE). (3)
An intensive study of bibliography and analytic reading of secondary literature from the areas of scientific revolution and modern science and medicine. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HIS 622 READINGS IN EUROPEAN HISTORY, 1500-1815. (3)
This course is designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. May be repeated to a maximum of six credits if offered under a different instructor or if the topical coverage is sufficiently different. Prereq: An undergraduate course in European history.

HIS 623 READINGS IN EUROPEAN CULTURAL HISTORY SINCE 1815. (3)
A critical survey of problems and literature on cultural and ideological movements of the 19th and 20th centuries. Among the topics to be considered are: revolution, industrialization, romanticism, imperialism, fascism, and total war. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another. Prereq: An undergraduate course in European history.

HIS 624 READINGS IN EUROPEAN POLITICAL AND DIPLOMATIC HISTORY SINCE 1815. (3)
A critical survey of problems and literature in political and diplomatic developments of the 19th and 20th centuries. May be repeated to a maximum of six credits when topical coverage is sufficiently different from one semester to another. Prereq: An undergraduate course in European history.

HIS 626 READINGS IN BRITISH AND BRITISH EMPIRE HISTORY. (3)
An intensive study of the bibliography of British and British Empire history, primary and secondary, with readings, analyses and criticisms of selected titles in the literature of the field and of recent published research in the professional journals. May be repeated to a maximum of six credits if offered under a different instructor or the topical coverage is sufficiently different. Prereq: An undergraduate course in British history.

HIS 630 READINGS IN AMERICAN HISTORY: THE COLONIAL ERA. (3)
An intensive survey of the major historiographical issues and the secondary literature of the Colonial Era. Lecture, two hours; library, one hour per week.

HIS 631 READINGS IN AMERICAN HISTORY: THE AMERICAN REVOLUTION AND THE NEW REPUBLIC. (3)
An intensive survey of the major historiographical issues and the secondary literature of the American Revolution and the New Republic.

HIS 632 READINGS IN AMERICAN HISTORY: THE AGE OF JACKSON, THE CIVIL WAR, AND RECONSTRUCTION. (3)
An intensive survey of the major historiographical issues and the secondary literature of the Age of Jackson, the Civil War and Reconstruction.

HIS 633 READINGS IN AMERICAN HISTORY: THE GILDED AGE AND THE PROGRESSIVE ERA. (3)
An intensive survey of the major historiographical issues and the secondary literature of the Gilded Age and the Progressive Era.

HIS 634 READINGS IN AMERICAN HISTORY: AMERICA SINCE 1920. (3)
An intensive survey of the major historiographical issues and the secondary literature of America since 1920.

HIS 639 READINGS IN EAST ASIAN HISTORY. (3)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of Chinese history during the Ch'ing Dynasty (1644-1912) and Japanese history during the Tokugawa period (1615-1867). Prereq: Consent of instructor.

HIS 640 READINGS IN EAST ASIAN HISTORY. (3)
Supervised reading at the graduate level of a select topical bibliography covering the main themes of Chinese history since 1895 and Japanese history since 1868. Prereq: Consent of instructor.

HIS 650 READINGS IN SPECIAL TOPICS IN HISTORY. (3)
Supervised reading at the graduate level of a selected bibliography of the essential literature of various special topics. May be repeated to a maximum of nine credits with different topics. Prereq: Consent of instructor.

HIS 695 INDEPENDENT WORK. (1-3)
Under special conditions selected students may investigate problems, with weekly reports to instructor. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

COURSES IN THE 700 GROUP

These seminars are designed to introduce students to the methods, resources and auxiliary disciplines necessary to research in the designated fields in order to prepare them for the writing of theses and dissertations.

HIS 700 SPECIAL PROBLEMS IN HISTORY. (3)
Professors will conduct research seminars in topics or problems in which they have special research interests. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor.

HIS 706 SEMINAR IN MEDIEVAL HISTORY. (3)
Directed research on a common problem. May be repeated to a maximum of 12 credits. Prereq: A reading knowledge of Latin or of one European language or consent of instructor.

HIS 710 SEMINAR IN AMERICAN HISTORY, 1607-1815. (3)
May be repeated to a maximum of 12 credits.

HIS 711 SEMINAR IN AMERICAN HISTORY, 1815-1865. (3)
May be repeated to a maximum of 12 credits.

HIS 712 SEMINAR IN AMERICAN HISTORY, 1865 TO THE PRESENT. (3)
May be repeated to a maximum of 12 credits.

HIS 722 SEMINAR IN MODERN EUROPEAN HISTORY, 1870 TO THE PRESENT. (3)
May be repeated to a maximum of 12 credits.

HIS 730 SEMINAR IN MODERN BRITISH HISTORY. (3)
May be repeated to a maximum of 12 credits.

THESES

HIS 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

HIS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

HIS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

HOME ECONOMICS

HE 100 AN INTRODUCTION TO HOME ECONOMICS PROFESSIONS. (1)
An orientation to home economics, its contemporary issues, national development and philosophy, unifying concepts, areas of specialization, unique elements, leaders and professional organizations.

HE 300 SPECIAL COURSE IN HOME ECONOMICS (Subtitle required). (1-3)
Interdisciplinary, topical or experimental course to be approved by the appropriate department chairperson and by the Dean of the College of Home Economics. Open to all University students, subject to limits or prerequisites set by the instructor. May be repeated to a maximum of six credits.

HE 400 CONCEPTS IN HOME ECONOMICS: INTEGRATION AND APPLICATION. (2)
Interdisciplinary approach to the solution of family and individual problems. Application of concepts from the developmental, relational, managerial, nutritional, and environmental studies within the college and support disciplines. Prereq: Senior standing, HE 100, or consent of instructor.

HONORS

HON 101 FRESHMAN COLLOQUIUM. (3)
From Greek and Roman antiquity to the early Christian centuries: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty. Satisfies three hours of freshman English requirement, but A or B grades considered equivalent to ENG 105. Written assignments required.

HON 102 FRESHMAN COLLOQUIUM. (3)
From the Middle Ages through the Reformation; an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty. Satisfies three hours of freshman English requirement, or three hours of Area V, Humanities (sequence A, section 1) requirement. Written assignments required.

HON 104 FRESHMAN COLLOQUIUM. (3)
"Roman World." Satisfies three hours of freshman English requirement, or three hours of Area V, Humanities, requirement. Written assignments required. Prereq: HON 101.

HON 201 SOPHOMORE COLLOQUIUM. (3)
From the development of the modern scientific method through mid-19th century industrialism: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty. May be used to fulfill three hours of Area V requirement.

HON 202 SOPHOMORE COLLOQUIUM. (3)
The contemporary world: an interdisciplinary course in intellectual history. Readings vary at the discretion of the faculty. May be used to fulfill three hours of Area V requirement.

HON 300 SPECIAL COURSE. (1-6)
Interdisciplinary, topical, experimental course to be approved by Honor subcommittee, taught by one or several instructors. Open to HP students and selected others at junior-senior level.

HON 301 PROSEMINAR. (3)
An interdisciplinary seminar in the history of culture; topics will vary from semester to semester, but a substantial research essay is always required. This course will satisfy the Honors program requirement for Independent Study. May be repeated to a maximum of six hours. Prereq: Junior standing, or HON 201, 202.

HON 395 INDEPENDENT WORK. (3-15)
Prereq: Upper division standing, membership in Honors Program, consent of Honors Director.

HON 398 UNDERGRADUATE THESIS. (6-15)
A formal thesis on a subject of the student's choosing, to be directed by a professor in his major department with the assistance of two other faculty members, one of whom must be from the Honors Program faculty. Prereq: Junior-Senior status, good standing in Honors Program, and written permission from the Director of the Honors Program.

HON 399 FIELD-BASED/COMMUNITY-BASED EDUCATION. (1-15)
A community-based or field-based experience under the supervision of a faculty member. May be repeated to a maximum of 30 credits. Prereq: Consent of instructor and department chairperson; completion of departmental learning agreement.

HORTICULTURE AND LANDSCAPE ARCHITECTURE

HOR 100 INTRODUCTORY HORTICULTURE. (1)
An orientation survey of horticulture as a profession to inform students of opportunities and develop an appreciation of horticultural science as it relates to man's environment. Not open to plant science majors with junior or senior standing.

HOR 203 HOME HORTICULTURE. (3)
A general horticulture course encompassing the use of ornamental plants, vegetable and fruit crops, and landscape design for the nonhorticulture major. (May not be used to fulfill horticulture departmental requirements.)

HOR 245 PLANTS FOR INTERIORS I. (1)
Identification, environmental requirements, and use of tropical and flowering plants in interior environments. Laboratory, two hours per week.

HOR 327 WOODY PLANTS I. (3)
A detailed study of evergreen and deciduous trees, shrubs, vines, and ground covers occurring in the landscape; their systematic identification, hardiness, form, growth habit, size, culture, adaptation to environmental conditions, uses, and outstanding horticultural characteristics. Lecture, two hours; laboratory, three hours. Prereq: BIO 106 and 107 or consent of instructor.

HOR 329 WOODY PLANTS II. (4)
A continuation of HOR 327. Lecture, three hours; laboratory, three hours. Prereq: HOR 327.

HOR 330 ANNUAL AND PERENNIAL FLOWERS. (3)
The identification, culture, and use of garden plants, including annuals, perennials, bulbs, flowering vines, rock and water garden species. Lecture, two hours; laboratory, two hours.

HOR 335 GREENHOUSE MANAGEMENT. (3)
A study of greenhouse structures, the greenhouse equipment, systems used to regulate the greenhouse environment and the effect of the environment on the growth of plants. Prereq: BIO 106, MA 123, CHE 105 or equivalent.

HOR 340 FLORAL DESIGN. (3)
Design work related to the florist industry. Lecture, two hours; laboratory, two hours per week. Prereq: Junior or senior standing.

HOR 345 PLANTS FOR INTERIORS II. (3)
Identification, production, and maintenance practices of tropical plants used in commercial interior landscapes, conservatories, and botanic gardens. Lecture, two hours; laboratory, two hours per week. Prereq: HOR 245 and HOR 335 recommended.

HOR 350 PLANT PROPAGATION. (3)
A study of the principles and practices involved in producing plants by sexual and asexual methods and to provide the basic skills necessary for using these methods. The interrelationship of plant growth, structure and the environment as they affect the ability to propagate plants by a specific method. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and BIO 107.

HOR 352 NURSERY PRODUCTION. (3)
An introduction to the production practices of container and field grown nursery stock as they relate to management and operation of a nursery business. A two to three-day field trip is required. Two hours lecture per week; three hours laboratory per week. Prereq: Horticulture majors with junior standing; HOR 327 and HOR 335 (both of which can be taken concurrently, or consent of instructor).

HOR 399 EXPERIENTIAL LEARNING IN HORTICULTURE. (1-6)
An experience working in horticulture or a closely related field in which the student develops manual and management skills and applies theory to practice. May be repeated for a maximum of six credits as an elective on a pass/fail basis. Prereq: Completion of learning agreement prior to registration with a faculty member of the department.

HOR 400G SPECIAL TOPICS IN HORTICULTURE. (1-3)
Discussion of current practices and recent research information in horticulture to further knowledge of professional agricultural workers such as vocational agricultural instructors, extension personnel and others who need additional information in specific areas of propagation, nutrition, physiology, management and cultural technology. Enrollment is not open to Horticulture/Landscape majors. May be repeated to a maximum of nine credits.

HOR 402 POMOLOGY: DECIDUOUS FRUITS I. (4)
A detailed study of the care and management of commercial plantings of deciduous fruits (both small and tree). Lecture, three hours; laboratory, two hours. Prereq: A course in botany.

HOR 450 LANDSCAPE INSTALLATION. (3)
Discussion of exterior and interior landscape site evaluation, modification, installation of irrigation systems and plant material, and the management aspects of plant installation. Lecture, two hours; Laboratory, three hours per week.

HOR 451 LANDSCAPE MAINTENANCE. (3)
Discussion of the protection, pruning, repair, and culture of plant material in landscape plantings as well as the diagnosis of plant-related problems and the management principles of landscape maintenance. Lecture, two hours; laboratory, three hours per week. Prereq: HOR 329, PPA 400G, ENT 320.

HOR 510 VEGETABLE CROP PRODUCTION. (3)
A study of the fundamental principles underlying production of vegetable crops in the field and in the greenhouse. Lecture, two hours; laboratory, two hours. Prereq: HOR 335.

HOR 515 TURF MANAGEMENT. (3)
A study of the selection, culture, and management of certain turf species used for home lawns, golf courses, athletic fields, and highway slopes. Lecture, two hours; laboratory, two hours. Prereq: One botany and one soils course. (Same as AGR 515.)

HOR 524 FLORICULTURE. (3)
A detailed study of specific groups of florists' crops, with particular reference to methods of control of flowering and growth. Lecture, two hours; laboratory, two hours. Prereq: HOR 335.

HOR 582 SPECIAL PROBLEMS IN HORTICULTURE. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

HOR 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 735 or BCH 501 or consent of instructor. (Same as AGR/BIO 732.)

HOR 734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT. (3)
A critical evaluation of research in selected aspects of plant growth and development. Emphasis will be on effects of growth environment. Prereq: BIO 530 or consent of instructor. (Same as BIO 734/AGR 734.)

HOR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

HOR 770 SEMINAR. (1)
May be repeated to a maximum of three credits.

HOR 790 RESEARCH IN HORTICULTURE. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

LA 205 HISTORY OF LANDSCAPE ARCHITECTURE. (3)
A study of landscape design through past civilizations and how these have influenced our present approach to dealing with our landscape.

LA 206 CONTEMPORARY LANDSCAPE ARCHITECTURE. (3)
A survey of contemporary landscape architecture, its evaluation and implications for the future of the practice. Prereq: LA 205.

LA 801 LANDSCAPE ARCHITECTURE DESIGN STUDIO I—DESIGN COMMUNICATION. (6)
Instruction and exploration of design drawing and presentation graphics as it relates to environmental awareness and landscape architectural problem-solving. Lecture, two hours; studio, 12 hours. Prereq: ARC 102 or with consent of the instructor.

LA 802 LANDSCAPE ARCHITECTURE DESIGN STUDIO II. (6)
Investigation into design principles and processes and their application in solving landscape architectural problems. Includes advanced graphic techniques and examination of landscape architectural projects in the local area. Lecture, two hours; studio, 12 hours. Prereq: LA 801 or with consent of the instructor.

LA 810 LANDSCAPE CONSTRUCTION I. (4)
A study of landscape architecture construction materials such as paving types and their applications. Development of skills in grading, drainage, and preparation of working drawings and materials specifications. Lecture, two hours; studio, six hours. Prereq: CE 100 or equivalent or permission of the instructor.

LA 812 LANDSCAPE CONSTRUCTION II. (3)
A continuation of the study of landscape construction to develop competencies in performing calculations necessary to solve problems of simple structures, subsurface drainage systems, and road alignment. Lecture, two hours; studio, two hours. Prereq: LA 810.

LA 831 LANDSCAPE ARCHITECTURE DESIGN STUDIO III. (6)
Studio design course emphasizing design process and principles in the development of design solutions for a variety of projects. Lecture, two hours; studio, 12 hours. Prereq: LA 801, 802 and ARC 101, 102 with a minimum grade of C, and HOR 327 and 329.

LA 832 LANDSCAPE ARCHITECTURE DESIGN STUDIO IV. (6)
Studio design course with emphasis on project-type design and an introduction to large scale site planning. Lecture, two hours; studio, 12 hours. Prereq: LA 831 with a minimum grade of C.

LA 850 LANDSCAPE ARCHITECTURE GRAPHICS.(3)
A study of landscape architecture graphics including freehand sketching, plan, section, and perspective drawing. Rendering techniques in both black and white and color will be explored with a variety of media including pencil, marker, pastel, and airbrush. Lecture, two hours; studio, two hours per week. Prereq: May not be taken with or after LA 852; non-LA majors must have permission of instructor.

LA 851 STUDIES IN LANDSCAPE ARCHITECTURE: PLANTING DESIGN. (3)
A detailed study of the use of various ornamental and native plant materials to express the basic design principles and functions in the landscape. Lecture, two hours; practicum, two hours. Prereq: One course in ornamental plants or permission of the instructor.

LA 852 DESIGN COMMUNICATIONS. (3)
The course will focus upon the need for effective design communication with an emphasis placed on multi-media presentations. Subject areas include: the role of communication in the design process, preparing presentations, delivering presentations and tools for presentations. Lecture, two hours; laboratory, two hours. Prereq: LA 801 and LA 802 or permission of instructor.

LA 853 TOPICS IN URBAN DESIGN. (3)
Exploration of topics related to urban design, specific topics will be analyzed through case studies of historical and contemporary urban spaces. Lecture, two hours; laboratory, two hours. Prereq: LA 801 and LA 802 or permission of instructor.

LA 895 INDEPENDENT WORK IN LANDSCAPE ARCHITECTURE. (1-6)
Advanced topical studies in landscape architecture allowing for individual research or a work/travel experience coordinated with academic pursuits. May be repeated to a maximum of nine credits. Prereq: Permission of faculty.

LA 901 REGIONAL LAND USE PLANNING AND DEVELOPMENT. (6)
An introduction to regional planning principles and their relationship to the physical, social, and visual environment. The application of land use planning methods including use of the computer. Lecture, three hours; practicum, six hours.

LA 902 ADVANCED LANDSCAPE ARCHITECTURE STUDIO I. (6)
Application of landscape architecture design principles to solve problems at a variety of scales emphasizing process as well as form generation in a creative and historic context. Lecture, two hours; studio, ten hours. Prereq: LA 832.

LA 903 ADVANCED LANDSCAPE ARCHITECTURE STUDIO II. (6)
Advanced work on site design, site engineering, construction, and cost estimating. Students will develop a comprehensive set of working drawings while applying the methods and principles commonly used in the landscape architecture profession. Lecture, two hours; studio, 12 hours. Prereq: LA 902 with a minimum grade of "C" and LA 812.

LA 950 PROFESSIONAL PRACTICE. (3)
Investigation into the legal, ethical, managerial and cultural conventions of the professional practice of landscape architecture. Two hours lecture per week; two studio hours per week. Prereq: LA major of senior standing.

LA 951 SENIOR PROJECT. (3)
A major research, investigation or design project to serve as the capstone experience in landscape architecture. Prereq: Senior landscape architecture major and an approved project proposal.

HUMAN ENVIRONMENT: DESIGN AND TEXTILES

DESIGN COURSES

HED 101 CREATIVITY, DESIGN AND ENVIRONMENTS. (3)
A survey of creativity in interiors, apparel, and decorative arts. The emphasis is on the interrelationship of design with materials, technology, fashion, society, communication, and human behavior. Cultural case studies illustrate prominent design imagery of the Western mind. (Same as HET 101.)

HED 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT. (3)
A study of Japanese life with emphasis on the philosophical and cultural differences with the West as expressed through family life, nutrition practices, and the designed environment. Lectures, discussion, written analysis and research. (Same as FAM/HET/NFS 110.)

HED 141 HISTORY AND THEORY OF DESIGN I. (3)
An historical survey of the development of interior design, architecture and urbanism from the ancient world to the Renaissance, with primary emphasis on the principles of aesthetic philosophy and design theory. Lectures, visuals, readings, discussions, historical analysis, research and field trips.

HED 142 HISTORY AND THEORY OF DESIGN II. (3)
An historical survey of the development of interior design, architecture and urbanism from the Renaissance to the present, with primary emphasis on the principles of aesthetic philosophy and design theory. Lectures, visuals, readings, discussions, historical analysis, research and field trips.

HED 151 CREATIVE DESIGN FOUNDATIONS. (4)
Exploration of the basic design elements and principles as they relate to two- and three-dimensional design. Fundamental studio experiences include line analysis and application of line, shape, form, space, texture, and color. Studio, eight hours per week. Prereq: Design major only.

HED 152 VISUAL FUNDAMENTALS. (2)
Introduction of the application of basic design elements and principles to the development of interior space. Basic graphic presentation drawings are initiated and explored. Studio, four hours per week. Prereq: HED 151.

HED 203 INTERIOR DESIGN STUDIO I: DESIGN AND SINGLE SPACE/SINGLE FUNCTION. (3)
Study of form, material, and basic design principles as they relate to interior environments of microscale. Emphasis on aesthetic, functional, and pragmatic aspects of individual shelter. Studio, six hours. Prereq: HED 102, HED 104 for majors. Consent of instructor for nonmajors.

HED 204 INTERIOR DESIGN STUDIO II: DESIGN AND MULTI SPACE/MULTI FUNCTION. (3)
A continuing study of man's micro environment: the intimate shelter as a separate and multiple unit. Emphasis placed on aesthetic, functional, mechanical, material, and financial considerations and regional culture. Studio experience: related readings, discussions, and field trips. Studio, six hours. Prereq: HED 203 or consent of instructor.

HED 206 EN PRO I: ENVIRONMENTAL PRODUCT SURVEY. (3)
Survey of materials and production methods of interior architectural components: metal, masonry, ceramics, glass, plastics and textiles. Emphasis on performance properties, priorities of function, appearance retention, and maintenance requirements for design specification of production materials.

HED 244 THEORY OF 20TH CENTURY DESIGN. (3)
An in-depth analysis of the seminal works in interior design, architecture, and urbanism, with emphasis on the major concepts in design theory and aesthetic philosophy of the 20th century. Lectures, readings, discussions, historical analysis, research, and field trips. Prereq: HED 141, HED 142.

HED 253 INTERIOR DESIGN GRAPHIC COMMUNICATION. (4)
An introduction to graphic communication theory and the various techniques of drawing employed in the interior design process. Both free hand schematics and technical conventions are explored in achromatic media. Studio experiences, analyses, discussions, readings and field trips. Studio, eight hours per week. Prereq: HED 152.

HED 254 GRAPHIC THINKING AND COLOR PRESENTATION. (3)
An exploration of the integration of drawing, design, and concept communication. Emphasis on graphic communication during the process of design for visualizing, evaluating, and conveying design ideas. Graphic representation methods used to describe and analyze interior space. Emphasis on quick presentation techniques in color. Studio experiences, analyses, discussions, readings and field trips. Studio, six hours per week. Prereq: HED 253.

HED 263 STRUCTURAL SYSTEMS AND MATERIALS. (3)
An overview of residential and commercial building systems, materials, building codes, life safety considerations, and architectural working drawings. The focus is on the structural design of a building and its influence on the interior environment. Lectures, discussions, readings, calculations and field trips.

HED 264 ENVIRONMENTAL CONTROL SYSTEMS I.(3)
An introduction and overview of mechanical and electrical systems and how they control the building's interior environment. Subject matter includes water supply, drainage, heating, air-conditioning, ventilation, electrical systems, lighting acoustics, reading construction drawings, and issues of energy conservation. Lectures, discussions, readings, research and field trips. Prereq: HED 263.

HED 273 INTERIOR DESIGN AWARENESS. (3)
A survey of interior design principles, practices, theories, products and trends. Visuals, readings, discussions and exercises. Emphasis on increasing participant's awareness of interior space and the inherent physical and psychological qualities of one's personal environment. Nonmajors only.

HED 289 JAPANESE AESTHETICS IN DESIGN. (3)
A survey of Japanese aesthetics throughout history with emphasis on the philosophical and cultural differences with the West as expressed through the design environment. Lectures, discussion, field trips, visual and historical analysis, and research. (Same as HET 289.)

HED 305 INTERIOR DESIGN STUDIO III: DESIGN AND THE MACRO SPACE/MACRO FUNCTION. (3)
Analysis, organization and development of the macro environment relative to the human scale and habitability as an extended study of man's intermediate environment beyond the intimate shelter. Studio experiences include related readings, critiques, and field trips. Studio, six hours. Prereq: HED 204 or consent of instructor.

HED 306 INTERIOR DESIGN STUDIO IV: DESIGN AND THE MAXI SPACE/MAXI FUNCTION. (3)
Analysis, organization and development of maxi interior spaces, multi-function, as related to creative aspects of components, materials and resources. Emphasis is placed on establishing design priorities evolving from data gathering and problem-solving techniques. Studio experiences include related readings, critiques, and field trips. Studio, six hours. Prereq: HED 305.

HED 346 HUMAN FACTORS OF DESIGN THEORY.(3)
A study of the relationship between the built environment and people. Topics include human factor issues that relate to the design of interior spaces such as proxemics, anthropometrics, ergonomics, perception and the application of behavioral research in the design process. Prereq: Three hours in sociology or psychology.

HED 349 ANALYSIS OF HOUSING FORMS. (3)
The influence of social, cultural, political, and economic factors on housing, design, and construction. An historical analysis with emphasis on housing design theories in the U.S. during the 20th century. Lectures, discussions, readings, research and field trips.

HED 355 INTERIOR DESIGN STUDIO 1. (5)
Studio problems in interior design related to behavioral responses to static and kinetic spaces in personal and small group situations. Research analyses, discussions, critiques, field trips. Studio, 10 hours per week. Prereq: HED 254, HED 264 and approval for continuation from the Sophomore Portfolio Review. Concur: HED 365.

HED 356 INTERIOR DESIGN STUDIO 2. (5)
Intermediate studio problems in interior design. Emphasis on issues of public and private use of interior spaces such as exhibit/retail spaces, private and open office spaces, financial institution spaces and hospitality spaces. Research, analyses, discussions, critiques, field trips. Studio, 10 hours per week. Prereq: HED 355, HED 365.

HED 369 COLOR THEORY. (3)
The study of color theory and its application to the field of human environment. Color terminology, analysis of color theories, interaction of color, and physical and aesthetic aspects of color will be included. Application of theories will be made to clothing, textiles, interiors, and retail promotion. Lecture, one hour; studio, four hours per week. Prereq: HED 101 or equivalent.

HED 385 SPECIAL PROBLEMS IN INTERIOR DESIGN. (1-3)
Exploration of specific phases of the field of interior design. May be repeated to a maximum of six credits. Prereq: Junior standing and written consent of instructor prior to registration.

HED 405 INTERIOR LIGHTING: FUNDAMENTALS FOR THE DESIGNER. (3)
A study of principles, nomenclature, design requirements, and equipment for general and decorative illumination as utilized in the typical interior environment. Emphasis is placed on the methods of light generation, control, product analysis, selection, and specification for client use. Course experiences include lecture, discussions, related reading, applied learning exercises and field trips. Lecture, two hours; studio, two hours. Prereq: HED 204 or consent of instructor.

HED 480 MERCHANDISING AND DESIGN STUDY TOUR. (1-3)
A domestic or foreign study tour to include investigation of interests related to merchandising, apparel, and design. Professional visits are planned according to particular itineraries. Application and payment dates are determined each semester by the instructor. This course may be repeated one time if tour destinations are different. Prereq: Priority is given to majors and upperclassmen. All students are subject to instructor approval. (Same as HET 480.)

HED 507 INTERIOR DESIGN STUDIO V: TOTAL DESIGN/TOTAL FUNCTION. (3)
A study of specific human and physical needs encountered in the total design of interiors: field measurements, component mathematics; lighting, acoustical materials, shop drawings, models, and supportive business procedures; readings, critiques and field trips. Studio, six hours. Prereq: HED 306.

HED 508 INTERIOR DESIGN STUDIO VI: RESEARCH/EXPERIMENTATION/CREATIVITY. (3)
Advanced studio experiences in any aspect of the total interior environment. Emphasis is placed on experimental projects encompassing composite design fundamentals: need, research, function, component, solution, documentation, presentation, post-design evaluation, and project summary. Studio, six hours. Prereq: HED 507.

HED 536 EN PRO II: ENVIRONMENTAL PRODUCT DESIGN. (3)
Creative investigations in the origination of a functional or decorative component required to complete an interior environment: wall covering, floor covering, textile print, furniture and lighting. Studio experience includes subject selection, material selection, developmental sketches, shop drawings, and scaled prototypes. Studio, six hours. Prereq: Senior standing or consent of instructor.

HED 557 INTERIOR DESIGN STUDIO 3. (5)
Advanced studio problems in interior design related to commercial spaces: retail, office, financial and hospitality. Studio experiences, analyses, discussions, readings and field trips. Studio, 10 hours per week. Prereq: HED 356.

HED 558 INTERIOR DESIGN STUDIO 4. (5)
Specialized studio problems in interior design related to institutional spaces such as schools, hospitals and health care facilities. Studio experiences, analyses, discussions, readings and field trips. Studio, 10 hours per week. Prereq: HED 557.

HED 568 INTERIOR DESIGN PROFESSIONAL PRACTICE. (3)
The development of custom design elements and studies within the framework of proper business practices and documentations. Studio experience includes developmental sketches, material selection, shop drawing and scaled prototypes. Lectures, guest speakers, analyses, calculations, field trips. Lecture, two hours; studio, two hours per week. Prereq: Senior standing.

HED 569 COMPUTER-AIDED DESIGN. (3)
A study of the methods by which the computer may be used as a tool within the interior design profession. Lectures, laboratory, readings, discussions, functional analysis, research, and field trips. Lecture, two hours; laboratory, two hours per week. Prereq: HED 356.

HED 589 RES/PRES I: INTRODUCTORY CONCEPTS OF RESTORATION AND PRESERVATION. (3)
A general introduction to the separate and definable qualities of restoration and preservation as employed by the client/designer. A survey of 18th and 19th century architectural characteristics, related government agencies, local and national case studies. Class emphasis on readings, discussions, visuals, site visitations, and guest speakers. Prereq: Senior standing or consent of instructor.

HED 590 PRO/PRAC II: PROFESSIONAL PRACTICE AND FIELD EXPERIENCE. (3)
An arranged field assignment as a design assistant with an established interior design firm to provide interconnections and insights before the termination of formal education. Emphasis is placed on matching the individual and a studio indicative of the profession. Assignments within a 250 mile radius of the Lexington campus: accommodations arranged per individual. Studio, 40 hours. Prereq: HED 508.

HED 599 SPECIAL PROBLEMS IN SHELTER AND INTERIOR DESIGN. (1-3)
Advanced in-depth study of a specific phase of the interior environment. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: HED 536 or consent of instructor.

HED 739 SPECIAL PROBLEMS IN INTERIOR DESIGN. (1-3)
Advanced work on a specific subject with client contact and field experience. Emphasis is placed on data-gathering studies that precede creative graphic presentations and material decisions. Graduate standing. May be repeated to a maximum of six credits.

HED 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

HED 772 SEMINAR IN INTERIOR DESIGN. (2)
Investigation, analysis, and proposal of new and experimental aspects of the interior environment. May be repeated to a maximum of six hours.

TEXTILE COURSES

HET 101 CREATIVITY, DESIGN AND ENVIRONMENTS. (3)
A survey of creativity in interiors, apparel, and decorative arts. The emphasis is on the interrelationship of design with materials, technology, fashion, society, communication, and human behavior. Cultural case studies illustrate prominent design imagery of the Western mind. (Same as HED 101.)

HET 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT. (3)
A study of Japanese life with emphasis on the philosophical and cultural differences with the West as expressed through family life, nutrition practices, and the designed environment. Lectures, discussion, written analysis and research. (Same as FAM/HED/NFS 110.)

HET 120 TEXTILES FOR CONSUMERS. (3)
A study of textiles with emphasis on consumer applications. Properties of fibers, yarns, fabric structures, colors, and finishes as related to end use. Survey of legislation and of maintenance requirements. Not open to HET majors. Credit may not be earned for both HET 120 and 121.

HET 121 TEXTILES. (4)
The study of the chemical and physical properties of textiles from fiber to finished fabric. Laboratory analysis of the relationship between properties and performance characteristics. Survey of legislation, maintenance requirements, and product specifications. Credit may not be earned for both HET 120 and 121. Lecture, three hours; laboratory, two hours. Prereq: Departmental majors.

HET 214 AN INTRODUCTION TO FASHION MERCHANDISING. (3)
An introduction to the merchandising of fashion with emphasis on apparel and environmental products. A survey of the retail structures which facilitate the merchandising of fashion goods and services. Prereq: Sophomore standing.

HET 232 APPAREL PRODUCTION STUDIO. (3)
Principles of apparel production for men, women and children. Development of basic construction skills. Studio: Six hours. Prereq: HET 120 or HET 121.

HET 237 VISUAL DESIGN IN DRESS. (3)
An introduction to apparel style terminology. Application of design principles to apparel. Consideration of aesthetic and anthropometric needs of individual body types, color analysis, and wardrobe planning theory. Prereq: Majors—HET 101; Nonmajors—consent of instructor.

HET 289 JAPANESE AESTHETICS IN DESIGN. (3)
A survey of Japanese aesthetics throughout history with emphasis on the philosophical and cultural differences with the West as expressed through the design environment. Lectures, discussion, field trips, visual and historical analysis, and research. (Same as HED 289.)

HET 306 ANALYSIS OF APPAREL QUALITY. (3)
A study of the factors affecting the quality and cost of apparel in the ready-to-wear industry. An analytical approach to evaluating apparel quality and its relation to cost and consumer satisfaction. Industry field trip. Lecture, two hours; laboratory, two hours per week. Prereq: Majors—HET 121, 237; Nonmajors—consent of instructor.

HET 310 FASHION INDUSTRY. (3)
Organization and operation of the fashion industry; influence of designers, manufacturers, retailers, media and consumers on the evolution-diffusion of fashion. Introduction to fashion theory, fashion terminology and sociopsychological concepts related to fashion. Field trips. Prereq for majors: HET 237, COM 181. Prereq for nonmajors: Consent of instructor.

HET 312 APPLIED RETAIL PROMOTION. (3)
Survey of promotional procedures of retail organizations including methods for visual merchandising and special event production. Field trips. Lecture, two hours; studio, two hours. Prereq: HET 214, HET 237, HET 310.

HET 325 TEXTILE DESIGN—TEXTILE SCIENCE. (3)
The appraisal of aesthetic and functional factors of design applied to textiles. The integration of textile design methods with textile science testing procedures. Course content includes the production of original designs and individual laboratory research projects. Laboratory, three hours; studio, three hours per week. Prereq: HET 120 or 121, HED 151 or equivalent course in basic design.

HET 338 SURFACE GRAPHICS: MOTIF AND PATTERN DEVELOPMENT. (3)
Development of motif and pattern repeats intended for commercial production. Basic techniques used in creating design on two-dimensional surfaces. Emphasis on production design methods. Studio, six hours. Prereq: HED 151 or equivalent.

HET 325 TEXTILE DESIGN—TEXTILE SCIENCE. (3)
The appraisal of aesthetic and functional factors of design applied to textiles. The integration of textile design methods with textile science testing procedures. Course content includes the production of original designs and individual laboratory research projects. Laboratory, three hours; studio, three hours per week. Prereq: HET 120 or 121, HED 151 or equivalent course in basic design.

HET 347 INTERDISCIPLINARY APPROACH TO DRESS. (3)
A study of the social, cultural, physical, and psychological factors which influence apparel and apparel use in contemporary society. Prereq: Three hours in sociology or anthropology, three hours in psychology, HET 310.

HET 385 SPECIAL PROBLEMS IN MERCHANDISING, APPAREL AND TEXTILES. (1-3)
Exploration of specific phases of the field of textiles, clothing, and merchandising. May be repeated to a maximum of six credits. Prereq: Written consent of instructor prior to registration.

HET 414 MERCHANDISING PROCEDURES. (3)
Application of retail management and merchandising principles to the distribution of fashion goods and services. Prereq: HET 214, 310, marketing, accounting, six hours in economics. Must be taken concurrently with HET 415.

HET 415 APPLIED MERCHANDISE PLANNING AND CONTROL. (3)
Study and application of the retail planning and control procedures which are essential to retail merchandising. Prereq: ACC 201. Concur: HET 414.

HET 435G ADVANCED APPAREL PRODUCTION STUDIO (Subtitle required). (3)
Analysis and interpretation of apparel design or production methods. Application of techniques for patternmaking, special construction, new equipment, or experimental materials. May be repeated under a different topic to a maximum of nine credits. Studio, six hours per week. Prereq: HET 232, 306 and consent of instructor.

HET 480 MERCHANDISING AND DESIGN STUDY TOUR. (1-3)
A domestic or foreign study tour to include investigation of interests related to merchandising, apparel, and design. Professional visits are planned according to particular itineraries. Application and payment dates are determined each semester by the instructor. This course may be repeated one time if tour destinations are different. Prereq: Priority is given to majors and upperclassmen. All students are subject to instructor approval. (Same as HED 480.)

HET 510 THEORY AND INTERPRETATION OF FASHION. (3)
An analysis of the interdisciplinary nature of fashion. An examination of the theoretical basis of fashion change according to different perspectives, such as cyclical, economics, socio-cultural or innovation diffusion. A review of contemporary fashion research. Prereq: HET 347.

HET 522 HISTORY OF TEXTILES. (3)
Survey of the development of textiles from ancient to modern times. Emphasis on social, economic, technological and political effects on the evolution of textile fibers, fabric structures, color and design. Field trips. Prereq: HET 120 or 121, plus six hours in European history, Western culture, or art history.

HET 525 ECONOMICS OF THE APPAREL AND TEXTILE INDUSTRY. (3)
A critical review of the apparel and textile industries, including structure, marketing practices, and government policies that affect merchandising and consumption of apparel and textile products. Factors such as the role of labor unions will be examined as well as the effects of international trade on apparel and textile products. Prereq: HET 120 or 121, HET 310; ECO 201, 202.

HET 533 HISTORY OF COSTUME. (3)
Development of costume from ancient to modern times with consideration of historic, social, and economic setting. Field trips. Prereq: Six hours in European history, Western culture, or art history; or consent of instructor.

HET 545 CLOTHING FOR SPECIFIC NEEDS. (3)
A study of the social, psychological, and functional needs of clothing related to specific populations such as the elderly, children, handicapped persons, and occupational groups. Field trips. Prereq: HET 347.

HET 547 SOCIAL AND PSYCHOLOGICAL ASPECTS OF APPAREL. (3)
An advanced study of the social, psychological factors which influence apparel and apparel use with particular emphasis on research. Prereq: HET 347.

HET 590 MERCHANDISING FIELD STUDY. (6 or 9)
Supervised experience in merchandising procedures through a cooperative program with a retail establishment. Fall and summer semesters. Applications must be submitted according to designated schedule announced by the department during spring semester. Prereq: HET 312, 414, senior standing, retail selling experience, and approval of the department review panel.

HET 592 SPECIAL PROBLEMS IN APPAREL. (1-3)
Intensive work on specific phases of the field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HET 595 SPECIAL PROBLEMS IN MERCHANDISING (Subtitle required). (1-3)
Intensive work on specific phases of the field. May be repeated to a maximum of six credits. May not be repeated under the same subtitle. Prereq: Senior or graduate standing, or consent of instructor.

HET 597 SPECIAL PROBLEMS IN TEXTILES. (1-3)
Intensive work on specific phases of the field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HET 660 EXPERIMENTAL APPAREL CONSTRUCTION. (3)
Application and experimentation with garment construction techniques as related to fabric properties. Knowledge of fiber properties, yarn structure, fabric structure, and finishes will be applied in analyses of predicted garment performance. Lecture, one hour; laboratory, four hours. Prereq: HET 520 and one of the following: HET 334, HET 335 or HET 430G; or consent of instructor.

HET 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

HET 772 SEMINAR IN HUMAN ENVIRONMENT (Subtitle required). (3)
Current investigation of textiles, apparel, and interior design. May be repeated under a different subtitle to a maximum of six credits.

HET 782 SPECIAL PROBLEMS IN CLOTHING AND COSTUME DESIGN. (1-3)
Independent advanced work on a specific problem. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HET 787 SPECIAL PROBLEMS IN TEXTILES. (1-3)
Independent advanced work on a specific problem. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

INTERNATIONAL STUDIES PROGRAM

ISP 599 STUDY ABROAD. (1)
A course designed for undergraduate and graduate students who go abroad for study following a plan developed as part of their academic program and who are not otherwise registered at the University during the period overseas. Registration in the course would constitute full-time status. The course may be taken on a pass-fail basis for undergraduate students and audited by graduate students. Evaluation by the academic adviser will be an element of the plan. May be repeated to a maximum of three credits. Prereq: Approval by each student's academic department, the Registrar, and the Office for International Programs.

JOURNALISM

JOU 101 INTRODUCTION TO JOURNALISM. (3)
Lectures and readings to introduce students to basic communications theory, to foster an understanding of the history, current functioning, potential, and limitations of mass communication, to make them aware of the variety of professional opportunities within the mass media, and to prepare them to become intelligent media consumers and producers.

JOU 201 ETYMOLOGY. (3)
A study of words and their fundamental values with reference to development of a writing vocabulary. (Same as ENG 201.)

JOU 203 PRINCIPLES OF NEWS WRITING. (3)
Lectures and readings on the development of the modern news style. Practice in effective writing. Designed for noncommunication majors. Credit is not permitted for both JOU 203 and 204.

JOU 204 WRITING FOR THE MASS MEDIA. (3)
A course designed to introduce majors in the communications fields to practices and techniques in preparation of information materials for the printed and broadcast media. Designed for majors in the School of Communications. Credit is not permitted for both JOU 203 and 204. Lecture, one hour; laboratory, four hours per week.

JOU 241 COMMUNICATIONS PRACTICUM. (1-4)
Supervised laboratory work in the media of mass communications, with meetings for evaluation of work, study of techniques, analyses of problems, and reports. May be repeated to a maximum of four credits. (Offered in Community College System only.)

JOU 361 PRINCIPLES OF ADVERTISING. (3)
An introductory course in all phases of advertising and its role in contemporary society. Includes an overview of advertising as the communications process of marketing; a study of the creative message in print, radio, and television; the fundamentals of advertising research; a detailed study of media characteristics; an assessment of the advertising campaign and how it is planned in terms of strategy, information processing, sales promotions, and the media mix. Prereq: Junior standing. JOU 204 for journalism majors; MKT 300 for marketing majors.

JOU 387 INTRODUCTION TO PRESS PHOTOGRAPHY. (3)
A basic course in the use of cameras, and laboratory equipment in modern press photography, and a study of selected readings in photographic methods and skills.

JOU 395 INDEPENDENT WORK. (1-3)
Research and study of special problems proposed by journalism and communications students, approved by the department and supervised by a staff member. May be repeated to a maximum of seven credits.

JOU 399 INTERNSHIP IN JOURNALISM. (1-3)
Provides practical experience through work in journalism related jobs under supervision of a faculty member. A learning contract must be completed prior to registration. Normally limited to juniors and seniors. May be repeated to a maximum of three credit hours. Pass-fail only.

JOU 461 ADVERTISING MEDIA PLANNING. (3)
Strategies and tactics connected with the appropriation of advertising budgets, time and space buying, and the general statement of advertising objectives. Includes use of secondary data for target audience, cost efficiency, reach and frequency analyses. Examines both quantitative and qualitative aspects of the mass media. Prereq: JOU 361.

JOU 471 ADVERTISING RESEARCH. (3)
Introduces students to principles and methods of primary research as applied to problems of professional advertising. Topics prepare students to conduct advertising survey research and to buy and evaluate studies from custom research suppliers. Prereq: JOU 361 or consent of instructor.

JOU 481 ADVERTISING MESSAGE PREPARATION. (3)
Principles of verbal and visual communication for achieving advertising objectives. Consideration of perceptual, social, technological and legal determinants which affect decision making about an advertisement's content and form across major advertising media. Topics include selection of appeal, copy structure, graphic design principles, production methods, layout, credibility enhancement, and regulations affecting message content. Lecture, two hours; laboratory, two hours. Prereq: JOU 361.

JOU 485G COMMUNITY JOURNALISM. (3)
A study of all phases—editorial, advertising, circulation, production, management—of small town and suburban newspapers, with emphasis on the special concerns and opportunities of community newspaper editors and publishers. Prereq: JOU 204 or consent of instructor.

JOU 487 PHOTOJOURNALISM. (3)
This course provides an in-depth study of the many facets of photojournalism from the photo editor's vantage as opposed to that of the news photographer. The student will, while continuing to shoot assignments, probe the legal aspects of news photography; the ethics of the profession; look at the future of the field; shoot and lay out stories, and attend lectures by visitors from the profession. Lecture, one hour per week; laboratory, four hours per week. Prereq: JOU 387 and consent of instructor.

JOU 501 NEWS REPORTING. (3)
A reporting course which emphasizes special fields of information, news gathering, and news evaluation. Lecture, two hours; laboratory, two hours per week. Prereq: JOU 204 or equivalent.

JOU 503 COPYREADING AND EDITING. (3)
Instruction and practice in newspaper deskwork. Preparation of local, state, telegraph, and radio news and features; picture editing, and page make-up. Lecture, one hour; laboratory, four hours. Prereq: JOU 501.

JOU 509 MAGAZINE ARTICLE WRITING. (3)
Lectures, personal conferences, and practice in writing and submitting material for publication in magazines; study of the markets for this material; free-lance article writing.

JOU 510 PUBLICATIONS PRODUCTION. (3)
Study of the theory and practice in the techniques of effective communication through print. Primary emphasis will be on magazine, but other publications will be considered. The course will provide instruction in the processes involved in defining the purpose of, designing and producing a publication. Those are: planning, design, article grading and editing, picture selection, page layout, headline and title writing. Lecture, one hour; laboratory, four hours per week. Prereq: Consent of instructor.

JOU 527 THE PUBLIC AFFAIRS PROGRAM. (3)
The role of broadcasting in politics, public affairs, education, and the arts. A consideration of the factors which determine the form, function, and method used by documentaries, interviews, newscasts, and their program forms. Lecture, two hours; laboratory, two hours. Prereq: TEL 500.

JOU 531 LAW OF THE PRESS. (3)
A study of the special laws of libel, copyright, and regulatory provisions that pertain to the press.

JOU 532 ETHICS OF JOURNALISM AND MASS COMMUNICATION. (3)
An examination of the nature, role, and evaluation of ethics in journalism and mass communication. Key ethical issues will be analyzed conceptually and illustrated in case studies. The social, political, and economic context of ethical issues in journalism will be identified and examined. The objectives are to enhance the ability to use reason in resolving issues of value as they arise in the practice of journalism and mass communication. Prereq: PHI 130 or consent of instructor.

JOU 535 HISTORY OF JOURNALISM. (3)
A study of the rise and development of American journalism and newspapers.

JOU 537 SEMINAR IN PUBLIC OPINION. (3)
A detailed examination of techniques developed and used by the press in influencing public opinion. Specific cases studied. Latter part of course devoted to the preparation of newspaper campaigns dealing with current problems of society. Prereq: Senior or graduate standing.

JOU 539 REPORTING PUBLIC AFFAIRS. (3)
Instruction and practice in reporting the news originating in courts and other public institutions. Lecture: two hours; laboratory: two hours per week. Prereq: JOU 501.

JOU 541 PUBLIC RELATIONS. (3)
Lectures and practice dealing with the aims and methods of writing news and special articles for public relations programs of business, schools, colleges, libraries, and of social service organizations.

JOU 545 CASE STUDIES IN PUBLIC RELATIONS. (3)
This course is designed to reinforce and expand the knowledge learned in the introductory public relations course, JOU 541. The course will provide students with an opportunity to apply public relations principles and approaches to institutional experiences. Emphasis will be placed on actual case studies, and students are expected to demonstrate a high level of proficiency in written and oral communications skills. Prereq: JOU 101 or COM 101, JOU 203 or 204, and JOU 541.

JOU 581 BROADCAST ADVERTISING MESSAGE PREPARATION. (3)
A course designed to develop writing and visualizing skills in the creation of radio and TV commercials. Includes pertinent study of research and broadcast regulations. Several student commercials are produced during final weeks of semester. Lecture, two hours; laboratory, two hours. Prereq: JOU 361, or consent of instructor.

JOU 591 ADVERTISING CAMPAIGNS. (3)
An advanced course which enables senior advertising students to use acquired skills in creative, media, and research techniques to plan, execute and present a multimedia campaign. Students will work in teams competing for local or regional clients. Lecture, two hours; laboratory, two hours. Prereq: JOU 361, JOU 461, JOU 481, JOU 471 or instructor's consent.

JOU 597 SPECIAL TOPICS IN JOURNALISM (Subtitle required). (1-3)
Course will focus on selected topics drawn from various areas of general editorial, advertising, and public relations, taught by faculty members with special interest. May be repeated in courses of differing topics to a maximum of six credits. A title assigned each time course is offered. Prereq: Consent of instructor.

JOU 599 ADVANCED WRITING FOR THE MASS MEDIA. (3)
A course designed to provide communications majors advanced training in reporting and writing articles on current events, public issues, personalities, culture and entertainment for newspapers, magazines and the broadcast media. Twice weekly seminars; laboratory and independent work by students as needed to complete assignments; individual consultation between instructor and students. Prereq: Consent of instructor.

LATIN AMERICAN STUDIES

LAS 201 INTRODUCTION TO LATIN AMERICA. (3)
An interdisciplinary approach to the history, culture and development of the Latin American republics and their people. Attention will be concentrated on significant aspects of the geography of Latin America, its history, society and values, politics, economics, and culture. Team taught. (Same as HIS 201.)

LAS 395 INDEPENDENT WORK IN LATIN AMERICAN STUDIES. (3)
Directed study for students wishing to do specialized work on a topic related to the Latin American Studies area. May be repeated to a maximum of six credits. Prereq: LAS 201 and six hours course work from approved LAS courses.

LAS 401 DIRECTED RESEARCH IN LATIN AMERICAN STUDIES. (3)
Research on an interdisciplinary topic approved by the LAS Advisory Committee in the area of Latin American Studies. Prereq: Major in Latin American Studies; senior standing.

LIBRARY AND INFORMATION SCIENCE

LIS 504 INFORMATION IN SOCIETY. (3)
An introduction to the nature of information (both utilitarian and aesthetic) in contemporary society, and to the role played by libraries and other information organizations in disseminating that information. Emphasis is on developing perspective.

LIS 510 CHILDREN'S LITERATURE AND RELATED MATERIALS. (3)
A survey of children's literature, traditional and modern. Reading and evaluation of books with multimedia materials with emphasis on the needs and interests of children. Covers media for use by and with children from preschool through grade six.

LIS 513 LITERATURE AND RELATED MATERIALS FOR EARLY ADOLESCENCE. (3)
A study of integrated media to support the curriculum of the middle school. Emphasis is placed on evaluating literature appropriate for early adolescent problems and interests.

LIS 514 INFORMATION RESOURCES AND SERVICES FOR YOUNG ADULTS. (3)
A consideration of special characteristics and needs of young adults approximately ages 12-20 and the literature and information resources and services in all types of libraries designed to meet their needs.

LIS 530 INFORMATION SOURCES AND SERVICES. (3)
An introduction to basic information sources and services provided by libraries and information organizations. Consideration is also given to the ethics of information services, the user-system interface including question-negotiation and the formulation of effective search strategies, and the evaluation of information sources and information services.

LIS 535 INFORMATION STORAGE AND RETRIEVAL. (3)
A study of the basic principles and practices of information documentation, organization, storage, retrieval and dissemination. The structures of document surrogates, indexing languages, thesauri, natural language systems, catalogs and files, information storage media, retrieval systems, networks and information delivery systems are examined.

LIS 536 INFORMATION NEEDS AND USES. (3)
Examines methods of studying information needs and use patterns in society, and the results of research related to individual and/or group information needs, uses, and information-seeking behavior.

LIS 547 ADMINISTRATION OF SCHOOL MEDIA CENTERS. (3)
Leadership responsibility of the librarian in an age of changing media of communication, the philosophy of the modern school and the librarian's role in implementing it, acquiring, organizing and assisting faculty in learning to use all available media. Relation of the individual school to the district materials center, type of personnel, equipment and collections needed in each.

LIS 550 INTRODUCTION TO CATALOGING AND CLASSIFICATION. (3)
Introductory study of types of bibliographic records and the fundamentals of bibliographic description and subject analysis of print and nonprint information. On-line bibliographic networks introduced.

LIS 560 MANAGEMENT IN LIBRARY AND INFORMATION SCIENCE. (3)
An introduction to the basic elements of management and how these are applied to the effective administration of information systems. Focus will be placed on two major roles in a system, the person who is supervised as well as the manager or supervisor. Examination of the functions of planning, organization, staffing and controlling as well as the theories of management and the effective use of these in an information system.

LIS 575 PROFESSIONAL FIELD EXPERIENCE. (3)
Supervised internship in a library or other information agency to provide student with operational experience under the direction of a practicing information professional. Available to a limited number and only to those without similar experience. Minimum of 150 hours per semester. Prereq: Available only by permission of instructor.

LIS 576 SCHOOL MEDIA PRACTICUM. (3,9, or 12)
Supervised experience in school library media centers at the elementary and secondary levels. Required for students seeking certification as school/media librarians in Kentucky. Practicum will be under the joint supervision of college faculty and cooperating school media librarians. For those students who have a teaching certificate, only three credit hours are required. Prereq: Completion of 30 hour specialization.

LIS 587 MULTI-MEDIA MATERIALS IN LIBRARIES. (3)
Consideration of selection criteria and acquisition of nonprint software and hardware commonly found in libraries. Includes the library's role in local production, and use of the nonprint by a wide variety of audiences. Prereq: Postgraduate standing or consent of instructor.

LIS 602 HISTORY OF BOOKS AND PRINTING TO 1800. (3)
The making of books from earliest times to the end of the 18th century, including the manuscript book, the invention and spread of printing, type design, methods and styles of illustration. Technological, economic and political aspects will also be emphasized.

LIS 603 HISTORY OF BOOKS AND PRINTING 1800 TO THE PRESENT. (3)
The history of printing technology, publishing and bookselling since the French Revolution, focusing on the rise of a mass reading public in the 19th century. Book design and illustration are considered as reflections of changing artistic fashion under such headings as Victorian Medievalism, the Private Press movement, Art Nouveau, and Dadaism.

LIS 604 HISTORY OF LIBRARIES. (3)
Development of libraries from earliest times to the present with special reference to the relationship of the library to the contemporary social, economic, cultural and political trends. Emphasis on American library history.

LIS 606 INFORMATION TECHNOLOGY. (3)
A review of the microelectronics-based combination of computing and data communication that underpins modern information systems. Topics include computer system hardware and software; microelectronics; storage media; data communications networks, devices and media; information technology systems; future trends including the impact of IT on libraries and the printed word, and traditional information delivery.

LIS 608 METHODS OF RESEARCH IN LIBRARY AND INFORMATION SCIENCE. (3)
Basic tools, techniques and methods of research. Consideration is given to the role and purpose of research in library and information science and its relationship to research in other disciplines. Includes critical evaluation of current research in library and information science and the development of a research proposal.

LIS 609 CURRENT PROBLEMS IN LIBRARY AND INFORMATION SCIENCE. (3)
A seminar which examines current philosophical and managerial issues in library and information science. Focus is on the analysis, origins, evaluation and current status of these issues. Prereq: LIS 530, LIS 550, and LIS 560.

LIS 610 CREATIVE LIBRARY PROGRAMS FOR CHILDREN. (3)
A study of the oral tradition and its place in the cultural heritage of today. An introduction to the principles of storytelling, selection of stories, practice in telling, program planning, and development of creative visual forms. Prereq: LIS 510 and permission of instructor.

LIS 611 CRITICAL ANALYSIS OF CHILDREN'S LITERATURE. (3)
Advanced study of book evaluation, literary criticism, children's book publishing, awards, and current trends in the field. Individual projects require extensive critical reading. Prereq: LIS 510 and permission of instructor.

LIS 618 ADULT INFORMATION NEEDS AND SERVICES. (3)
The study of adult reading and information needs, interests and abilities; developmental psychology and lifelong learning concepts. Selection and evaluation of materials and their use in designing and implementing an effective program of library services to adults.

LIS 620 HISTORICAL AND ANALYTICAL BIBLIOGRAPHY. (3)
Introduction to the physical aspects of printed books and to the methods of analytical and descriptive bibliography. The Hand Press Period (1500-1800) is emphasized, but problems of the Machine Press Period (1800-1950) are also considered. Students study many sources of bibliographic information germane to work of the rare book and special collections librarian. Topics include: Canons of bibliographical description; incunabula research; study of watermarks; book collecting and the antiquarian book trade; and book catalogues. Prereq: LIS 503, LIS 602 or consent of instructor.

LIS 622 SOCIAL SCIENCE INFORMATION. (3)
The content and structure of bibliographic and other information resources in the social sciences. Consideration of formal and informal communication within the social sciences with emphasis on information sources and services in anthropology, history, business, law, political science, psychology, economics, education, geography, sociology, and other closely related subjects. Prereq: LIS 530.

LIS 623 INFORMATION IN THE HUMANITIES. - (3)
The content and structure of bibliographic and other information resources in the humanities. A consideration of formal and informal communication within the humanities with emphasis on information sources and services in religion, philosophy, literature, linguistics, visual arts, music, dance, theatre, film and other closely related subjects. Prereq: LIS 530.

LIS 624 INFORMATION IN SCIENCE AND TECHNOLOGY. (3)
The content and structure of biliographic and other information resources in science and technology. A consideration of formal and informal communication in science and technology with emphasis on sources and services in agriculture, astronomy, biology, chemistry, mathematics, natural resources, zoology, and other closely related subjects. Prereq: LIS 530.

LIS 626 GOVERNMENT PUBLICATIONS. (3)
Study of the nature and scope of government documents, including problems and methods of acquisition, organization, and reference use of federal, state, local and international publications. Prereq: LIS 530 or equivalent.

LIS 630 COMPUTER-BASED REFERENCE SYSTEMS AND SERVICES. (3)
A study of characteristics, utilization and management in on-line bibliographic retrieval systems. Computer-based reference services in libraries and information centers, bibliographic databases, the database industry, and trends in on-line retrieval are examined, with special emphasis given on-line search techniques and strategies. Prereq: LIS 530.

LIS 635 INFORMATION STORAGE AND RETRIEVAL SYSTEMS. (3)
Examines information storage and retrieval systems and theories; including classification, indexing and abstracting. The structure of retrieval languages and vocabulary control, question negotiation and search strategy and measurement and evaluation of information retrieval performances are examined. (Same as CJT 614.)

LIS 636 COMPUTER TECHNOLOGY IN LIBRARIES AND INFORMATION CENTERS. (3)
Examines the use of computer technology including word processing, spreadsheets, file management, and data communications in libraries and information centers. Emphasizes the selection and evaluation of hardware and software for various library and information management functions. Prereq: LIS 535.

LIS 640 HEALTH SCIENCES LIBRARIES. (3)
A survey of health sciences libraries including a study of information needs, sources, and services in the health sciences. Consideration is also given to technical services functions in health sciences libraries, the management of health sciences libraries, and current trends and developments. Prereq: LIS 560 and LIS 530 and LIS 624 or consent of instructor.

LIS 641 LAW LIBRARIANSHIP. (3)
A study of the materials of legal research and reference work. Emphasis is placed on the methods of effective research and the actual use of legal materials in the solution of practical reference problems. The selection, cataloging, classification, and storage of materials in a law collection are considered. The specialized requirements of law librarianship and law library administration are treated. Prereq: LIS 560 and LIS 622 or consent of instructor.

LIS 643 ARCHIVES AND MANUSCRIPTS MANAGEMENT. (3)
This course is designed to cover the management, care, and servicing of manuscript and archival material. Attention will also be given to criteria for building an archival/manuscript collection in a repository and to the description and interpretation of its holdings in guides and catalogs for the use of researchers. Prereq: LIS 535 or consent of instructor.

LIS 645 PUBLIC LIBRARIES. (3)
An analysis of public library objectives and of the services provided and techniques employed to achieve them. Some attention is given to special problems of public library management and to trends in public library development. Prereq: LIS 560.

LIS 646 ACADEMIC LIBRARIES. (3)
History, aims and functions of university and college libraries including organization, collection building and evaluation, finance and personnel. Recent trends in national and regional cooperation. Undergraduate libraries, community colleges and the "library college" will also be reviewed. Prereq: LIS 560.

LIS 647 CURRENT TRENDS IN SCHOOL MEDIA CENTERS. (3)
An intensive study of trends in school media centers with emphasis upon research and current programs. Prereq: School library media experience.

LIS 650 TECHNICAL PROCESSING SYSTEMS. (3)
A survey of manual and computer-based technical processing systems in libraries. Consideration given to circulation, acquisitions, cataloging and serial control systems. Trends and developments in technical processing, files and records management, and technical processing procedures and activities are examined. Prereq: LIS 550 and LIS 560.

LIS 651 LIBRARY AND INFORMATION NETWORKS. (3)
An analysis of the structure and governance, topology, technology, and service functions of networks based on electronic telecommunications and technology. Examines the impact of networks on information users, settings, and organizations nationally and internationally. Prereq: LIS 550 or consent of instructor.

LIS 655 DESCRIPTIVE CATALOGING. (3)
An advanced study of principles and standards of bibliographic description for print and nonprint information. Emphasis will be on the Anglo-American Cataloging Rules and on the description of monographic and serial publications. Prereq: LIS 550 or consent of instructor.

LIS 656 SUBJECT CATALOGING AND CLASSIFICATION. (3)
An advanced study of subject analysis of library materials, including subject cataloging and subject classification. Prereq: LIS 550 or consent of instructor.

LIS 659 COLLECTION DEVELOPMENT. (3)
Intellectual and administrative aspects of building, maintaining and evaluating library collections. Topics include: library cooperation; national standards; the writing and implementation of collection policies; strategies of selection and evaluation; contemporary publishing and the book trade. Prereq: LIS 530.

LIS 660 ADMINISTRATIVE BEHAVIOR IN LIBRARY MANAGEMENT. (3)
An emphasis upon human behavior in library administration including an understanding of group process, interpersonal relationships, communications, motivation, leadership, and developing an awareness of self in the administrative process. Prereq: LIS 560.

LIS 686 CATALOGING AND INDEXING OF MULTIMEDIA MATERIALS. (3)
A survey of codes and practice for descriptive cataloging and subject indexing of multimedia materials and the application of standard procedures to various media formats. Prereq: LIS 550 and 587.

LIS 687 NONPRINT MEDIA IN LIBRARIES. (3)
A survey of nonprint collections in libraries demonstrating the impact of technology on information services and the structure of the organization. Unified (i.e., the integration of print and nonprint) and separate collections and services in all types of libraries and information agencies will be considered. Prereq: LIS 560 and LIS 587 or consent of instructor.

LIS 690 SPECIAL TOPICS IN LIBRARY AND INFORMATION SCIENCE. (3)
Intensive study of one aspect of library and information science under the leadership of an authority in the area. May be repeated to a maximum of six semester hours when topics vary.

LIS 695 INDEPENDENT STUDY IN LIBRARY AND INFORMATION SCIENCE. (3)
Opportunity for directed study in subject or problems of interest to a student. Observation and research is required, and a written report describing the work accomplished is required. May be repeated to a maximum of six hours.

LIS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

LINGUISTICS

LIN 211 INTRODUCTION TO LINGUISTICS. (3)
Introduction to the scientific study of human language. Emphasis on the fundamental principles of linguistic theory; applications of these principles in the investigation of grammatical structure, language change, regional and social dialect variation, and the acquisition of language by children. Credit will not be given to students who already have credit for either ANT 215 or ENG 414G. Prereq: Two college semesters or two high school years of a foreign language. (Same as ENG 211.)

LIN 395 INDEPENDENT WORK. (3)
Study of special problems in linguistics under the direction of an instructor in the linguistics program. Prereq: LIN 301; major and 3.0 in linguistics or consent of instructor.

LIN 515 PHONOLOGICAL ANALYSIS. (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. Prereq: ENG/LIN 301 or equivalent. (Same as ANT/ENG 515.)

LIN 516 GRAMMATICAL ANALYSIS. (3)
Emphasis on the systematic interrelationships of morphemes within words and sentences. Practical training in the writing of grammars and exposure to various theories of grammatical description. Prereq: ENG/LIN 301 or equivalent. (Same as ANT/ENG 516.)

LIN 517 SPECIAL TOPICS IN LINGUISTICS (Subtitle required). (3)
The focus will be on intensive study of problems and issues that do not fall under linguistics course headings. These may have an interdisciplinary emphasis, or they may concentrate on some special topics of current research. All topics will be subject to review by the director of the program. May be repeated under different subtitle to a maximum of six credits. Prereq: Consent of instructor.

LIN 519 HISTORICAL LINGUISTICS. (3)
Language change; reconstruction of linguistic systems; language classification; comparative linguistics; temporal, spatial, and social context of language change. Prereq: ANT 215, ENG/LIN 211, or ENG 414G; or equivalent. (Same as ANT 519.)

MANAGEMENT

MGT 301 BUSINESS MANAGEMENT. (3)
A study of planning, organizing and controlling; an interdisciplinary approach; actual decision-making cases. Prereq: STA 291, ECO 201, 202 and ACC 202, or consent of instructor.

MGT 320 SURVEY OF PERSONNEL AND INDUSTRIAL RELATIONS. (3)
Survey of the field of personnel and industrial relations. Introduction of the topics of manpower planning, selection, placement, training, compensation, administration, labor-management relationships, hours of work, and health and safety. Prereq: MGT 301 or consent of instructor.

MGT 340 ETHICAL AND REGULATORY ENVIRONMENT. (3)
This course focuses on ethical principles, the nature of the capitalist-collectivist continuum, government influence on business, and the responsibility of business to society. Topics to be considered include major approaches to ethical reasoning, antitrust law, social regulation, and the economic and social theories that undergird the concept of the social responsibility of business. Prereq: Junior standing or consent of instructor.

MGT 341 BUSINESS LAW I. (3)
An introduction to the United States legal system and its application to the business community. Topics to be considered include: contracts, agency, commercial paper, and real property. Prereq: Junior standing or consent of instructor.

MGT 395 INDEPENDENT STUDY IN MANAGEMENT. (1-6)
Course designed to accommodate students' independent exploration of specific topics within management. Course must be under the supervision of an instructor. May be repeated to a maximum of six credits. Prereq: GPA of 3.0, upper division status, approval of instructor and chairperson.

MGT 408G WORLD BUSINESS. (3)
Examines the impact of international business upon society from a political, cultural, and economic point of view. Particular stress will be given to U.S. business in international operations; its past involvement, present position, and future direction. Prereq: ECO 201, 202.

MGT 410 ANALYSIS OF ORGANIZATIONAL BEHAVIOR. (3)
The behavior of business organizations and their participants is analyzed in the contemporary language of social psychology, systems, and models. Various theories of the firm are reviewed and evaluated. The interdependence of economic, social and behavioral factors is stressed. Prereq: MGT 301 or consent of instructor.

MGT 421 STAFFING AND DEVELOPMENT. (3)
Analysis of problems, theories, and techniques used in job analysis, performance evaluation, recruitment, selection, placement, and training and development. Prereq: MGT 320.

MGT 422 WAGE AND SALARY ADMINISTRATION. (3)
Analysis of theory and practice in the administration of compensation. Practices and issues related to establishing a position structure, determining rates of pay, making individual pay decisions, administering benefits, and controlling compensation. Prereq: MGT 320.

MGT 423 MANAGING EMPLOYEE RELATIONS. (3)
Analysis of theory and practices in managing relationships with employees. The emphasis is on organizational conflict, employee commitment, and problems in union and nonunion situations from a managerial perspective. Prereq: MGT 320, MGT 410, ECO 481G or consent of instructor.

MGT 441 BUSINESS LAW II. (3)
A survey of selected business law topics to include: corporations, partnerships, secured transactions, sales, and bankruptcy. Prereq: MGT 340 or 341, or consent of instructor.

MGT 450 DECISION ANALYSIS. (3)
The purpose of this course is to provide students with methodologies of problem solving by developing (a) their analytical maturity, (b) their ability to identify problem-generated alternative actions, and (c) their ability to choose among alternative courses of actions. Prereq: Senior standing in the College of Business and Economics and MGT 356.

MGT 491 SMALL BUSINESS MANAGEMENT. (3)
An examination of the problems and decisions inherent in the establishment, financing, and management of small business firms. An experiential exercise, involving a consulting assignment to an operating small business in the area, is a central component of the course. Not to be taken on a pass-fail basis. Prereq: MKT 300, MGT 301, MGT 340, FIN 300 or consent of instructor.

MGT 492 ENTREPRENEURSHIP AND VENTURE CREATION. (3)
An examination of the role of the entrepreneur in society and analysis of the considerations inherent in starting a business. Topics include market and financial feasibility analysis, selection of a legal form of organization, estimating resource requirements, and site selection. Prereq: Senior standing and MKT 300, MGT 301, MGT 340 or MGT 341 and FIN 300.

MGT 499 STRATEGIC MANAGEMENT. (3)
Formulation and evaluation of strategy for single business and multiple business companies. Prereq: MKT 300, MGT 301, MGT 340, FIN 300 and senior standing.

MGT 528 CONTEMPORARY PROBLEMS IN INDUSTRIAL RELATIONS. (3)
An examination of selected areas in the field of industrial relations with a focus on contemporary problems. Emphasis will be placed on individual work by the students. May be repeated to a maximum of six credits with consent of instructor. Prereq: MGT 529 and ECO 481G or consent of instructor.

MGT 529 PERSONNEL PLANNING, STRATEGY, AND POLICY. (3)
Analysis of issues, formulation of strategy, and selection of alternatives in dealing with personnel problems. Emphasis will be on areas such as human resource planning, levels of individual and organizational performance, attraction and retention of employees, staffing the organization and auditing personnel activities. Prereq: MGT 320 and six additional hours in personnel and industrial relations.

MGT 608 COMPARATIVE INTERNATIONAL MANAGEMENT. (3)
A comparison of management concepts and practices in different countries and the role of management in economic development; an interdisciplinary approach emphasizing the impact of sociological-cultural factors, legal-political factors and education on management development. Prereq: MGT 301 or consent of instructor.

MGT 611 ORGANIZATIONAL BEHAVIOR. (3)
A critical examination of behavior and performance within organizations and between organizations. Special attention is paid to the problem of performance at the individual, group, and formal organizational level. Prereq: Graduate School standing.

MGT 620 PERSONNEL AND INDUSTRIAL RELATIONS. (3)
Critical examination of theory, research, and managerial practice in the management of human resources. Particular attention is paid to the processes of human resource planning, staffing, compensation, and the management of employee relations. Prereq: MGT 611, ECO 610, ACC 628, MGT 650, MKT 600, ECO 611, FIN 600, MGT 651.

MGT 640 LEGAL AND REGULATORY ENVIRONMENT. (3)
The purposes of this course are: 1) to establish an introductory understanding of the nature, dimensions, and impact of government regulation of business, 2) to explore, in summary fashion, the rudiments of the capitalist-collectivist continuum, 3) to alert the student to ethical dilemmas in the decision process, and 4) to exercise the student's skills in analysis, writing, and speaking. Prereq: Graduate standing; MGT 611, ECO 610, ACC 628, MGT 650, MKT 600, ECO 611, FIN 600, MGT 651.

MGT 695 INDIVIDUAL WORK IN MANAGEMENT. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of the instructor.

MGT 698 BUSINESS POLICY AND STRATEGY I. (3)
Advanced industry analysis and strategy formulation. Prereq: MGT 611, ECO 610, ACC 628, MGT 650, ECO 611, FIN 600, MKT 600, MGT 651.

MGT 699 BUSINESS POLICY AND STRATEGY II. (3)
Strategic issues associated with multi-industry, multinational, multi-business and start-up management; strategy implementation and institutionalization; planning systems. Prereq: MGT 698 or the equivalent.

MGT 700 ADMINISTRATIVE SCIENCE. (3)
Primary emphasis upon the identification and investigation of the schools of thought concerning the field of administration. Analysis of various theory bases for purposes of integration and generalization will also make up a major portion of the course. Prereq: MGT 301 or consent of instructor.

MGT 711 ORGANIZATIONS AND EXTERNAL SYSTEMS. (3)
Systems analysis is used to examine organizations from two perspectives: (1) intra-organizational linkages among goals, technical subsystems and structural subsystems, and (2) organizational linkages with institutions, parties and cultures in its environment. Prereq: Consent of instructor.

MGT 712 ORGANIZATIONS AND INDIVIDUAL BEHAVIOR. (3)
Examination of current theory and empirical research regarding the behavior of individuals within organizations. Topics are divided into three phases: major behavioral processes, applied models of individual choice behavior, and specific areas of individual choice and decision.

MGT 713 ORGANIZATION DEVELOPMENT. (3)
The course will trace the history of organizational development (OD), examine the theories of OD, review and critique the research on OD, and analyze the means by which OD is implemented in organizations. Prereq: Consent of instructor.

MGT 714 SEMINAR IN MANAGEMENT THEORY AND POLICY. (3)
A broad range of literature on organization strategy and structure is examined. Conceptual frameworks and research relating to the Business Policy decision processes are reviewed and critiqued. Prereq: Permission of instructor.

MGT 720 SEMINAR IN HUMAN RESOURCE MANAGEMENT. (3)
Examination of theory, research, and issues related to employment of human resources. Human resource utilization at both societal and organizational levels, human resource administration, and related ethical issues are examined and analyzed. Prereq: Introductory knowledge of personnel management or consent of instructor. ECO 676 and MGT 620 or equivalents are preferred means of satisfying the prerequisites for this seminar.

MGT 763 RESEARCH, DESIGN AND ANALYSIS. (3)
This course deals with the design and analysis of business research. Emphasizes the practical application of analysis of variance and correlational techniques to problems in business research. Focus will be on design, implementation, and interpretation of research. Prereq: MGT/MKT/FIN 762. (Same as MKT/FIN 763.)

MGT 781 INDEPENDENT WORK IN MANAGEMENT. (1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to a total of six credit hours. Prereq: Consent of instructor.

MARKETING

MKT 300 MARKETING MANAGEMENT. (3)
The literature and problems in the retail distribution of consumers' goods, wholesale distribution of consumers' goods, industrial goods, sales organizations, sales promotion and advertising, and price policies. Prereq: ECO 202 or consent of instructor.

MKT 310 BEHAVIORAL SYSTEMS IN MARKETING. (3)
The application of psychology, sociology, and anthropology to marketing. Includes such topics as consumer decision process, communications, interpersonal behavior, innovation. Prereq: MKT 300.

MKT 320 RETAIL AND DISTRIBUTION MANAGEMENT. (3)
Analysis of the functions, structure, policies, and performance of distribution channels and institutions. The course objective is to provide students with an understanding of concepts and decision making tools useful in managing manufacturer-retailer relationships and distribution costs at both the channel and retail level. The course is also concerned with the legal and socio-economic impact of distribution trends and practices. Prereq: MKT 300.

MKT 340 INTRODUCTORY MARKETING RESEARCH. (3)
Managerial applications of research in marketing decision making. The course objective is to provide students with expertise in defining information needs, selecting information sources and organizing information in decision-making contexts. Application of major concepts will be illustrated in marketing policy areas. Prereq: MKT 300, ECO 391.

MKT 390 SPECIAL TOPICS IN MARKETING (Subtitle required). (1-3)
Readings, projects, lecture and/or discussion to illuminate current topics of special interest or concern in marketing. May be repeated to a maximum of six credits. May not be repeated under the same title. A particular topic may be offered at most twice under the MKT 390 number. Prereq: Consent of instructor.

MKT 395 INDIVIDUAL WORK IN MARKETING. (1-6)
Student develops a sepcific program with instructor. One or more papers is typically expected. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairperson.

MKT 400 PROMOTION MANAGEMENT. (3)
The objectives of the Promotion Management course are to develop awareness and understanding of the role and functions of promotion within firms and within society and to explicitly attempt to develop student thinking skills, i.e., problem identification, problem analysis, and problem solving, in the area of promotion. Prereq: MKT 300 and MKT 310 or permission of instructor.

MKT 410 PERSONAL SELLING AND SALES MANAGEMENT. (3)
A detailed exposure to personal selling techniques. Emphasis placed on sales process, especially planning and delivery of sales presentations. Selected sales management topics include recruiting, training, motivating and evaluating sales people, as well as ethical and legal issues. Prereq: MKT 300 and marketing majors only.

MKT 420 CONTEMPORARY MARKETING PROBLEMS. (3)
An examination of selected areas in the field of marketing with a focus on contemporary problems. Emphasis will be placed on individual work by students. Prereq: MKT 300 and senior standing.

MKT 440 ADVANCED MARKETING RESEARCH. (3)
Training in the application of scientific method and analytical techniques in the fields of marketing. Emphasis on the analysis of empirical data. Prereq: MKT 300, MKT 340, ECO 391.

MKT 450 MARKETING STRATEGY AND PLANNING. (3)
An examination of and participation in analytical processes for managerial marketing decisions. Topics will include such problem areas as product planning, distribution systems, advertising strategies, information systems, pricing decisions and buying behavior. Prereq: MKT 300 and two other marketing courses.

MKT 490 HONORS SEMINAR IN MARKETING. (3)
Readings, lectures, and/or discussion of advanced topics in marketing. A major writing requirement will be maintained. Prereq: 3.3 grade-point average or consent of instructor. Open to senior marketing majors only.

MKT 600 MARKETING MANAGEMENT. (3)
This course is designed to provide students with an understanding of: the role of marketing function in an organization; the types of marketing decisions and analytical procedures involved in making each decision; the overall marketing planning process; and, the impact of the social, economic, and legal environment on marketing decisions. Prereq: Completion of first semester of MBA program, graduate standing, MGT 611, ECO 610, ACC 628, MGT 650.

MKT 601 MARKETING RESEARCH. (3)
MKT 601 entails a vigorous examination of research methodology applicable to marketing situations. Emphasis is placed on 1) experimental design, 2) survey design and administration, and 3) analytical procedures. Practical application of marketing research is stressed. Legal and social issues are also examined. Prereq: MKT 600, MGT 650,and MGT 651.

MKT 620 DISTRIBUTION CHANNEL SYSTEMS. (3)
An in-depth study of marketing or distribution channels covering both the conceptual and managerial problems of the topic. Special emphasis is on the importance of distribution within a marketing program and in the U.S. economy. Prereq: MKT 600 or permission of instructor.

MKT 621 PRODUCT MANAGEMENT. (3)
Examines the analytical, decision making, and planning concepts and tools available to market/product/brand managers. Specific decisions to be addressed include: product policy formulation, the selection of product market strategies, new product development, product-line modifications and deletions, and organizational implications. Prereq: Completion of first year of MBA program or permission of instructor.

MKT 622 SALES MANAGEMENT. (3)
MKT 622 entails a comprehensive examination of the planning, implementing, and control of personal contact programs designed to achieve the sales objectives of the firm. Managerial decision-making is emphasized through the application of lecture material, readings, and case studies. Prereq: Completion of first year of MBA program or permission of instructor.

MKT 623 MARKETING IN SERVICE AND NONPROFIT ORGANIZATIONS. (3)
The purpose of the course is to broaden and apply the conceptual system of marketing to the marketing problems of service and nonprofit organizations. Concepts such as marketing mix, marketing segmentation, market positioning, channels of distribution and others will be applied to the problems of service and nonprofit organizations. Prereq: MKT 600 or permission of the instructor.

MKT 624 INTERNATIONAL MARKETING MANAGEMENT. (3)
Examines the broad implications for marketing strategy and decision making of the firm in an international context. Addresses comprehensive survey of firm entry strategies, marketing mix decisions, product policies, and environmental factors in a global context. Context-based problems such as implicit barriers to entry through distribution channel management will also be addressed. Prereq: MKT 600 or permission of instructor.

MKT 695 INDIVIDUAL WORK IN MARKETING. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MKT 700 SEMINAR IN MARKETING MANAGEMENT. (3)
A doctoral seminar directed toward the basic decision areas of marketing management. Emphasis is on traditional, classic, and contemporary literature that presents important conceptualizations of marketing practices and empirical research in marketing management. Prereq: Consent of instructor.

MKT 710 SEMINAR IN CONSUMER BEHAVIOR. (3)
The seminar is specifically designed for the needs of doctoral students in marketing in that it emphasizes empirical research, theory and methodology as they relate to consumer behavior. The objectives of the seminar are (1) to familiarize the students with the literature of consumer behavior, (2) to stimulate critical thinking about existing research, and (3) to evaluate existing theories conceptualizations, and models of buyer behavior. Prereq: Consent of instructor.

MKT 720 SEMINAR IN MARKETING THEORY. (3)
A survey, analysis and evaluation of the current research in marketing theory. Detailed attention is given to problems of determining the meaning and boundaries of marketing theory. Emphasis is placed on introducing the student to the substantive content of marketing theories and their methodologies. Prereq: MKT 600 or consent of instructor.

MKT 763 RESEARCH, DESIGN AND ANALYSIS. (3)
This course deals with the design and analysis of business research. Emphasizes the practical application of analysis of variance and correlational techniques to problems in business research. Focus will be on design, implementation, and interpretation of research. Prereq: MGT/MKT/FIN 762. (Same as MGT/FIN 763.)

MKT 771 SEMINAR IN BUSINESS ADMINISTRATION. (3)
Each semester some topic currently discussed in scholarly journals in business administration will be studied intensively. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

MKT 781 INDEPENDENT WORK IN MARKETING.(1-6)
Designed for advanced students who undertake research problems to be conducted in regular consultation with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MATERIALS SCIENCE AND ENGINEERING

MSE 101 MATERIALS ENGINEERING. (1)
An introduction to the materials engineering profession. Professional growth, conduct, ethics and organizations. Introduction to the techniques of materials engineering.

MSE 102 METALS TECHNOLOGY. (1)
A laboratory course introducing students to molding, pattern making, casting, cutting, welding and heat treating. Laboratory, three hours per week.

MSE 201 MATERIALS SCIENCE. (3)
Microscopic and macroscopic structure as related to the properties of materials with engineering applications. Prereq or concur: MA 114 and freshman chemistry.

MSE 202 ELECTRICAL AND ELECTRONIC MATERIALS. (2)
Modern ideas on the relationship of electrical and electronic properties of materials to their structure. Lecture, three hours per week for two-thirds of the semester. Credit will not be given for MSE 202 and MSE 212. Prereq: MSE 201 and department major; prereq or concur: PHY 232 and 242, MA 214.

MSE 212 ELECTRONIC PROPERTIES OF MATERIALS. (3)
Modern ideas on the engineering properties of solids, crystallographic properties; relationship of properties to structure and electronic properties of materials. Prereq: PHY 232 and 242, MA 214 concurrent.

MSE 361 STRUCTURE AND PROPERTIES OF ALLOYS I. (4)
Phase diagrams through ternary metal systems; dependence of physical, mechanical and electrical properties on microstructure and alloy distribution; precipitation hardening; introduction to quantitative metallography. Lecture, three hours; laboratory, three hours per week. Prereq: PHY 232, CHE 107 and 115.

MSE 362 STRUCTURE AND PROPERTIES OF ALLOYS II. (4)
X-ray diffraction and metallography; deformation, hardening and softening of alloy systems; the iron-carbon system. Lecture, three hours; laboratory, three hours per week. Prereq: MSE 361 and engineering upper division status.

MSE 395 INDEPENDENT WORK IN METALLURGICAL ENGINEERING. (1-3)
Research for undergraduate departmental students. May be repeated to a maximum of 12 credits. Prereq: Department major and approval of chairperson.

MSE 421 SOLIDIFICATION AND CASTING. (4)
Ferrous and nonferrous foundry practice. Application of engineering principles to the design and production of castings. Lecture, three hours; laboratory, three hours. Prereq: MSE 201, PHY 232.

MSE 425 FERROUS ALLOYS PROCESSING. (3)
Materials processing: production, mechanical working, other shaping and treating processes; structure and properties of commercial alloys. Emphasis on ferrous metals. Prereq: MSE 442.

MSE 442 EXTRACTIVE METALLURGY. (4)
The principles and processes employed in the preparation, treatment and production of various metals of economic or strategic importance; process economics. Lecture, three hours; laboratory, three hours per week. Prereq: CHE 440G or CHE 444G or MSE 451.

MSE 451 MATERIALS THERMODYNAMICS. (3)
Solution thermodynamics; partial molal quantities; ideal and non-ideal solutions; application of thermodynamics to phase equilibria; heterogeneous equilibria; free energy-composition relationships; temperature-pressure relationships; nitrogen in iron and steel and the iron-carbon system. Prereq: CME 210.

MSE 454G POLYMER ENGINEERING. (3)
A survey of polymer materials, processes and applications. The relationship between selecting vs. altering polymer materials to meet specific objectives; design/process criteria; economics; case studies. Prereq: MSE 201 or consent of instructor.

MSE 480 METALLURGICAL DESIGN. (3)
A capstone engineering design experience involving analysis, with some treatment of engineering economics, of real processes or engineering materials problems. Prereq: MSE 362; senior classification.

MSE 506 MECHANICS OF COMPOSITE MATERIALS. (3)
A study of structural advantages of composite materials over conventional materials, considering high strength-to-weight and stiffness-to-weight ratios. Fiber reinforced, laminated and particulate materials are analyzed. Response of composite structures to static and dynamic loads, thermal and environmental effects, and failure criteria are studied. Prereq: EM 302, engineering upper division status or consent of instructor. (Same as EM 506.)

MSE 531 POWDER METALLURGY. (3)
Study of the principles of powder metallurgy relating to alloys of unusual compositions, metal and nonmetal combinations, porous and laminated products, composite metals, and high-melting alloys. Prereq: Consent of instructor.

MSE 535 MECHANICAL PROPERTIES OF MATERIALS. (3)
Introductory elasticity and plasticity theory; crystallographic nature of slip and twinning; fracture. Prereq: MSE 201, EM 302 and engineering upper division status or consent of instructor.

MSE 538 DEFORMATION PROCESSING. (4)
Solidification of molten alloys; fundamentals of metal working; application of metal working theories to forging, rolling, extrusion, drawing and sheet forming. Lecture, three hours; laboratory, three hours per week. Prereq: Engineering upper division status.

MSE 550 CORROSION. (3)
The fundamental principles of corrosion control and the basic mechanisms related to a better understanding of the causes of corrosion. The application of principles to practical situations. Prereq: CHE 107; MSE 201.

MSE 552 POLYMERIC MATERIALS. (3)
Relating properties to structure; properties of polymer materials; mechanical, electrical and thermal properties of amorphous and crystalline polymers, molding and fabrication, polymers as additives, biomedical application, selection of polymers, design. Prereq: CHE 230 or CHE 236, or consent of instructor. (Same as CME 552.)

MSE 554 CHEMICAL AND PHYSICAL PROCESSING OF POLYMER SYSTEMS. (3)
Theory related to the chemical and physical processing of polymer systems, polymer chemistry, non-Newtonian flow behavior, stress and strain tensors, polymer processing operations and technology. Prereq: CHE 232 and ME 325, or consent of instructor. (Same as CME 554.)

MSE 561 ELECTRIC AND MAGNETIC PROPERTIES OF MATERIALS. (3)
Study of dielectric and magnetic materials. Topics include dielectric relaxation, conduction and breakdown mechanisms, liquid crystals, ferroelectrics, magnetic resonance and relaxation, measurement techniques. Prereq: MSE 212 and PHY 361 or EE 461G and EE 467G. (Same as EE 561.)

MSE 580 MATERIAL SELECTION AND FAILURE ANALYSIS. (3)
A review of common engineering materials, their potential failure mechanisms and corresponding technology developed to avoid these failures. This course illustrates applications of current technology to practical industrial problems and is designed for engineers of all disciplines. Prereq: MSE 201 and EM 302.

MSE 599 TOPICS IN METALLURGICAL ENGINEERING AND MATERIALS SCIENCE. (2-3)
A detailed investigation of a topic of current significance in metallurgical engineering and materials science such as biomedical synthetics, electronic properties of materials, advances in metal working, history of material technology, quantitative metallography. Theory of disclinations, scanning electron microscopy. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the MSE 599 number. Prereq: Variable; given when topic identified.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

MSE 632 ADVANCED MATERIALS SCIENCE. (3)
Classification of solids, atomic structure and bonding, relation of structure to properties, deformation behavior and failure. Prereq: Consent of instructor.

MSE 635 ADVANCED MECHANICAL METALLURGY. (3)
Theory of dislocations in crystals and their role in strength, plasticity, work hardening and fracture of crystalline solids. Prereq: Consent of instructor.

MSE 636 DISLOCATION THEORY. (3)
Fundamentals of elastic theory of dislocations and the kinematics of dislocation motion: straight dislocations, curved dislocation, self-energies, interactions with other crystal defects, dislocation multiplication. Prereq: MSE 535 or EM 531 or equivalent.

MSE 650 ADVANCED MATERIALS THERMODYNAMICS. (3)
Study of reactions of materials with chemical environments. Introduction to irreversible thermodynamics. Emphasis on current literature. Prereq: Consent of instructor.

MSE 659 ADVANCED PHASE DIAGRAMS. (3)
Review of thermodynamic fundamentals and application to binary pressure-temperature-composition diagrams. Construction and interpretation of ternary temperature-composition diagrams. Review and discussion of important ternary diagrams. Prereq: MSE 451 or equivalent.

MSE 661 ADVANCED PHYSICAL METALLURGY I. (3)
Study of the theory of phase transformations in metallic systems. Analysis of rate controlling processes for nucleation and growth controlled phase changes and for order-disorder reactions. Prereq: MSE 362 and 412 or consent of instructor.

MSE 662 ADVANCED PHYSICAL METALLURGY II. (3)
Solidification theory and mechanisms. Diffusion in solids. Prereq: MSE 661 or consent of instructor.

MSE 665 CRYSTALLOGRAPHY AND X-RAY METALLOGRAPHY. (4)
Elements of crystallography, nature of X-rays, diffraction by crystal lattice, the structure factor and crystal structure determinations in metallic lattices, X-ray camera and diffractometer techniques and application of these to determination of phase diagrams, preferred orientation and residual stresses. Lecture, three hours; laboratory, three hours. Prereq: MSE 361.

MSE 666 DIFFRACTION METHODS IN METALLURGY. (4)
Application of thin foil electron transmission methods to the study of the defect structure of metals, theory of electron diffraction contrast phenomena, sample preparation, X-ray theory and methods applied to the study of deformation characteristics of metals, order-disorder transformations, and crystal structure analysis. Lecture, two hours; laboratory, six hours. Prereq: MSE 566.

MSE 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

MSE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MSE 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

MSE 771 SEMINAR. (0)
Review of current literature in the field of metallurgical engineering and presentation of papers thereon. Presentation of talks on departmental research. Group and panel discussions. Required of all graduate students every semester. Lecture, one hour per week.

MSE 781 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (1-3)
Literature research and planning of research programs; shop problems and technical writing, including a term paper, are required. Consultation and lecture by appointment. May be repeated to a maximum of nine credits.

MSE 782 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (3)
A continuation of MSE 781. Laboratory, six hours; consultation and lecture by appointment. May be repeated to a maximum of nine credits.

MATHEMATICS

MA 108R INTERMEDIATE ALGEBRA. (3)
This course is remedial in nature and covers material commonly found in second year high school algebra. Specific topics to be discussed include numbers, fractions, algebraic expression, simplifying, factoring, laws of exponents, linear equations, simple graphs and polynomial algebra. This course is not available for credit to persons who have received credit in any mathematics course of a higher number with the exception of MA 121, 162, or MA 199. Credit will not be given on the basis of a special examination. Prereq: One year of high school algebra or consent of department.

MA 109 COLLEGE ALGEBRA. (3)
Selected topics in algebra and analytic geometry. Develops manipulative algebraic skills required for successful calculus study. Includes brief review of basic algebra, quadratic formula, systems of linear equations, introduction to analytic geometry including conic sections and graphing. This course is not availabe for credit to persons who have received credit in any mathematics course of a higher number with the exceptions of MA 112, 123, 162, 199, 201 and 202. Credit not available on the basis of special examination. Prereq: Two years of high school algebra or MA 108R.

MA 112 TRIGONOMETRY. (2)
A standard course. Includes trigonometric functions, identities, multiple analytic formulas, laws of sines and cosines and graphs of trigonometric functions. This course is not available to persons who have received credit for any mathematics course of a higher number with the exceptions of MA 113, 115, 123, 131, 132, 162, 201 and 202. Credit not available by special examination. Prereq: Two years of high school algebra or MA 108R.

MA 113 CALCULUS I. (4)
A course in one-variable calculus, including topics from analytic geometry. Derivatives and integrals of elementary functions (including the trigonometric functions) with applications. Prereq: MA 109 and MA 112, or precalculus mathematics including trigonometry.

MA 114 CALCULUS II. (4)
A continuation of MA 113, primarily stressing techniques of integration. Prereq: High school trigonometry or MA 112; and a grade of C or better in MA 113, MA 117, MA 132, or MA 223.

MA 121 MATHEMATICS OF FINANCE. (3)
Covers basic mathematical concepts as applied to finance. Topics include figuring percentages and interest, cash and trade discounts, amortization, annuities and other financial problems. (Offered in Community College System only.)

MA 123 ELEMENTARY CALCULUS AND ITS APPLICATIONS. (3)
An introduction to differential and integral calculus, with applications to business and the biological and physical sciences. Not open to students who have credit in MA 113. Prereq: MA 109 or college algebra.

MA 132 CALCULUS FOR THE LIFE SCIENCES. (3)
Introduction to integral calculus, integration of logarithmic and exponential functions. Applications to the life sciences including biochemical rates and reactions and radioactive decay. An introduction to biological models and their associated differential equations. Prereq: MA 131 or consent of instructor.

MA 162 FINITE MATHEMATICS AND ITS APPLICATIONS. (3)
Finite mathematics with applications to business, biology, and the social sciences. Linear functions and inequalities, matrix algebra, linear programming, probability. Emphasis on setting up mathematical models from stated problems. Prereq: Two years of high school algebra or MA 108R. (It is strongly recommended that students take MA 123 before MA 162.)

MA 201 MATHEMATICS FOR ELEMENTARY TEACHERS I. (3)
Basic concepts of whole numbers, the laws of arithmetic and elementary geometry, with an emphasis on problem-solving techniques. Recommended only for majors in 1) elementary and junior high school education or 2) early childhood education. Prereq: ACT mathematics score of 15 or better, or MA 108R.

MA 202 MATHEMATICS FOR ELEMENTARY TEACHERS II. (3)
Rational numbers, motion geometry and elementary probability, with an emphasis on problem solving. Recommended only for majors in 1) elementary and junior high school education or 2) early childhood education. Prereq: A grade of C or better in MA 201.

MA 213 CALCULUS III. (4)
MA 213 is a course in multivariate calculus. Topics include three-dimensional vectors calculus, partial derivatives, double and triple integrals, sequences, and infinite series. Prereq: MA 114 or equivalent.

MA 214 CALCULUS IV. (3)
MA 214 is a course in ordinary differential equations. Emphasis is on first and second order equations and applications. The course includes series solutions of second order equations and Laplace transform methods. Prereq: MA 213 or equivalent.

MA 223 APPLIED INTERMEDIATE CALCULUS. (3)
Integration of standard functions with applications to economics and the life sciences. Introduction to the calculus of several variables. Basic differential equations which model life processes. Prereq: MA 113 or MA 123 or MA 132 or equivalent.

MA 240 INTRODUCTION TO DISCRETE COMPUTER MATHEMATICS. (3)
An introduction to the basic mathematical concepts which are fundamental to and form the mathematical foundation of computer science. Topics include: number systems, set theory, combinatorics, Boolean algebra, and graph theory. Prereq: CS 102 or consent of instructor.

MA 261 INTRODUCTION TO NUMBER THEORY. (3)
Topics from classical number theory, including discussions of mathematical induction, prime numbers, division algorithms, congruences, and quadratic reciprocity. Prereq: Consent of instructor.

MA 310 MATHEMATICAL PROBLEM SOLVING FOR TEACHERS. (3)
Heuristics of problem solving. Practice in solving problems from algebra, number theory, geometry, calculus, combinatorics and other areas. Primarily for middle and secondary school teachers. Prereq: MA 123 or MA 113.

MA 320 INTRODUCTORY PROBABILITY. (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probabilty distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distrubutions of random variables and functions of random variables; limit theorems. Prereq: MA 213 or MA 217 or equivalent. (Same as STA 320.)

MA 321 INTRODUCTION TO NUMERICAL METHODS. (3)
Floating point arithmetic. Numerical linear algebra; elimination with partial pivoting and scaling. Polynomial and piecewise polynomial interpolation. Least squares approximation. Numerical integration. Roots of nonlinear equations. Ordinary differential equations. Laboratory exercises using software packages available at computing center. Prereq: (1) MA 213 or MA 217 and (2) CS 101 or CS 221. A knowledge of Fortran is essential. (Same as CS 321.)

MA 322 MATRIX ALGEBRA AND ITS APPLICATIONS. (3)
Algebra of matrices, elementary theory of vector spaces and inner product spaces, the solution of simultaneous linear equations using Gaussian elimination and triangular factorization. Orthogonal projections, pseudo inverse and singular value decomposition, least squares approximation. Determinants, eigenvalues and eigenvectors, diagonalization. Prereq: MA 114 or MA 118.

MA 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE. (3)
Topics include permutations, combinations and partitions; inclusion-exclusion principle; generating functions and recurrence relations; elementary algorithms concerning graphs and trees; generation of random combinatorial and graphical examples; Boolean algebra, Boolean functions, switching circuits and mathematical logic; introduction to algebraic coding theory. Prereq: CS 245 and CS 270. Restricted to computer science, electrical engineering and mathematics majors. Others by permission. (Same as CS 340.)

MA 341 TOPICS IN GEOMETRY. (3)
Selected topics in geometry including Euclidean and some non-Euclidean geometries. Primarily for secondary teachers. Prereq: Consent of instructor.

MA 351 ELEMENTARY TOPOLOGY I. (3)
A beginning course, with particular emphasis on point-set topology in Euclidean spaces. Prereq: Consent of instructor.

MA 352 ELEMENTARY TOPOLOGY II. (3)
A continuation of MA 351, to include a discussion of metric spaces, completeness, general topological spaces, compactness, connectedness. Prereq: MA 351 or consent of instructor.

MA 361 ELEMENTARY MODERN ALGEBRA I. (3)
A beginning course, with particular emphasis on groups and rings. Prereq: Consent of instructor.

MA 362 ELEMENTARY MODERN ALGEBRA II. (3)
A continuation of MA 361 to include a discussion of fields and topics in linear algebra. Prereq: MA 361 or consent of instructor.

MA 371 ELEMENTARY SET THEORY AND NUMBER SYSTEMS. (3)
Elementary logic and set theory. Construction and properties of the positive integers, integers, rational numbers and real numbers. Arithmetic of infinite cardinal numbers. Equivalence and order relations. Isomorphism of algebraic systems, congruences. Prereq: Consent of instructor.

MA 395 PROBLEM SEMINAR. (1-3)
Reports on current reseach papers. Problems from various fields of mathematics. May be repeated to a maximum of three credits. Prereq: Consent of instructor.

MA 398, 399 INDEPENDENT WORK IN MATHEMATICS. (3 ea.)
Reading courses for upper division students of high standing. Prereq: Major and a standing of 3.0 in the department.

MA 410G MATHEMATICS FOR ECONOMISTS. (3)
Integral calculus with applications to economic dynamics. First-order differential equations: linear, separable, exact and Bernoulli; integrating factors. Phase diagram analysis. Higher-order differential equations with constant coefficients. Stability; Routh-Hurwitz Criterion; Shur-Cohn Criterion. Linear and nonlinear difference equations. This material will be presented in the framework of mathematical economics, covering such topics as growth models and marketing models. Prereq: MA 113 and consent of instructor.

MA 411G MODELS IN MATHEMATICAL BIOLOGY. (3)
Important mathematical models in the life sciences will be developed and analyzed. These will involve linear and nonlinear ordinary differential equations, as well as systems of such equations. Some elementary computer solutions may be introduced. In particular, models of population dynamics, enzyme kinetics, tracers and compartmental physiological and pharmacokinetic systems will be developed. Other models may be introduced in response to class interest. Prereq: MA 224, or MA 214, or consent of instructor.

MA 413G TOPICS IN MATHEMATICS. (3)
A course in an area of mathematics of interest to a special group of students. Content varies depending on interests of students and faculty. May be repeated to a maximum of six hours. Prereq: Consent of instructor and one semester of calculus.

MA 415G GRAPH THEORY. (3)
Theory of linear undirected graphs, including definitions and basic concepts, trees, connectivity, traversability, factorization, planarity and matrices. In addition, algorithm for finding spanning trees, testing connectivity, finding Euler trails, finding a maximum matching in a bipartite graph, and testing planarity will be presented at appropriate times. Applications of algorithms to operations research, genetics and other areas. About 55 percent of the course will be on general theory of graphs, 30 percent on algorithms and 15 percent on applications of these algorithms. Prereq: CS 101 or equivalent. (Same as CS 415G.)

MA 416G PRINCIPLES OF OPERATIONS RESEARCH I. (3)
The course is an introduction to modern operations research and includes discussion of modeling, linear programming, dynamic programming, integer programming, scheduling and inventory problems, and network algorithms. Prereq: MA 213 or MA 217 or equivalent. (Same as CS 416G.)

MA 417G PRINCIPLES OF OPERATIONS RESEARCH II. (3)
A continuation of MA 416 with topics selected from stochastic models, decision making under uncertainty, inventory models with random demand, waiting time models and decision problems. Prereq: CS/MA 416G and MA/STA 320, or consent of instructor. (Same as STA 417G.)

MA 422 NUMERICAL SOLUTIONS OF EQUATIONS. (3)
Linear equations: Gaussian elimination, special linear systems, orthogonalization, eigenproblem, iterative methods. Nonlinear equations: solutions of equations in one variable, solutions of systems of nonlinear equations. Optimization. Prereq: CS/MA 321 and MA 322; or consent of instructor. (Same as CS 422.)

MA 432G METHODS OF APPLIED MATHEMATICS I. (3)
Partial differentiation, Jacobians, implicit function theorem, uniform convergence of series, line and surface integrals. Green's and Stokes' theorems. Prereq: MA 214 or equivalent.

MA 433G INTRODUCTION TO COMPLEX VARIABLES. (3)
Elementary complex variable theory with applications. Complex field, analytic functions, Cauchy theorem, power series, residue theory. Prereq: MA 214.

MA 471G ADVANCED CALCULUS I. (3)
A careful and vigorous investigation of the calculus of functions of a single variable. Topics will include elementary topological properties of the real line, convergence limits, continuity, differentiation and integration. Prereq: MA 214.

MA 472G ADVANCED CALCULUS II. (3)
A continuation of MA 471G to functions of several variables. A careful and rigorous investigation of the extensions of the concepts of the one variable calculus to n-dimensions. Prereq: MA 471G or consent of instructor.

MA 481G DIFFERENTIAL EQUATIONS I. (3)
Brief review of linear differential equations and matrix algebra, eigenvalues and eigenvectors of matrices, systems of linear differential equations with constant coefficients, applications, Sturm separation and comparison theorems, Sturm-Liouville theory for second-order equations and applications. Prereq: MA 214 or equivalent.

MA 483G DIFFERENTIAL EQUATIONS II. (3)
A continuation of MA 481G. Topics will include perturbation theory; power series techniques and regular singular point theory; asymptotics; eigenfunction expansions; qualititative behavior of linear and nonlinear differential equations. Prereq: MA 481G or equivalent.

MA 485G FOURIER SERIES AND BOUNDARY VALUE PROBLEMS. (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 432G or equivalent. (Same as EM 585.)

MA 501, 502 SEMINAR IN SELECTED TOPICS. (3 ea.)
Various topics from the basic graduate courses. Designed as a course for teachers of lower division mathematics and usually offered in connection with a summer institute. May be repeated to a maximum of six credits. Prereq: Teaching experience in the field of mathematics and consent of instructor.

MA 503 COMBINATORICS. (3)
General methods of combinatorial analysis with an emphasis on problem solving. Note: Designed for MAT(M) program. Not open for graduate credit to students in mathematics. Prereq: Consent of instructor.

MA 505 LINEAR ALGEBRA. (3)
The algebra of vector spaces, linear transformations, determinants, characteristic roots and characteristic vectors with emphasis on Euclidean space. The Orthogonal group and symmetry groups of polyhedra. Note: Designed for MAT(M) program. Not open for graduate credit to students in mathematics. Prereq: Consent of instructor.

MA 506 METHODS OF THEORETICAL PHYSICS I. (3)
The course and its sequel (MA/PHY 507) are designed to develop, for first-year graduate students, familiarity with the mathematical tools useful in physics. Topics include curvilinear coordinates, infinite series, integrating and solving differential equations of physics, and methods of complex variables. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: PHY 404G or equivalent. (Same as PHY 506.)

MA 507 METHODS OF THEORETICAL PHYSICS II. (3)
Continuation of MA/PHY 506. Fourier and Laplace Transforms, the special functions (Bessel, Elliptic, Gamma, etc.) are described. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: MA/PHY 506. (Same as PHY 507.)

MA 515 MATHEMATICAL PROGRAMMING AND EXTENSIONS. (3)
Mathematical and computational aspects of linear programming, large scale structures, quadratic programming, complementary pivoting, introduction to nonlinear programming. Applications to engineering and economics. Additional topics selected in geometric programming, stochastic programming. Prereq: A course in linear algebra or consent of instructor. (Same as OR/STA 515.)

MA 522 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA I. (3)
Review of basic linear algebra from a constructive and geometric point of view. Factorizations of Gauss, Cholesky and Gram-Schmidt. Determinants. Linear least squares problems. Rounding error analysis. Stable methods for updating matrix factorizations and for linear programming. Introduction to Hermitian eigenvalue problems and the singular value decomposition via the QR algorithm and the Lanczos process. Method of conjugate gradients. Prereq: MA 322. (Same as CS 522.)

MA 527 APPLIED MATHEMATICS IN THE NATURAL SCIENCES I. (3)
Construction, analysis and interpretation of mathematical models applied to problems in the natural sciences. Physical problems whose solutions involve special topics in applied mathematics are formulated, various solution techniques are introduced, and the mathematical results are interpreted. Fourier analysis, dimensional analysis and scaling rules, regular and singular perturbation theory, random processes and diffusion are samples of selected topics studied in the applications. Intended for students in applied mathematics, science and engineering. Prereq: MA 432G or three hours in an equivalent junior/senior level mathematics course or consent of the instructor (Same as EM 527.)

MA 532 ORDINARY DIFFERENTIAL EQUATIONS. (3)
Successive approximations and elementary existence theorems for scalar and vector equations, qualitative behavior of solutions as functions of initial conditions and parameters, linear systems with constant and periodic coefficients, stability theorems for second order linear and nearly linear equations, second order boundary value problems and regular singular point theory. Prereq: MA 322 and either 432G or 471G.

MA 533 PARTIAL DIFFERENTIAL EQUATIONS. (3)
Elementary existence theorems, equations of first order, classification of linear second order equations, the Cauchy and Dirichlet problems, potential theory, the heat and wave equations, Green's and Riemann functions, separation of variables, systems of equations. Prereq: MA 532 and MA 472G or equivalent.

MA 537 NUMERICAL ANALYSIS. (3)
Floating point arithmetic. Direct methods for the solution of systems of linear algebraic equations. Polynomial and piecewise polynomial approximation, orthogonal polynomials. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Basic methods for initial value problems for ordinary differential equations. The emphasis throughout is on the understanding and use of software packages for the solution of commonly occurring problems in science and engineering. Prereq: CS/MA 321 or equivalent or graduate standing or consent of instructor. Knowledge of Fortran programming is essential. (Same as CS/EGR 537.)

MA 538 NUMERICAL ANALYSIS II. (3)
A continuation of CS/MA 537. Roots of a nonlinear equation and minimization of a function of a single variable. Linear difference equations. Numerical methods for ordinary differential equations: initial value problems, and elementary techniques for two-point boundary value problems. Prereq: A grade of B or better in CS/MA 321 or CS/MA 537 or equivalent. (Same as CS 538.)

MA 551 TOPOLOGY I. (3)
Topological spaces, products, quotients, subspaces, connectedness, compactness, local compactness, separation axioms, convergence. Prereq: Consent of instructor.

MA 561 MODERN ALGEBRA I. (3)
Algebraic structures, quotient structures, substructures, product structures, groups, permutation groups, groups with operators, and the Jordan-Holder theorem. Prereq: Consent of instructor.

MA 565 LINEAR ALGEBRA. (3)
Review of finite dimensional linear algebra, the rank of a matrix, systems of linear equations, determinants, characteristic and minimal polynomials of a matrix, canonical forms for matrices, the simplicity of the ring of linear mappings of a finite dimensional vector space, the decomposition of a vector space relative to a group of linear mappings and selected topics of a more advanced nature. Prereq: MA 322 or consent of instructor.

MA 570 MULTIVARIATE CALCULUS. (3)
A self-contained course in n-dimensional analysis, including the general form of Stokes' theorem. Prereq: MA 432G or equivalent.

MA 571 ANALYSIS I. (3)
Sequences and series of real and complex numbers, sequences of functions. Riemann-Stieltjes integration, Lebesque measure and integration. Prereq: MA 471G or consent of instructor.

MA 601 SELECTED TOPICS IN MATHEMATICS. (3)
May be repeated three times for a total of nine credits. Note: Designed for MAT(M) program. Not open for graduate credit to students in mathematics. Prereq: Consent of instructor.

MA 603 ALGEBRA. (3)
Study of algebraic structures, including groups and rings, with emphasis on problem solving and construction of examples. Note: Designed for MAT(M) program. Not open for graduate credit to students in mathematics. Prereq: Consent of instructor.

MA 611 INDEPENDENT WORK IN MATHEMATICS. (3-9)
Reading course for graduate students in mathematics. May be repeated to a maximum of nine credits. Prereq: Major in mathematics, a standing of at least 3.0 and consent of instructor.

MA 613 PROBLEMS SEMINAR IN OPERATIONS RESEARCH. (3)
In this course the student is exposed to the art of applying the tools of operations research to real world problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as EE/STA/BA/OR 619.)

MA 615 CONVEX ANALYSIS AND OPTIMIZATION. (3)
Convex sets and convex functions. Separation and Helly-type theorems. Duality theory and minimax theorems. Algorithmic procedures for constrained and unconstrained problems. May be repeated to a maximum of six credits. Prereq: MA 472G or consent of instructor.

MA 616 NUMERICAL TECHNIQUES FOR NONLINEAR OPTIMIZATION. (3)
Unconstrained optimization, Kuhn-Tucker conditions for nonlinear programs (constrained optimization). Solutions procedures: methods of feasible directions, penalty methods, approximation methods, the method of generalized Lagrangians. Discrete optimal control (dynamics formulation). Solutions methods for control problems: decomposition and structured problems. Prereq: MA 515 or consent of instructor. (Same as OR 616.)

MA 617 MARKOVIAN DECISION PROBLEMS. (3)
Control of discrete-time Markov processes by dynamic programming inventory theory. Computational approaches to control of Markov chains. State space methods: modeling of engineering and economic systems by linear stochastic difference equations. The discrete-time matrix Riccati equation, Kalman filtering. Optimal control of linear stochastic difference equations with complete or incomplete state information and with quadratic cost criterion. Prereq: STA 624. (Same as OR 617.)

MA 618 COMBINATORICS AND NETWORKS. (3)
Graphs, networks, min flow-max cut theorem and applications; transportation problems, shortest route algorithms, critical path analysis, multi-commodity networks, covering and packing problems; integer programming, branch-and-bounding techniques, cutting plane algorithms, computational complexity. Prereq: MA 515, can be taken concurrently with MA 515. (Same as OR 618.)

MA 619 PROBLEM SEMINAR. (3)
Designed to bring the student in contact with the actual application of operations research and applied mathematics techniques. There will be a weekly presentation of various problems encountered in the implementation of these techniques. Prereq: Consent of instructor.

MA 620 ADVANCED NUMERICAL ANALYSIS. (3)
Methods for finding a root of a nonlinear equation and for minimizing a function of several variables: Newton's methods, quasi-Newton methods, rates of convergence, Kantorovich theorem, safeguarding. Numerical analysis of ordinary initial value problems: multistep and Runge Kutta methods, consistency convergence and stability, stiff equations. Two-point boundary value problems: finite difference methods, shooting methods and elementary finite-element techniques. Prereq: MA/CS 537.

MA 622 MATRIX THEORY AND NUMERICAL LINEAR ALGEBRA II. (3)
Numerical solution of matrix eigenvalue problems and applications of eigenvalues. Normal forms of Jordan and Schur. Vector and matrix norms. Perturbation theory and bounds for eigenvalues. Stable matrices and Lyapunov theorems. Nonnegative matrices. Iterative methods for solving large sparse linear systems. (Same as CS 622.)

MA 625 NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS. (3)
Numerical solution techniques for boundary value problems for ordinary differential equations, and for parabolic and elliptic partial differential equations. Prereq: CS/MA/EGR 537 or consent of instructor.

MA 628 APPLIED MATHEMATICS IN THE NATURAL SCIENCES II. (3)
Continuation of MA/EM 527 with emphasis on special topics and techniques applied to partial differential equations that occur in various physical field theories. Field equations of continuum mechanics of solids and fluids are reviewed. The method of characteristics, elliptic functions and integrals, Legendre polynomials, Mathieu functions, integral equations and transforms, and the methods of potential theory are examples of selected topics studied in introductory applications. Intended for students in applied mathematics, science and engineering. Prereq: MA/EM 527. (Same as EM 628.)

MA 632 ADVANCED DIFFERENTIAL EQUATIONS. (3)
General existence and uniqueness theorems, linear systems, regular and singular eigenvalue problems, stability theory, nonlinear oscillation theory, asymptotic theory, equations with retarded argument. Prereq: MA 532 or consent of instructor.

MA 633 THEORY OF PARTIAL DIFFERENTIAL EQUATIONS. (3)
A continuation of MA 533. Topics may include hypoelliptic operators and interior regularity of solutions; P(D)-convexity and existence theorems; regularity up to the boundary; applications of the maximum principle; semigroup theory for evolution equations; perturbation methods; well-posed and improperly posed problems; equations with analytic coefficients; a symptotic behavior of solutions; nonlinear problems. Prereq: MA 533.

MA 639 RESEARCH PROJECTS IN BIOLOGICAL MODELING. (3)
Mathematical modeling of selected biological systems. Small groups will define the problem, develop a mathematical model, and examine its biological implications. Systems to be modeled may be chosen from any area of the life sciences depending on the experience and interest of the group members. The groups will be supervised by a faculty member from biological sciences and one from mathematics. Prereq: MA/BIO 411G or consent of instructor. (Same as BIO 639.)

MA 641, 642 DIFFERENTIAL GEOMETRY. (3 ea.)
Tensor products, exterior algebra, differentiable maps, manifolds, geodesics, metric properties of curves in Euclidean fundamental forms, surfaces. Prereq: Consent of instructor.

MA 651 TOPOLOGY II. (3)
Embedding and metrization, compact spaces, uniform spaces and function spaces. Prereq: MA 551.

MA 654 ALGEBRAIC TOPOLOGY I. (3)
Homotopy and homology theories, complexes and applications. Prereq: MA 551, 561, 651 or equivalent.

MA 655 ALGEBRAIC TOPOLOGY II. (3)
Singular homology theory and applications, homology of products, singular and Cech cohomology with applications. Prereq: MA 654.

MA 661 MODERN ALGEBRA II. (3)
Rings, fields of quotients, rings of polynomials, formal power series, modules, exact sequences, groups of homomorphisms, natural isomorphisms, algebras and tensor algebras. Prereq: MA 561 or consent of instructor.

MA 667 GROUP THEORY. (3)
A study of homomorphisms for groups, finite groups, solvable groups, nilpotent groups, free groups, and abelian groups. Prereq: MA 661.

MA 670 ANALYSIS II. (3)
Continuation of MA 571. Absolutely continuous functions on the real line, Lebesque spaces, beginning theory of Banach spaces including the Hahn-Banach, closed graph, and open mapping theorems. Prereq: MA 571 or consent of instructor.

MA 671 FUNCTIÓNS OF A COMPLEX VARIABLE I. (3)
Differentiation and integration, contour integration, poles and residues. Taylor and Laurent series, and conformal mapping. Prereq: MA 571, 670.

MA 672 FUNCTIONS OF A COMPLEX VARIABLE II. (3)
A continuation of MA 671 to include the Riemann Mapping theorem, Dirichlet problem, multiple valued functions, Riemann surfaces and applications. Prereq: MA 671.

MA 673 SEVERAL COMPLEX VARIABLES. (3)
Hartog's theorem, domains of holomorphy, pseudo-convexity, Cousin problems, differential forms, deRham's theorem, cohomology of domains of holomorphy. Levi's problem, Weierstrass preparation theorem, sheaves, Stein manifolds, entire functions of several variables. Prereq: MA 672.

MA 678 CALCULUS OF VARIATIONS. (3)
The ordinary problems for the plane and space; Weierstrass, the necessary conditions of Euler, Weierstrass, Legendre, and Jacobi. The parametric problem; the isoperimetric problem. Sufficiency conditions. Prereq: Consent of instructor.

MA 679 MATHEMATICAL THEORY OF LINEAR CONTROL SYSTEMS. (3)
Linear dynamical systems: Controllability, observability, minimal realizations, feedback. Least-squares theory: Matrix Riccati equations, algebraic Riccati equations and spectral factorizations. Stability: Routh-Hurwitz criterion, Liapunov's direct methods, frequency domain stability criteria, positive real functions, stabilization by feedback. Prereq: Consent of instructor.

MA 681 FUNCTIONAL ANALYSIS I. (3)
General theory of normed linear spaces including the Hahn-Banach separation theorems, principle of uniform boundedness and closed graph theorem. Dual spaces and representation theorems for linear functionals. Abstract measure theory and Riesz representation theorem for C(X). Prereq: MA 670 or consent of instructor.

MA 682 FUNCTIONAL ANALYSIS II. (3)
Weak and weak-star topologies, reflexive spaces, convexity in linear spaces, operators, adjoint operators, spectral theory and Fourier transforms. Prereq: MA 681.

MA 715 SELECTED TOPICS IN OPTIMIZATION. (3)
Topics will be selected from the areas of mathematical control theory, integer programming, combinatorial optimization, large scale optimization, nonlinear programming, dynamic optimization, etc. May be repeated to a maximum of nine credits.

MA 721 SELECTED TOPICS IN NUMERICAL ANALYSIS. (3)
Review of current research in numerical analysis. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

MA 732 SELECTED TOPICS IN DIFFERENTIAL AND INTEGRAL EQUATIONS. (3)
Advanced topics in theory of differential (ordinary or partial) and integral equations such as topological dynamics, almost periodic solutions, stochastic differential equations, integro-differential and differential-difference equations, generalized functions and solutions, non-linear partial differential equations, singular integral equations.

MA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

MA 751, 752 SELECTED TOPICS IN TOPOLOGY. (3 ea.)
Prereq: MA 651.

MA 761 HOMOLOGICAL ALGEBRA. (3)
Homological algebra, modules, exact sequences, functors, homological dimension, extension problems. Prereq: Consent of instructor.

MA 764, 765 SELECED TOPICS IN ALGEBRA. (3 ea.)
Reports and discussion on recent advances in group theory, ring theory, and homological algebra. Prereq: MA 661 and consent of instructor.

MA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

MA 772 SELECTED TOPICS IN THE THEORY OF COMPLEX VARIABLES. (3)
Prereq: Consent of instructor.

MA 773 SELECTED TOPICS IN ANALYSIS. (3)
May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MECHANICAL ENGINEERING

ME 007, 008 THE ENGINEERING PROFESSION (Senior). (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated.

ME 101 ORIENTATION TO MECHANICAL ENGINEERING (Freshman and Transfer Student). (1)
Introduction to the profession of mechanical engineering: its history, practice, and methods of analysis.

ME 105 BASIC ENGINEERING GRAPHICS. (2)
Freehand sketching and lettering. Orthographic and axonometric drawings and sketches. Use and care of instruments. Use of scales. Dimensioning. Auxiliary views. Sectioning. Fasteners. Pencil techniques. Charts, maps and diagrams. Class, six hours.

ME 151 MANUFACTURING ENGINEERING. (3)
A background course in the area of manufacturing processes and systems. Includes a study of machining operations, foundry mechanization, forging, sheet metal work, powder metal products, production molding and production machines and processes. Lecture, three hours; laboratory, three hours.

ME 220 ENGINEERING THERMODYNAMICS I. (3)
Fundamental principles of thermodynamics. Prereq: PHY 231. Prereq or concur: MA 214.

ME 310 ENGINEERING EXPERIMENTATION I. (3)
An instrumentation laboratory to provide the student with an understanding of the characteristics and application of instrumentation related to basic measurements in mechanical engineering. Principles and application of technical writing and information retrieval. Lecture, two hours; laboratory, two hours. Prereq: Upper division status in mechanical engineering, CS 221 and ME 330.

ME 311 ENGINEERING EXPERIMENTATION II. (3)
A laboratory to instruct the student in the performance of basic mechanical engineering components and systems. Performance of experiments, application of theory and reporting. Introduction to experimentation. Introduction to error analysis. Lecture, one hour; laboratory, four hours. Prereq: ME 310, 321, 325 and upper division status in mechanical engineering.

ME 321 ENGINEERING THERMODYNAMICS II. (3)
Gas mixtures, air-water vapor mixtures. Air conditioning system design. Principles and design of energy conversion devices, power and refrigeration cycles. Principles of combustion, chemical equilibrium, one-dimensional gas dynamics. Nozzle design. Continuation of ME 220. Prereq: ME 220, MA 214, and engineering upper division status.

ME 325 ELEMENTS OF HEAT TRANSFER. (3)
Fundamental principles of conduction, convection, radiation heat transfer. Numerical methods for heat transfer problems. Design and applications of heat transfer equipment such as fins and heat exchangers. Prereq: ME 330, MA 214, CS 221 and engineering upper division status.

ME 330 FLUID MECHANICS. (3)
Introduction to the physical properties of fluids, fluid statics. Equations of conservation of mass, momentum and energy for systems and control volumes. Dimensional analysis and similarity. Principles of inviscid and real fluid flows; flow through pipes and around bodies. Application and design of fluid handling systems. Prereq: ME 220 or CME 210, CS 221, MA 214, and engineering upper division status.

ME 340 INTRODUCTION TO MECHANICAL SYSTEMS. (3)
Modeling of mechanical, thermal, hydraulic and other phenomena from a systems viewpoint. Analysis of continuous-time models for free and forced response. Laplace transforms, transfer functions and block diagrams. Introduction to numerical simulation. Analysis of higher-order systems. Prereq: EM 313, CS 221, engineering upper division status.

ME 344 MECHANICAL DESIGN. (3)
Fundamentals of design with methods of approximation. Introduction to optimum design considerations. Synthesis and problems on the design of various mechanical elements. Prereq: ME 151, EM 302, EM 313 and engineering upper division status.

ME 346 MECHANICAL SYSTEMS DESIGN. (3)
A course using a modified case method to teach the principles involved in designing complete mechanical systems. A unique problem is chosen each semester. The system to be designed is usually one not presently in existence, but for which a need exists. The student is required to synthesize a general solution to a problem, apply analytical techniques to arrive at a more detailed solution, and finally prepare a report presenting by freehand sketches and written descriptions his solution to the problem. Lecture, one hour; laboratory, six hours. Prereq: ME 344 and engineering upper division status.

ME 347 DYNAMIC ANALYSIS OF DESIGN PROBLEMS. (3)
A course emphasizing the role of analysis in design. Actual design objectives are met through the use of mathematical modeling techniques and the application of the principles of dynamics, kinematics and vibrations. Prereq: EM 313, ME 344 and engineering upper division status.

ME 358 ECONOMIC ANALYSIS OF MECHANICAL SYSTEMS. (3)
Formulation of economic relationships. Familiarization with alternate mechanical systems and application of economic principles of selection of alternates. Prereq: ME 321, engineering upper division status or consent of instructor.

ME 359 MANAGEMENT ENGINEERING. (3)
Analysis of systems for material control, quality control, and production control. Includes application of linear programming, Monte Carlo, queuing, and other research techniques. Prereq: Engineering upper division status.

ME 366 THERMAL POWER SYSTEMS. (3)
Application of basic thermodynamics, fluid mechanics and heat transfer to the analysis of thermal systems. Internal and external combustion power plant systems and noncombustion thermal systems are analyzed. Commercial aspects of thermal systems are studied. Prereq: ME 321 and engineering upper division status.

ME 371 SEMINAR. (1)
Students will undertake literature searches on a major engineering problem and will report orally on these findings approximately once a week. A written summary of these presentations will be submitted at the end of the semester. Lecture, two hours per week. Prereq: Engineering upper division status.

ME 380 TOPICS IN MECHANICAL ENGINEERING (Variable topics). (3)
A lecture-recitation course on a topic of current interest. Modern developments in mechanical engineering will be stressed. Offered as a technical elective in mechanical engineering. May be repeated to a maximum of nine credits. Prereq: Variable, given when topic identified and engineering upper division status.

ME 395 INDEPENDENT WORK IN MECHANICAL ENGINEERING. (1-6)
Special research and problems for individual students who wish to pursue independent investigations. May be repeated to a maximum of six credits. Prereq: Consent of department chairperson.

ME 412 SENIOR DESIGN PROJECT. (3)
A project concerned with the design of a complex system of current interest to mechanical engineers. Students will work in small groups and emphasis will be on original work. Lecture, one hour; laboratory, four hours per week. Prereq: ME 325, ME 347, ME 440, and upper division status in mechanical engineering.

ME 440 DESIGN OF CONTROL SYSTEMS. (3)
Fundamentals of automatic control theory and design; feedback control systems; transducers, detectors and actuators; types of controllers. Control system design using root-locus, Nyquist and Bode methods; compensation. Introduction to modern control theory, nonlinearities and digital control. Prereq: ME 340.

ME 448 CASE STUDIES IN MECHANICAL DESIGN. (3)
Use of actual industrial problems to teach analysis and design. A series of "real life" problems will be presented, analyzed, and corrective design procedures determined. Emphasis will be on engineering problem-solving techniques such as appropriate assumptions, approximations, collection of relevant information, etc. Prereq: ME 344.

ME 475G INTRODUCTION TO NUCLEAR ENGINEERING. (3)
Introduction to basic topics of nuclear science. Interaction of radiation with matter. Design and operation of nuclear reactors, shielding, instrumentation, health physics, fuel cycles, use of radioisotopes. Prereq: PHY 232, MA 214.

ME 480G THERMAL ENVIRONMENTAL ENGINEERING. (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. Principles and applications of building energy requirements and thermal comfort criteria. Prereq: ME 325 and engineering upper division status or consent of instructor. (Same as AEN 480G.)

ME 501 MECHANICAL DESIGN WITH FINITE ELEMENT METHODS. (3)
Mechanical design techniques based on the finite element method, using machine design background as the starting point. Techniques for modeling machine elements will be shown in relation to the basic FEM theory. Emphasis will be on quantifying loads, the resulting stress and deflection, and relating them to design allowables, leading to an acceptable design solution. Prereq: ME 344.

ME 506 COMPUTER-AIDED GRAPHICS AND DESIGN. (3)
Development of computer graphics and interactive graphics methods and applications to problem solving and design practices. Emphasis on graphics principles, data management, interactive programming, and integrated analysis/design. Prereq: ME 344 and CS 221.

ME 510 DYNAMICS AND DESIGN OF ROBOT MANIPULATORS. (3)
Analysis of the design and operation of robotic systems. Emphasis on robot kinematics, dynamics, differential motion, manipulator Jacobian, motion trajectories, geometric modeling, force and vibration analyses. Various practical applications and real cases are investigated. Prereq: ME 340 or both EE 420G and EM 230. (Same as EM 510.)

ME 514 NUCLEAR REACTOR ANALYSIS AND FUEL MANAGEMENT. (3)
Analysis of the fission process and cross section relationships. Homogeneous reactor theory. Reflected reactor multigroup methods. Design of heterogeneous reactors, including fuel considerations, burnup calculations, source terms and storage considerations. Elementary kinetic considerations are included. Prereq or concur: MA 432G.

ME 529 APPLIED FLUID MECHANICS. (3)
Continuation of ME 330. Problem solving for ideal and viscous flows for design and research oriented purposes. Development and application of basic equations to engineering problems with emphasis on numerical modeling using computers. Prereq: ME 330 or CE 330, CS 221, engineering upper division status, or consent of instructor. (Same as CE 542.)

ME 530 GAS DYNAMICS. (3)
Consideration of the mass, energy and force balances applied to compressible fluids. Isentropic flow, diabatic flow, flow with friction, wave phenomena and one-dimensional gas dynamics. Applications to duct flows and to jet and rocket propulsion engines. Prereq: ME 321, ME 330 and engineering upper division status.

ME 531 FLUID DYNAMICS I. (3)
Stress at a point (introduced as a tensor of rank two). Equation of conservation of mass, rate of strain tensor, derivation of Navier-Stokes equation, source-sink flows, motion due to a doublet, vortex flow, two- and three-dimensional irrotational flow due to a moving cylinder with circulation, two-dimensional airfoils. Prereq: ME 330, MA 432G and engineering upper division status.

ME 540 ANALYSIS AND SIMULATION OF DYNAMIC SYSTEMS. (3)
The analysis, computer simulation and design of mechanical systems with emphasis on the development of mathematical models, the experimental determination of system parameters and the prediction of transient and steady-state response. Application to lumped and distributed mechanical systems. Prereq: CS 221, ME 440 and engineering upper division status.

ME 542 KINEMATIC SYNTHESIS OF MECHANISMS. (3)
Fundamentals in the analysis and synthesis of mechanisms including coupler curves, guided plane systems and linkage design. Prereq: ME 344, EM 313 and engineering upper division status.

MA 543 KINEMATICS OF MACHINERY. (3)
A continuation of ME 542, dealing with the motion of rigid planes passing through multiple positions. Theory and applications. Prereq: ME 542.

ME 550 APPLICATIONS OF HEAT TRANSFER. (3)
The three basic modes of heat transfer, i.e., conduction, convection, and radiation, are treated in depth with the emphasis on fundamentals, analyses, and practical engineering applications. Several computer codes developed for heat transfer problems will be used to study multimode heat transfer problems. This course is a dual level course, intended basically for mechanical engineering undergraduate students. Credit will not be given for this course to a student who has credit in ME 625, ME 626 or ME 627. Prereq: ME 325, engineering upper division status.

ME 560 ENGINEERING OPTICS. (3)
Fundamentals of geometrical and physical optics; applications as related to problems in engineering design and research; details of some optical measurement techniques; introduction to lasers and their applications to heat transfer and combustion research; inverse analytical techniques for determining optical properties of small particles from light scattering and extinction measurements. Prereq: Engineering upper division status.

ME 563 BASIC COMBUSTION PHENOMENA. (3)
Simultaneous application of fluid mechanics, heat and mass transfer, chemical kinetics and thermodynamics to combustion. Topics covered include chemical kinetics, chain and thermal explosions, detonation and deflagration, flammability limits, stirred reactors. Flame stabilization in high and low velocity streams, laminar and turbulent diffusion flames, droplet burning, and metal combustion. Prereq: ME 330 and engineering upper division status; prereq or concur: ME 325.

ME 564 PROPULSION SYSTEM DESIGN. (3)
Design of systems for aircraft or missile propulsion. Centrifugal compressors, axial-flow compressors, turbine and exhaust systems, and combustion chambers. Lecture, two hours; laboratory, two hours. Prereq: ME 530 and engineering upper division status.

ME 566 DIRECT ENERGY CONVERSION PROCESSES. (3)
Basic consideration of direct conversion of thermal and chemical energy to electrical energy. Analysis and design of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic and electrochemical systems. Prereq: ME 325 and engineering upper division status.

ME 568 SOLAR ENERGY SYSTEMS. (3)
Solar radiation availability, materials and properties for collectors and thermal energy storage, heat transfer in collectors and storage systems. Design of solar-thermal components and systems. Prereq: ME 325, 330 and engineering upper division status. (Same as AEN 568.)

ME 583 BIOTECHNOLOGY. (3)
The human body as a mechanical system responding to sustained and transient forces and pressures, such as occur in flight, space flight and industrial environments. The physical and behavioral reaction of organisms to dynamic, thermal, radiative and gravitational stresses. Mechanical, hydraulic and pneumatic performance of body subsystems. Uses of the human parameters in the design of protective and prosthetic devices and life support systems. Prereq: Engineering upper division status and consent of instructor.

ME 590 ELEMENTS OF AEROSPACE TECHNOLOGY. (3)
Flight performance of airborne and ballistic vehicles. Space vehicle propulsion and structures. The space environment. Man in space. Prereq: ME 321 and 330, engineering upper division status.

ME 599 TOPICS IN MECHANICAL ENGINEERING (Subtitle required). (3)
A detailed investigation of a topic of current significance in mechanical engineering such as: computer-aided manufacturing, special topics in robotics, and current topics in heat transfer. May be repeated under different subtitles to a maximum of nine credits. A particular topic may be offered at most twice under the ME 599 number. Prereq: Variable; given when topic is identified.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

ME 601 ADVANCED CAE APPLICATIONS. (3)
This course will include development of theory for application to several topics in advanced engineering applications of computers in design. Typical topics include rolling element bearings, fluid film bearings, rotor dynamics, and elasto-plastic analysis. When appropriate, specialized computer programs will be introduced and utilized to illustrate the application of theory and numerical techniques in the areas covered. Prereq: ME 501.

ME 602 DYNAMICS OF DISTRIBUTED MECHANICAL SYSTEMS. (3)
Applications of small oscillation shell theory to continuous mechanical systems modelled by shells, plates, rings, arches, membranes, beams, etc. Study of natural frequencies, modeshapes, forced-vibration characteristics, system dampings, dynamic influence function, combination of subsystems, active and passive vibration controls and dampings. Prereq: ME 540 or EM 513, or consent of instructor.

ME 604 DYNAMICS OF ROTATING MACHINERY. (3)
Review of dynamic characteristics unique to high speed rotating shafts. Equations of motion for a rotor, including gyroscopic effects. Computational methods, including finite element. Effects of bearings and nonlinearities, stability. Application to design situations. Prereq: EM 313 and ME 501.

ME 610 ENGINEERING ACOUSTICS. (3)
A comprehensive study of wave propagation in fluids; derivation of the scalar wave equation and a study of its elementary solutions for time harmonic and transient waves in one, two and three dimensions. Radiation and scattering of waves at fluid and solid boundaries. Integral equation solution of the scalar velocity wave potential; numerical methods. Prereq or concur: MA 432G.

ME 620 ADVANCED ENGINEERING THERMODYNAMICS I. (3)
Critical treatment of the laws of thermodynamics, relations among thermodynamic properties; stability of systems: thermodynamic processes; selected special topics. Prereq: ME 321.

ME 621 ADVANCED ENGINEERING THERMODYNAMICS II. (3)
Broad coverage of statistical mechanics, kinetic theory and theory of fluctuations. Relations between quantum and classical statistics: Boltzmann integro-differential equation and its consequences. Applications to reaction equilibrium, property evaluation, and other topics. Prereq: ME 620.

ME 625 ADVANCED HEAT CONDUCTION. (3)
Comprehensive study of heat conduction, derivation of governing equations; discussion of the various boundary conditions; review of classical heat conduction solutions; discussion of current problems, methods of solution and engineering applications of heat conduction. Prereq or concur: MA 432G.

ME 626 ADVANCED HEAT CONVECTION. (3)
Comprehensive study of heat convection; derivation of equations of convection of mass, momentum, and energy; boundary layer equations; classical solutions of laminar convection problems; turbulent convection; analogies between momentum and energy. Prereq: ME 325, MA 432G or concurrent.

ME 627 RADIATION HEAT TRANSFER. (3)
Principles of thermal radiation, the determination of radiation properties, and the analysis of radiation heat transfer. Results of recent radiation researches are included in the discussions. Prereq: ME 325, MA 432G or concurrent.

ME 628 BOILING AND CONDENSATION. (3)
Phase-change heat transfer including boiling and condensation. Phenomenological treatment of boiling using hydrodynamic instability. Theory of two-phase flow and its application to forced flow boiling. Film and dropwise condensation. Prereq: ME 325.

ME 631 FLUID DYNAMICS II. (3)
A continuation of ME 531 with emphasis on viscous flow. Exact and approximate solutions, boundary layer theory. Jets, wakes, rotating systems, compressible boundary layer and hydrodynamic stability. Prereq: ME 531 or consent of instructor.

ME 634 TURBULENT FLOWS. (3)
Physical and analytical description of turbulent flows, isotropic turbulence, boundary layers and shear flows, free turbulence in jets and wakes. Measurement techniques. Prereq: ME 529 or ME 531.

ME 640 ADVANCED ANALYSIS AND SIMULATION OF DYNAMIC SYSTEMS. (3)
An extension of ME 540 emphasizing advanced techniques. The concept of random processes in mechanical engineering problems; nonparametric and parametric models. The use of correlation, spectral analysis and digital filtering in data analysis and model building. Prereq: ME 540.

ME 645 ADVANCED CONTROL SYSTEM ANALYSIS. (3)
Conceptual development and study of complex systems; their synthesis and design; analysis and optimization of system parameters. Input-output relationships; formulation of mathematical models, parameters and constraints on physical systems. Prereq: ME 343.

ME 647 SYSTEM OPTIMIZATION I. (3)
A course in the theory and application of optimization techniques with emphasis on large engineering systems. Prereq: CS 221, one mathematics course beyond MA 214.

ME 663 NUCLEAR REACTOR ANALYSIS AND DESIGN. (3)
Advanced topics in reactor analysis. Approximate solutions of the Boltzmann equation. Perturbation theory. Neutron thermalization. Modeling of nuclear reactor systems including heat transfer and control systems. Prereq: ME 514, ME 325, ME 440.

ME 664 SHIELDING AND EXPERIMENTAL METHODS IN NUCLEAR ENGINEERING. (3)
A lecture and laboratory course covering the utilization of radiation in engineering measurements and analysis of parameters pertinent to reactor design and operation. Radiation shielding, radiation interaction with materials. Reactor response and computer simulation.

ME 665 NUCLEAR REACTOR DYNAMICS. (3)
Analysis of dynamic behavior of nuclear reactor systems; transfer function methods applied to nuclear reactor operation and control, stability and analysis from Nyquist and Bode plots, effects of feedback and compensation; instrumentation for reactor start-up and operate conditions. Prereq: ME 343, ME 514.

ME 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ME 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ME 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ME 780 SPECIAL PROBLEMS IN MECHANICAL ENGINEERING. (3)
This course consists of individual work in one of the various fields of mechanical engineering. May be repeated three times for a total of 12 credits. Prereq: Approval of instructor.

ME 781 SPECIAL PROBLEMS IN BIOENGINEERING. (3)
Discussion of advanced and current topics in bioengineering. Individual work on research problems of current interest. May be repeated to a maximum of nine credits.

ME 790 RESEARCH IN MECHANICAL ENGINEERING. (1-9)
Work may be taken in any field of mechanical engineering, subject to the approval of the director of graduate studies. May be used to satisfy pre-qualifying examination residency credit. May be repeated to a maximum of 18 hours.

MEDICAL TECHNOLOGY

MT 120 MEDICAL TECHNOLOGY AS A CAREER. (1)
Presentation of information about the various careers in clinical laboratory science via lectures, demonstrations and field trips. Open to students wishing to explore the field of medical technology. Pass-Fail only.

MT 130 INTRODUCTION TO MEDICAL TECHNOLOGY. (1)
Through lectures, demonstrations and audiovisuals, students are introduced to disease processes, their manifestations, and laboratory studies used for diagnoses and prognoses. Open to students wishing to explore the field of medical technology. Pass-Fail only.

MT 501 SEMINAR IN ADVANCED HEMATOLOGY. (2)
Study of the biochemical aspects of blood cell physiology and kinetics as applied to practice in the clinical hematology laboratory and a review of current related literature. This course is designed for practicing clinical laboratorians or medical technologists who are pursuing a graduate degree. Prereq: BCH 401G or equivalent and consent of instructor.

MT 801 INTRODUCTION TO LABORATORY METHODOLOGY. (1)
This course is designed to develop basic laboratory skills needed for the medical technology curriculum. Required for new junior students. Lecture, one hour; laboratory, four hours for four weeks. Prereq: Admission to the medical technology professional program.

MT 832 INTRODUCTION TO CLINICAL CHEMISTRY AND INSTRUMENTATION. (4)
An introductory course in theory and practice of clinical chemistry. Emphasizes laboratory reporting, proper operation of laboratory equipment, quality control, trouble shooting laboratory instruments, and concern for the accuracy of patient data. Lecture, 2 hours; laboratory, 6 hours for 12 weeks. Prereq: Admission to medical technology professional program.

MT 833 INTRODUCTION TO CLINICAL HEMATOLOGY. (4)
An introductory course in theory and practice of clinical hematology. Laboratory reporting, quality control, medical terminology and concern for the patient will be emphasized throughout the course. Lecture, two hours; laboratory, two three-hour laboratories per week for 12 weeks. Prereq: Admission to medical technology professional program.

MT 836 LABORATORY ORGANIZATION AND MANAGEMENT. (1)
Practical aspects of laboratory management. Planning, cost accounting, procedure writing, managerial problem solving and laboratory safety. Grading by pass-fail only. Prereq: Enrollment in medical technology professional program.

MT 843 CLINICAL HEMATOLOGY LECTURES. (2)
A study of the principles of hematologic methodologies and of disease processes such as the anemias and leukemias. Particular emphasis will be given to evaluation of methodologies and to correlation of laboratory data with disease. Prereq: Admission to senior year of medical technology curriculum or permission of department chairperson.

MT 844 CLINICAL CHEMISTRY LECTURES. (3)
A study of biologically important elements and compounds found in various body fluids in health and disease. Emphasis will be given to the theory and evaluation of various methodologies involved in the quantitation of these substances. Prereq: Admission to the senior year of the medical technology curriculum or permission of the department chairperson.

MT 846 BODY FLUID ANALYSIS. (3)
A study of qualitative and quantitative chemical and microscopic constituents of urine, cerebrospinal and other body fluids. Lecture, two hours; laboratory, three hours. Prereq: Admission to junior year in medical technology or consent of department chairperson.

MT 854 MEDICAL PARASITOLOGY. (3)
Detailed study of the protozoan and helminth parasites of man as found in blood, feces or other body tissues or fluids. Lecture, two hours; laboratory, two hours. Prereq: Admission to the medical technology professional program.

MT 855 CLINICAL SEROLOGY. (2)
A study of the elicitation and identification of antigens and antibodies of viral, bacterial, spirochetal and autoimmune diseases. Special emphasis is given to immunologic methodologies and evaluation of results. Lecture, two hours; laboratory, two hours. Prereq: Admission to medical technology professional program and BIO 594 or consent of department chairperson.

MT 856 CLINICAL BACTERIOLOGY LECTURES. (3)
A review of human pathogenic microorganisms and their relationships to disease. Emphasis will be placed on laboratory diagnostic approaches to infectious disease. Prereq: Admission to the medical technology professional program or consent of department chairperson.

MT 857 MEDICAL MYCOLOGY. (2)
A brief course with emphasis on the techniques for isolation and identification of the systemic and subcutaneous fungi and the distinguishing cultural and microscopic characteristics of the dermatophytes. Prereq: Admission to the medical technology professional program.

MT 858 IMMUNOHEMATOLOGY AND BLOOD BANKING. (4)
A course covering basic immunohematologic principles and their application in pretransfusion studies and antibody identification. It will also include the preparation of blood components and the handling of special problems in blood banking, such as transfusion reactions and hemolytic disease of the newborn. Lecture, three hours; laboratory, three hours. Prereq: Admission to the medical technology professional program and BIO 594.

MT 860 BLOOD COLLECTION. (1)
Experience collecting venous and capillary blood specimens for many types of studies. This will include collection from both ambulatory and bed patients of all ages. May be repeated to a maximum of two hours. Offered on a pass-fail basis. Prereq: Admission to medical technology professional program or consent of department chairperson.

MT 863 CLINICAL HEMATOLOGY LABORATORY. (3)
Practice and mastery of the basic skills required in a clinical hematology laboratory to include particle counting, cellular morphology and coagulation with an introduction to special methodologies used in clinical hematology for the diagnosis of diseases. Laboratory, six hours. Prereq: Concurrent registration in MT 843.

MT 864 CLINICAL CHEMISTRY LABORATORY. (3)
Practice in the performance of various types of techniques and use of instruments involved in quantitation of elements and compounds in various body fluids in health and disease. Laboratory, six hours. Prereq: Concurrent registration in MT 844.

MT 866 CLINICAL BACTERIOLOGY LABORATORY. (3)
Experience in the techniques of isolation and identification of pathogenic microorganisms from all types of clinical specimens. Laboratory, six hours. Prereq: Concurrent registration in MT 856.

MT 870 MEDICAL TECHNOLOGY SEMINAR. (1)
This course will consist of selected discussions with departmental faculty, other medical center or visiting faculty, or attendance at medical grand rounds presentations. Lecture, one and a half hours per week. May be repeated to a maximum of two credits. Prereq: Admission to medical technology professional program.

MT 880 CLINICAL PRACTICUM IN MEDICAL TECHNOLOGY. (12)
A supervised clinical practicum which integrates theory and practice in clinical chemistry, hematology, blood bank and microbiology. Students must successfully complete all technical and professional components during the rotation, and pass a final comprehensive examination. Laboratory, 30-40 hours per week for 14 weeks. Prereq: Completion of senior year medical technology courses.

MT 881 PRACTICUM IN BLOOD BANKING. (1-4)
A supervised clinical practicum in which theory and practice in blood banking are integrated. May be repeated to a maximum of four credits. Lecture, 1 hours; laboratory, 35-40 hours per week. Prereq: MT 858 or equivalent.

MT 882 PRACTICUM IN CLINICAL CHEMISTRY.(1-4)
A supervised clinical practicum in which theory and practice in clinical chemistry are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: MT 844 and MT 864.

MT 883 PRACTICUM IN CLINICAL HEMATOLOGY.(1-4)
A supervised clinical practicum in which theory and practice in hematology are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: MT 843 and MT 863.

MT 884 PRACTICUM IN CLINICAL MICROBIOLOGY. (1-4)
A supervised clinical practicum in which theory and practice in microbiology are integrated. May be repeated to a maximum of four credits. Lecture, 1 hour; laboratory, 35-40 hours per week. Prereq: MT 854, 856, 857, 866.

MT 895 ADVANCED TOPICS IN MEDICAL TECHNOLOGY (INDEPENDENT STUDY). (1-2)
An elective for superior students wishing to study selected subjects in depth or carry out a limited laboratory project. Prereq: Consent of department chairperson.

MICROBIOLOGY

See courses listed under Biological Sciences.

MILITARY SCIENCE (ARMY ROTC)

BASIC COURSES

MS 101 AMERICAN MILITARY HISTORY I. (2)
Study of the development of the U.S. from a military perspective; the parallel development of technology and warfare; and emphasis on the evaluation of military leadership as viewed from a knowledge of the historically tested principles of war from primitive warfare until the end of the Civil War. Prereq: Full-time undergraduate student (male or female).

MS 102 AMERICAN MILITARY HISTORY II. (2)
Study of the development of the U.S. from a military perspective; the parallel development of technology and warfare; and emphasis on the evaluation of military leadership as viewed from a knowledge of the historically tested principles of warfare from the Civil War to the present. Prereq: Full-time undergraduate student (male or female).

MS 201 CIVIL-MILITARY RELATIONS IN A CHANGING WORLD. (2)
A course concerning the interaction, in a political and sociological context, of the military and civilian communities to include perceptions, values, and effects with emphasis on extranational factors affecting attitudes.

MS 202 MAP READING AND TACTICS. (2)
Course designed to acquaint the student with the fundamentals of military map reading and using those map reading skills to develop an appreciation for small unit tactical operations. Course also covers organization, composition and function of basic military units.

ADVANCED COURSES

MS 301 LEADERSHIP AND MANAGEMENT I. (3)
Course of study in development of basic skills required to function as a manager; study of leadership styles, group dynamics, communications, motivation and military instruction methods; and school of the soldier and exercise of command. Prereq: MS 201, 202 graduate or undergraduate student (male or female), successful completion of basic course or basic camp, physically fit to pursue program; consent of PMS.

MS 302 ADVANCED TACTICS. (3)
Small unit tactics and communications, organization and mission of combat arms units; leadership and the exercise of command. Prereq: MS 201, 202, graduate or undergraduate student (male or female), successful completion of basic course or basic camp, physically fit to pursue program; consent of PMS.

MS 311 WAR AND PEACE IN AMERICAN SOCIETY. (3)
A consideration of the impact of war on the fabric of American Society. America's involvements in and extrications from her various wars, in their diplomatic, economic, political and strategic dimensions will be emphasized. Prereq: HIS 105; or HIS 108-109; or MS 301-302. (Same as HIS 311.)

MS 341 LEADERSHIP AND MANAGEMENT II. (3)
An advanced study of logistics, operations, military administrations, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302.

MS 342 COMMAND MANAGEMENT. (3)
An advanced study of logistics, operations, military administration, personnel management, military justice, world change and military implications, service orientation and leadership training. Prereq: MS 301, 302.

MINING ENGINEERING

MNG 121 ELEMENTS OF MINING. (3)
Survey course to introduce the student to the mining profession, with emphasis on coal mining; mine planning and design, operational systems and production estimates; key mining engineering functions.

MNG 222 MINE LAW AND SAFETY. (3)
Mine laws, including safety regulations and interpretations for engineers and supervisors. Prereq: MNG 121.

MNG 301 MINERALS PROCESSING. (3)
Petrographic structure of ore and coal deposits, sampling theory, and particle motion in fluid streams. Unit operations for processing particulate materials; breaking, screening, laundering, froth flotation and clarification. Flowsheets, process selection and plant performance. Prereq: PHY 232.

MNG 312 COMPUTER METHODS IN MINING ENGINEERING. (3)
Use of microprocessors for data acquisition, process control, planar digitizing and plotting. Remote accessing of standard libraries of mining engineering and statistical packages. Modelling of mine systems. Prereq: CS 221.

MNG 332 MINE PLANT MACHINERY. (3)
Theory and practice of mine haulage, hoisting, drainage, pumping and compressed air as power. Application of engineering principles to the minerals industries. Prereq: MNG 121, PHY 231. Concur: EM 221.

MNG 341 MINE VENTILATION. (3)
Hazards of dust and gaseous contamination of mine atmosphere, air dilution requirements, flow distribution in mine network, computer analysis of the ventilation network, natural ventilation and fans. Lecture, two hours; laboratory, three hours. Prereq: PHY 231, ME 330 and engineering upper division status.

MNG 371 SEMINAR. (1)
A study of current engineering literature as related to mining engineering. Two hours lecture per week. Prereq: Engineering upper division status.

MNG 395 INDEPENDENT WORK IN MINING ENGINEERING. (1-6)
Individual work on some selected problem in the field of mining engineering. May be repeated for a maximum of six credits. Prereq: Consent of department chairperson and the instructor.

MNG 411 MINE MANAGEMENT AND ECONOMICS. (3)
Principles of practical mine management, management functions and techniques, organization and manpower, improving mine productivity and technical support; underground and surface mining cost models, cost control systems, cost evaluation and selection of equipment, manpower costs and requirements, use of computer to minimize mining costs. Prereq: MNG 121, STA 381, ECO 261, or consent.

MNG 431 MINE SYSTEMS ENGINEERING. (3)
Aspects of industrial and geological engineering for mine systems engineering design. Course consists of reserve engineering, presystems modeling and interfacing systems to reserves. Prereq: STA 381, MNG 332.

MNG 463 SURFACE MINING OPERATIONS. (3)
Optimization of open pit geometry. Classification of surface mining methods. Surface mining development for metalliferous ore bodies and coal deposits. Drilling, blasting, ground excavation and loading. Mineral transport systems. Maintenance scheduling. Prereq: MNG 332, engineering upper division status.

MNG 464 UNDERGROUND MINING OPERATIONS. (3)
An in-depth study of the principal mining methods practiced in coal and hard rock mines. Classification of hard rock mining systems. Mining techniques of room and pillar, longwall and shortwall in coal mines. Support and equipment requirements. Production features and design of haulage systems. General mine planning and developments. Engineering and management considerations. Prereq: MNG 332, MNG 551.

MNG 490G EXPLOSIVES AND BLASTING ENGINEERING. (3)
Types of commercial explosives, explosive properties; systems of initiation, charging methods, design of benches, design of blasting rounds; explosives applications in mining and other fields; damage control; and safe blasting practices. Prereq: Engineering upper division status or consent of instructor.

MNG 551 ROCK MECHANICS. (4)
Determination of the physical properties of rocks, rock mass classification, stress around mine openings, strain and displacement of the rock mass, rock reinforcement and support, stress interaction and subsidence, strata control. Lecture, three hours; laboratory, three hours per week. Prereq: EM 302, EM 303, GLY 240 and engineering upper division status; or consent of instructor.

MNG 561 MINE CONSTRUCTION ENGINEERING I. (3)
Development of underground capital openings (shafts, chambers, tunnels, and drifts) in mines. Design and construction under normal conditions. Organization and management of construction operations. Prereq: CE 380, MNG 551 and engineering upper division status.

MNG 562 MINE DESIGN PROJECT. (3)
Teams of students will undertake one or more major design projects such as the overall design of a mining system including design of major components of the system and an economic evaluation. Each student will write one or more individual reports. Lecture, two hours; laboratory, three hours per week. Prereq: MNG 332, MNG 341 and engineering upper division status.

MNG 572 ADVANCED COAL PREPARATION. (3)
Study of economic and environmental factors in cleaning a specific coal, laboratory tests for process selection, laboratory testing of alternative procedures leading to design of plant. Lecture, two hours; laboratory, three hours per week. Prereq: MNG 322 and engineering upper division status.

MNG 581 MINE VALUATION. (3)
Applications of advanced concepts in engineering economy to mining engineering. Includes coal estimation, optimum levels of production, treatment of risk, mineral markets and mineral property valuation and mine financing. Prereq: CE 555, STA 381, or 681 and engineering upper division status.

MNG 599 TOPIC IN MINING ENGINEERING. (2-3)
A detailed investigation of a topic of current significance in mining engineering. May be repeated to a maximum of six credits, but only three credits can be earned under the same title. A particular topic may be offered at most twice under the MNG 599 number. Prereq: Engineering upper division status and consent of instructor.

MNG 631 ADVANCED MINE SYSTEMS ENGINEERING. (3)
Selected topics concerning advanced operations research procedures in the mining industry. Prereq: MNG 431 or consent of instructor.

MNG 632 MINE PLANT MACHINERY II. (3)
Analysis of major bulk handling media, including rail haulage, conveyor belt haulage, hoisting, and off-highway trucks. Use of available computer software for evaluation, selection, and design of haulage equipment by mathematical modelling and simulation. Encumbered space in mining, velocity-clearance curves, and optimal sizing of mobile handlers. Prereq: MNG 562.

MNG 634 ADVANCED MINE ENGINEERING. (3)
Procedures and methods of obtaining data and analyzing mine systems for efficient development and exploitation of a mining property. Course includes applications of operation research techniques. Prereq: CE 555, CS/MA/STA 482G.

MNG 636 ADVANCED ROCK MECHANICS. (3)
Advanced topics in rock mechanics including modelling of rock structures; ground control in elastic, plastic, clastic, and jointed rock; stability of rock slopes. Case histories. Prereq: MNG 551.

MNG 637 ROCK SLOPE STABILITY AND DESIGN. (3)
Design and stability analysis of rock slopes using analytical, empirical, and numerical approaches, engineering geological data, groundwater pressure, blasting, and remedial measures. Prereq: MNG 551.

MNG 641 ADVANCED MINE VENTILATION. (3)
Planning, designing and redesigning the ventilation systems using computers; data acquisition (ventilation survey); non-steady state flow in mine openings; influence of the ventilation conditions upon the dynamics of the methane concentration; automation of the ventilation system. Lecture, two hours; laboratory, two hours. Prereq: MNG 341.

MNG 661 MINE CONSTRUCTION ENGINEERING II. (3)
Advanced analysis of underground capital openings in mines with emphasis on linings. Design under adverse geological conditions and unusual technological requirements. Special and unique construction methods and equipment. Prereq: MNG 561.

MNG 690 ADVANCED MINERAL BENEFICIATION ENGINEERING. (3)
State of the art techniques in mineral beneficiation and their application in coal and mineral preparation industry. Prereq: MNG 301 and MNG 572.

MNG 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

MNG 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MNG 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

MNG 771 SEMINAR IN MINING ENGINEERING. (1)
Review of current research in specific areas of mining engineering. Required of all graduate students. Prereq: Graduate classification.

MNG 780 SPECIAL PROBLEMS IN MINING ENGINEERING. (1-6)
Individual work on some selected design problems in one area of mining engineering. May be repeated to a maximum of six credits. Prereq: Approval of the chairperson of the department.

MNG 790 SPECIAL RESEARCH PROBLEMS IN MINING ENGINEERING. (1-9)
Individual work on some selected problems in one of the various fields of mining engineering. Laboratory and field measurements, six hours. May be repeated to a maximum of nine credits. Prereq: Approval of the Director of Graduate Studies.

MUSIC

MUSIC PERFORMANCE COURSES (SPECIAL FEE)
Prereq: Satisfactory audition and/or approval of instructor.

	Undergraduate Courses (1-3)	Graduate Courses (1-4)
Piano	MUP 101, 201, 301, 401	501, 601, 701
Voice	MUP 102, 202, 302, 402	502, 602, 702
Organ	MUP 103, 203, 303, 403	503, 603, 703
Violin	MUP 104, 204, 304, 404	504, 604, 704
Viola	MUP 105, 205, 305, 405	505, 605, 705
Cello	MUP 106, 206, 306, 406	506, 606, 706
String Bass	MUP 107, 207, 307, 407	507, 607
Flute	MUP 108, 208, 308, 408	508, 608, 708
Oboe	MUP 109, 209, 309, 409	509, 609, 709
Clarinet	MUP 110, 210, 310, 410	510, 610, 710
Bassoon	MUP 111, 211, 311, 411	511, 611, 711
Trumpet	MUP 112, 212, 312, 412	512, 612, 712
French Horn	MUP 113, 213, 313, 413	513, 613, 713
Trombone	MUP 114, 214, 314, 414	514, 614, 714
Euphonium	MUP 115, 215, 315, 415	515, 615
Tuba	MUP 116, 216, 316, 416	516, 616, 716
Saxophone (alto)	MUP 117, 217, 317, 417	517, 617, 717
Percussion	MUP 118, 218, 318, 418	518, 618, 718
Harp*	MUP 119, 219, 319, 419	519, 619
Harpsichord	MUP 120, 220, 320, 420	520, 620
English Horn	MUP 321	521
Historical Instruments*	MUP 322, 422	522, 622
Classical Guitar	MUP 123, 223, 323, 423	523, 623

*Consult the School of Music before enrolling in these courses.

MUP 558 CONDUCTING. (1-4)
Private instruction in advanced conducting. Prereq: MUS 358 or MUS 364 or MUS 365 or consent of instructor.

MUP 658 CONDUCTING. (1-4)
Private instruction in advanced conducting. Prereq: MUS 358 or MUS 364 or MUS 365, or consent of instructor.

One-Hour Credit

The following may register for one-hour credit performance courses:
1) Music majors electing a secondary instrument or a major instrument credit by direction of the adviser to fulfill degree performance requirements.
2) Students from other divisions of the University desiring elective credit but only upon approval of the School of Music.
Students in one-hour credit performance courses for secondary instrument credit may be taught in studio groups of four or less. Each undergraduate one-hour course may be repeated twice for credit. Each graduate one-hour course may be repeated three times for credit.

Two-Hour Credit

The following may register for two-hour credit performance courses:
1) Music majors in the Music Education or B.A. in Music degree programs;
2) Music minors;
3) Graduate students by direction of the adviser.
Each undergraduate two-hour course may be repeated twice for credit. Each graduate two-hour course may be repeated three times for credit.

Three-Hour Credit

The following may register for three-hour credit performance courses:
1) Music majors in the B.M. or M.M. in performance degree programs;
2) D.M.A. students by direction of the adviser.
Each undergraduate three-hour course may be repeated twice for credit. Each graduate three-hour course may be repeated three times for credit. Not offered during the summer session.

Four-Hour Credit

Only graduate students in the music performance programs may register for four-hour courses. These courses are available only at the 600- and 700-levels. Doctoral students **only** may register for 700-level courses. Four-hour credit courses may be repeated three times for credit. Not offered during the summer session.

CLASS INSTRUCTION

MUC 150 CLASS INSTRUCTION IN PIANO. (1)
A beginning course in the fundamentals of playing the piano. Lecture, two hours. Prereq: For music majors; other students by consent of instructor.

MUC 151 CLASS INSTRUCTION IN PIANO. (1)
A beginning course in the fundamentals of playing the piano. For music majors; other students by consent of instructor. Lecture, two hours. Prereq: MUC 150.

MUC 152 CLASS INSTRUCTION IN PIANO. (1)
A course in the fundamentals of playing the piano. For music majors; others by consent of instructor. Lecture, two hours. Prereq: MUC 151.

MUC 153 CLASS INSTRUCTION IN PIANO. (1)
A course in the fundamentals of playing the piano. For music majors; others by consent of instructor. May be repeated to a maximum of two credits with consent of instructor. Instruction, two hours. Prereq: MUC 152.

MUC 155 VOICE CLASS FOR NON-MUSIC MAJORS. (1)
Applied voice group instruction for non-music majors with emphasis on basic breathing and vocal technique, elements of music notation, and diction. May be repeated to a maximum of two credits. Laboratory, two hours per week. Prereq: Consent of instructor.

MUC 157 CLASS INSTRUCTION IN PERCUSSION INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching percussion instruments. Instruction, three hours. Prereq: For music majors only; others by consent of instructor.

MUC 158 CLASS INSTRUCTION IN WOODWIND INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching woodwind instruments. May be repeated to a maximum of two credits. Prereq: For music majors; others by consent of instructor.

MUC 161 CLASS INSTRUCTION IN STRING INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching violin, viola, cello and string bass. May be repeated to a maximum of two credits. Prereq: For music majors; others by permission of instructor. For nonstring majors who take this course for two semesters, it must be taken sequentially beginning in the fall semester.

MUC 163 CLASS INSTRUCTION IN BRASS INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching brass instruments. Lecture, three hours per week. May be repeated to a maximum of two credits. Prereq: For music majors; others by consent of instructor.

MUC 164 CLASS INSTRUCTION IN GUITAR. (1)
A beginning course in the fundamentals of playing the folk guitar. For nonmusic majors, music majors, or classroom teachers. Two hours laboratory per week. May be repeated to a maximum of two credits. Prereq: Consent of instructor.

MUC 265 VOICE CLASS FOR THEATRE MAJORS. (1)
Applied voice group instruction with emphasis on vocal preparation for musical theatre performance. Elements of music notation. Two hours laboratory per week. May be repeated to a maximum of two credits. Prereq: Consent of instructor.

CHAMBER MUSIC ENSEMBLES

MUC 170 STRING ENSEMBLE. (1)
The study of string instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 171 BRASS ENSEMBLE. (1)
The study of brass instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 172 WOODWIND ENSEMBLE. (1)
The study of woodwind instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 173 PERCUSSION ENSEMBLE. (1)
The study of percussion instrument chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 174 UNIVERSITY CHORALE. (1)
An auditioned choral ensemble for the study of choral literature through performance. Class will meet for five hourly rehearsals per week. May be repeated to a maximum of eight credits. Prereq: Audition and consent of instructor.

MUC 176 PIANO ENSEMBLE. (1)
Study of piano ensemble chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 177 GUITAR ENSEMBLE. (1)
The study of guitar ensemble music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

LARGE MUSICAL ORGANIZATIONS

MUC 175 JAZZ ENSEMBLE. (1)
Study of jazz through performance. May be repeated to a maximum of eight credits. Laboratory, three hours. Prereq: Consent of instructor.

MUC 187 CONCERT BAND. (1)
A large concert band primarily for the general student desiring continuation of instrumental music experience. Laboratory, three hours. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

MUC 188 SYMPHONIC BAND. (1)
A select band engaged in preparation and performance of a variety of music composed for this medium. May be repeated to a maximum of four credits. Laboratory, four hours. Prereq: Audition and consent of instructor.

MUC 189 WIND ENSEMBLE. (1)
The University's select band for performance of challenging literature in the wind repertoire. May be repeated to a maximum of eight credits. Prereq: Audition and consent of instructor.

MUC 190 MARCHING BAND. (1)
Preparation for and performance at University athletic functions, primarily football games. May be repeated to a maximum of four credits. Prereq: Audition and consent of instructor.

MUC 191 ORCHESTRA. (1)
Students who have demonstrated the required ability are given an opportunity to study and perform standard orchestral literature. May be repeated seven times for a total of eight credits. Prereq: Audition and consent of instructor.

MUC 192 UNIVERSITY CHORISTERS. (1)
Ordinarily for music majors only. Three one-hour meetings per week. May be repeated seven times for a total of eight credits. Prereq: Audition and consent of instructor.

MUC 195 UNIVERSITY CHORUS. (1)
Any student in the University may be admitted to the University Chorus after consultation with the director. Meetings, two hours. May be repeated to a maximum of eight credits. Prereq: Audition and consent of instructor.

MUC 196 OPERA WORKSHOP. (1)
Study of the principles and techniques of opera production through class presentation of scenes and complete works. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

MUC 197 STRING ORCHESTRA. (1)
Students who qualify are given the opportunity to study and perform music written specifically for String Orchestra. Two hours laboratory per week. May be repeated to a maximum of eight credits. Prereq: Audition and consent of instructor.

MUC 570 ADVANCED CHAMBER MUSIC ENSEMBLE. (1)
Study of chamber music through performance. May be repeated to a maximum of six credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 596 OPERA WORKSHOP. (1-3)
Study of the principles and techniques of opera production and direction through class presentation of scenes and complete works. May be repeated to a maximum of six hours. Prereq: Consent of instructor.

MUC 675 JAZZ ENSEMBLE. (1)
Study of jazz through performance. Laboratory, two hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

MUC 689 WIND ENSEMBLE. (1)
The University's select band for performance of challenging literature in the wind repertoire. Laboratory, three hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

MUC 691 ORCHESTRA. (1)
Students who have demonstrated the required ability are given an opportunity to study and perform standard orchestral literature. Laboratory, five hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

MUC 692 UNIVERSITY CHORISTERS. (1)
The course offers students the opportunity to learn and perform the best choral literature in the repertoire. Laboratory, three hours per week. May be repeated to a maximum of six credits. Prereq: Audition and consent of instructor.

OTHER MUSIC COURSES

MUS 001 RECITAL ATTENDANCE. (0)
The course will consist of attendance at recitals. Each freshman and sophomore student must attend a minimum of 16 concerts per semester (for a total of four semesters), to be chosen from faculty recitals, senior or graduate recitals, concerts by UK ensembles, Tuesday noon student recitals, Chamber Music series, Central Kentucky Concert and Lecture Association, and Gallery Series. One-hour lab per week. Grade: S or E.

MUS 100 INTRODUCTION TO MUSIC. (3)
A study of the elements of music as they apply to the listening experience; designed for the nonmusic major with no prior knowledge of music. Emphasis will be placed upon developing an awareness and understanding of musical styles from the Renasisance to the present. Music majors may not use this course to fulfill either General Studies or music history requirements.

MUS 120 FOREIGN LANGUAGE VOCAL DICTION. (1)
A study of diction factors in Italian, German, and French vocal music. Lecture, two hours. May be repeated to a maximum of three hours. Prereq: Consent of instructor.

MUS 170 THEORY I—ELEMENTARY AURAL THEORY. (1)
Development of aural responsiveness to the harmonic and melodic elements of music, and of sightsinging techniques as an aid to music comprehension. Prereq: Satisfactory completion of Theory Placement Examination.

MUS 171 THEORY I—ELEMENTARY WRITTEN THEORY. (2)
The acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. Prereq: Satisfactory completion of Theory Placement Examination.

MUS 172 THEORY I—ELEMENTARY AURAL THEORY. (1)
The continuation of the aural and sightsinging techniques of MUS 170. Lecture, one hour; laboratory, one hour. Prereq: MUS 170.

MUS 173 THEORY I—ELEMENTARY WRITTEN THEORY. (2)
The continuation of the work of MUS 171. Lecture, three hours. Prereq: MUS 171.

MUS 174 THEORY FOR NONMUSIC MAJORS. (3)
An introduction to the basic materials of musical organization, focusing on music reading, rudiments of notation, pitch, scale, tonal, and rhythmic organization, melodic construction, simple harmonic vocabulary, and beginning aural training. Individual composition and improvisation exercises are used to approach much of this material. Ability to read music is not a prerequisite.

MUS 201 MUSIC IN WESTERN CULTURE TO 1700. (3)
Music from Ancient Greece to the end of the 17th century, as seen against a background of artistic, cultural, religious, and political change in Western Europe. Music majors may not use this course to fulfill either the University Studies or music history requirements.

MUS 202 MUSIC IN WESTERN CULTURE, 1700-PRESENT. (3)
A survey of music from 1700 (Vivaldi, Bach, Handel) to the present, in the context of artistic, cultural, political, and social changes in the Western cultural community. Music majors may not use this course to fulfill either University Studies or degree requirements.

MUS 203 HISTORY OF MUSIC. (3)
A survey of the history of music from ancient times through the Renaissance (up to approximately 1600). Required of all music majors. Prereq: Music majors—sophomore standing; nonmusic majors—consent of instructor.

MUS 220 SYMPHONIC MUSIC. (3)
A survey of the symphonic repertoire from the Classical through the Contemporary Periods. Emphasis will include the development of listening skills and an awareness of musical styles. Music majors may not use this course to fulfill University Studies or degree requirements.

MUS 221 A SURVEY OF CHORAL MASTERWORKS: BAROQUE TO THE PRESENT. (3)
A survey of the choral genre, tracing its development from the 18th century to the present. Lectures will include structure and symbolism in choral music as well as directed listening with emphasis upon historical and structural analysis of the works studied. In addition, attendance at selected concerts is expected.

MUS 260 TEACHING MUSIC IN THE ELEMENTARY GRADES I. (2)
Together with MUS 261, this course is designed to develop musicianship, skills, and techniques teachers need to direct musical activities effectively in the elementary classroom. Music fundamentals and teaching materials are introduced through active participation in musical activities. Focus is on the music education in the lower elementary grades. For nonmusic majors or classroom teachers. Lecture, one hour; laboratory, two hours per week.

MUS 261 TEACHING MUSIC IN THE ELEMENTARY GRADES II. (2)
Continuation of MUS 260. Focus is on the music education in the upper elementary grades. This course must be taken immediately following completion of MUS 260. For nonmusic majors or classroom teachers. Lecture, one hour; laboratory, two hours per week. Prereq: MUS 260.

MUS 262 VOCAL MUSIC METHODS AND MATERIALS SEMINAR I. (2)
Fundamentals of singing, posture, breathing, diction. Reading of choral literature suitable for the junior and senior high school chorus. Beginning conducting. Accompanying. Lecture, two hours; laboratory, one hour. Prereq: MUS 172, 173 or consent of instructor.

MUS 263 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR I. (2)
Study of the history and philosophy of music education in the public schools and a study of the methods and materials in teaching instrumental music in the elementary schools. Laboratory band and orchestra experience with secondary instruments. Observations in the public schools with emphasis on the elementary and junior high school levels. Lecture, two hours; laboratory, one hour. Prereq: MUS 172, 173 or consent of instructor.

MUS 264 VOCAL MUSIC METHODS AND MATERIALS SEMINAR II. (2)
Warm-up exercises, vocalizing, sight-reading in the chorus. Vocal styles. Reading and conducting choral literature suitable for the junior and senior high school chorus. Analyzing vocal problems. The teenage voice, including the boy's changing voice. Lecture, two hours; laboratory, one hour. Prereq: MUS 262.

MUS 265 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR II. (2)
A study of the organization and administration of the school instrumental program. Overview of methods and materials and the beginning of repertoire study for school bands and orchestras. Continuation of observations and visitations. Continuation of laboratory band and orchestra experiences. Study of the fundamentals of conducting. Lecture, two hours; laboratory, one hour. Prereq: MUS 263.

MUS 270 THEORY II—AURAL THEORY. (1)
A continuation of the development of aural responsiveness to the harmonic and melodic elements of music, and of sightsinging techniques as an aid to music comprehension. Prereq: MUS 170, 172.

MUS 271 THEORY II—WRITTEN THEORY. (2)
A continuation of the acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. Prereq: MUS 171, 173.

MUS 272 THEORY II—AURAL THEORY. (1)
The continuation of the aural and sightsinging techniques of MUS 270. Prereq: MUS 170, 172, and 270.

MUS 273 THEORY II—WRITTEN THEORY. (2)
The continuation of the work of MUS 271. Three class hours per week. Prereq: MUS 271.

MUS 300 HISTORY OF JAZZ. (3)
A survey of jazz from its New Orleans beginnings to the present. Emphasis will be on the various styles and functions of jazz, particularly as they have been affected by changing social-cultural patterns during the 20th century. Prereq: MUS 200 or consent of instructor.

MUS 301 APPALACHIAN MUSIC. (3)
A survey of musical genre and styles in the Southern Appalachian region. Vocal and instrumental, sacred and secular materials will be covered, together with the interchanges between black and white contributions. Prereq: MUS 200 or consent of instructor.

MUS 302 HISTORY OF MUSIC. (3)
A survey of the history of music from the Baroque through the Classical periods (approximately 1600-1827). Required of all music majors. Prereq: For music majors, junior standing; nonmusic majors, consent of instructor.

MUS 303 HISTORY OF MUSIC. (3)
A survey of the history of music from the Romantic period to the present (approximately 1827 to the present). Required of all music majors. Prereq: Music majors, junior standing; nonmusic majors, consent of instructor.

MUS 330 MUSIC IN THE WORLD (Subtitle required). (3)
This course examines the music of a chosen country or region of the world. The study of the historical, stylistic, theoretical, and functional aspects of the music will be related to the socio-historical, philosophical and other cultural aspects of the people in that country or region. Prereq: Junior standing or permission of the instructor.

MUS 350 MUSIC EDUCATION WORKSHOP. (1-2)
Intensive study of specialized methods and materials in one of the following areas of music education: elementary and general music; piano; orchestra, band; jazz or choral. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

MUS 358 CONDUCTING I. (2)
A study of the technique and practice of fundamentals of conducting. Prereq: Junior standing in music.

MUS 360 GENERAL MUSIC I. (2)
Methods, materials and techniques of teaching general music with emphasis on activities in the elementary school. Lecture, one hour; laboratory, two hours per week. Prereq: Junior standing in music.

MUS 361 GENERAL MUSIC II. (2)
Methods, materials and techniques of teaching general music with emphasis on activities in the middle and high schools. Lecture, one hour; laboratory, two hours per week. Prereq: MUS 360 or MUS 363.

MUS 362 VOCAL MUSIC METHODS AND MATERIALS SEMINAR III. (2)
The large chorus. Organizational details, rehearsal procedures, public performances. Techniques of vocal production applied to the total choral teaching situation. Interpretation, balance, blend and intonation. Conducting. Accompanying. Prereq: MUS 262, 264.

MUS 363 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR III. (2)
A continuation of MUS 263 and 265. A more intensive study of the rehearsal techniques used with high school bands and orchestras. Laboratory band and orchestra for conducting techniques and secondary instrument playing. Marching band techniques and procedures. Current trends in instrumental music education. Study of literature for all instrumental ensembles. Continued observation in the public schools with emphasis on high school bands and orchestras. Prereq: MUS 263, 265.

MUS 364 VOCAL MUSIC METHODS AND MATERIALS SEMINAR IV. (2)
The small ensemble and the larger chorus. Understanding of style to the performance of music of all periods. Conducting the small and large ensemble. Lecture, two hours; laboratory, one hour. Prereq: MUS 262, 264, 362.

MUS 365 INSTRUMENTAL MUSIC METHODS AND MATERIALS SEMINAR IV. (2)
A summary of the administrative procedure for the high school band and orchestra director. Advanced conducting with emphasis on rehearsal procedures using advanced music for the high school ensemble. Assignment to public school instrumental teacher for teaching participation. Lecture, two hours; laboratory, one hour. Prereq: MUS 263, 265, 363.

MUS 366 MARCHING BAND TECHNIQUES. (2)
A study of contemporary marching band techniques, styles, and trends with emphasis on drill writing and arranging for the marching band. Two hours lecture per week; one hour laboratory per week. Prereq: Consent of instructor.

MUS 370 THEORY III—ADVANCED HARMONY AND COUNTERPOINT. (2)
A study of the 19th century harmonic idioms through projects in analysis and composition. Lecture, three hours. Prereq: MUS 273.

MUS 371 INSTRUMENTATION AND ARRANGING. (2)
A basic course in instrumentation and arranging for typical school instrumental and vocal ensembles. Prereq: MUS 273.

MUS 372 MUSICAL ANALYSIS. (2)
A study of musical style through structural, harmonic and melodic analyses. Prereq: MUS 273.

MUS 390 TOPICS IN MUSIC HISTORY (Subtitle required). (3)
Studies of a specific composer, genre, school of composers, or a topic crossing the traditional boundaries of music history. May be repeated to a maximum of six credits when identified by different course subtitles. Prereq: MUS 203, 302, and 303, or consent of instructor.

MUS 395 INDEPENDENT WORK IN MUSIC. (1-3)
May be repeated to a maximum of six credits. Prereq: Major in music and a standing of 3.0 or consent of instructor.

MUS 500 MUSIC OF THE MIDDLE AGES. (3)
The development of Western music through the 14th century. Prereq: MUS 203 or consent of instructor.

MUS 501 MUSIC OF THE RENAISSANCE. (3)
A survey of vocal and instrumental music of the 15th and 16th centuries. Prereq: MUS 203 or consent of instructor.

MUS 502 MUSIC OF THE BAROQUE ERA. (3)
The history of vocal and instrumental music in the Baroque style from 1600 to 1750. Prereq: MUS 302 or consent of instructor.

MUS 503 MUSIC OF THE CLASSIC PERIOD. (3)
The development of music in the Classic style from the early 18th century to 1800. Prereq: MUS 302 or consent of instructor.

MUS 504 MUSIC OF THE 19th CENTURY. (3)
A study of master works of music composed in the 19th century. Prereq: MUS 303 or consent of instructor.

MUS 505 MUSIC OF THE 20th CENTURY. (3)
A stylistic study of representative compositions of the 20th century. Prereq: MUS 303 or consent of instructor.

MUS 506 HISTORY OF AMERICAN MUSIC. (3)
A study of music in America from Colonial times to ca. 1920. Prereq: MUS 302 and 303 or consent of instructor.

MUS 520 VOCAL SOLO LITERATURE. (3)
A stylistic study of solo vocal music from the Baroque to the present. Prereq: MUS 302 and 303 or consent of instructor.

MUS 521 ORGAN LITERATURE. (3)
A course of study designed to give the organ student a practical knowledge of the development of the organ, its construction, the standard literature, and teaching materials. Prereq: MUS 302 and 303 or consent of instructor.

MUS 522 PIANO LITERATURE TO 1830. (3)
An historical and analytical study of music for piano to 1830, including discussion of the development of the instrument and the emergence of the idiomatic piano writing. Prereq: MUS 302 or consent of instructor.

MUS 523 PIANO LITERATURE SINCE 1830. (3)
A historical and analytical study of music written for the piano from the inception of the Romantic period to the present, from the parallel perspectives of changes in the approach to the instrument and stylistic developments as they are reflected in piano writing. Prereq: MUS 303 or permission of instructor.

MUS 530 COLLEGIUM MUSICUM. (1-3)
The study and realization of performance practices in music from antiquity to the present. The number of credits granted will be determined by the involvement of the student, varying from rehearsal/performance (normally one hour credit) to detailed musicological research (to three hours credits). May be repeated to a maximum of nine credits. Prereq: Consent of instructor including determination of credit hour(s) to be granted per semester.

MUS 550 TOPICS IN MUSIC EDUCATION
(Subtitle required). (1-3)
In-depth study of a designated topic, special issue, philosophy, or methodology of music education. May be repeated to a maximum of nine credits when identified by different course subtitles. Prereq: Junior standing in music.

MUS 565 VOCAL PEDAGOGY. (2)
For teachers of voice, supervisors of music and choir directors. The study of physical and psychological problems in the teaching of voice production, the study of breath control, diction, resonance, interpretation, and repertory.

MUS 566 PIANO PEDAGOGY. (3)
Investigation of techniques and materials for teaching piano in groups and to individual students, both children and adults. Prereq: Consent of instructor.

MUS 570 ORCHESTRATION. (2)
This course includes a study of the individual instruments of the orchestra and band with practice in scoring for these instruments. Prereq: MUS 371.

MUS 571 ORCHESTRATION. (2)
A continuation of MUS 570. Prereq: MUS 570.

MUS 572 COUNTERPOINT. (3)
A study of 16th century contrapuntal techniques and of contrapuntal influences in common-practice music. Prereq: MUS 273 or equivalent.

MUS 573 COUNTERPOINT. (3)
A study of 18th century contrapuntal techniques and of contrapuntal influences in Romantic and 20th century music. Prereq: MUS 273 or equivalent.

MUS 574 COMPOSITION. (2)
A basic course in original composition and orchestration. Prereq: MUS 371.

MUS 575 COMPOSITION. (2)
A continuation of MUS 574. Prereq: MUS 574.

MUS 578 ANALYSIS AND STYLE SURVEY. (3)
Studies in analytical terminology and methodology; survey of major stylistic practices of Western music. Prereq: MUS 372 or equivalent.

MUS 617 RESEARCH METHODS. (3)
A course designed to acquaint the student in music education with the basic research techniques and materials in music.

MUS 618 RESEARCH METHODS. (3)
A survey of basic research techniques and materials in musicology and theory. Prereq: A reading knowledge of French or German.

MUS 620 ADVANCED GERMAN
VOCAL REPERTORY. (3)
An intensive study of the stylistic and interpretive characteristics of German solo vocal literature.

MUS 621 ADVANCED VOCAL REPERTORY. (3)
An intensive study of the stylistic and interpretive characteristics of the solo vocal literature other than German.

MUS 622 SYMPHONIC LITERATURE. (3)
An intensive study of orchestral literature from the classical period to the present. Prereq: Graduate standing in music or consent of instructor.

MUS 623 OPERA LITERATURE. (3)
The development of opera as an art form, and analysis of representative operas from various areas. Prereq: Graduate standing in music or consent of instructor.

MUS 624 CHAMBER MUSIC LITERATURE. (3)
An intensive study of the development of instrumental chamber music. Prereq: Graduate standing in music or consent of instructor.

MUS 625 CHORAL LITERATURE. (3)
A survey of choral literature from the 16th century to the present time. Prereq: Graduate standing in music or consent of instructor.

MUS 650 MUSIC EDUCATION WORKSHOP. (1-4)
Intensive study of advanced methods and materials in one of the following areas of music education: elementary and general music, the school orchestra, the school band, choral music. May be repeated once for a total of two, three or four credits.

MUS 660 ADVANCED MUSIC EDUCATION
METHODS AND MATERIALS
(Subtitle required). (3)
An in-depth study and analysis of the methodology and materials and their development in music education. May be repeated to a maximum of 12 credits when identified by different course subtitles. Prereq: Graduate standing or consent of instructor.

MUS 670 MUSICAL STYLE I. (3)
Concentrated study of stylistic aspects, and of analytical methodologies suited to these aspects, in music of antiquity through 1600. Prereq: MUS 578 or equivalent.

MUS 671 MUSICAL STYLE II. (3)
Concentrated study of stylistic aspects, and of analytical methodologies suited to these aspects, in music of the Baroque and Classical periods. Prereq: MUS 578 or equivalent.

MUS 672 MUSICAL STYLE III. (3)
Concentrated study of stylistic aspects, and of analytical methodologies suited to these aspects, in music from 1820 to Bartok, Stravinsky and Schoenberg. Prereq: MUS 578 or equivalent.

MUS 673 ADVANCED COMPOSITION. (2)
May be repeated to a maximum of six credits. Prereq: MUS 575.

MUS 674 PEDAGOGY OF THEORY. (3)
Examination of the resources and techniques of teaching undergraduate music theory (aural and written components). Extensive review of the textbook literature, study of the application of contrasting theoretical approaches, and the examination of relevant Computer Assisted Instruction materials. Requirements to include practice teaching and observation of undergraduate music theory classes (MUS 171-173; 271-273; 170-172; 270-272). Prereq: MUS 578 or equivalent.

MUS 676 ADVANCED ANALYTICAL TECHNIQUES.(3)
Study of the most significant approaches to music analysis of the 20th century, including Schenkerian analysis, Forte set theory, and others. Prereq: MUS 578 or equivalent.

MUS 677 CONTEMPORARY MUSIC IDIOMS. (3)
Survey, with intensive study of representative works, of musical trends since 1935. Prereq: MUS 578 or 671 or 672.

MUS 678 HISTORY OF THEORY. (3)
A survey of theoretical ideas from the Greeks through 19th century English and German theorists. Prereq: MUS 578 or equivalent.

MUS 690 TOPICS IN MUSICOLOGY
(Subtitle required). (3)
Investigation of critical and historical problems in musicology; intensive study of a specific composer, genre, or school of composers. May be repeated to a maximum of six credits when identified by different course subtitles. Prereq: Graduate standing and consent of instructor.

MUS 700 MEDIEVAL NOTATION. (3)
The study and transcription of the notation of medieval music from the earliest plainchant sources to mannered notation of the late Arts Nova in Italy and France. Lecture, three hours; laboratory, one hour. Prereq: Consent of instructor.

MUS 701 RENAISSANCE NOTATION. (3)
The study and transcription of the notation of Renaissance polyphony from the time of the Burgundian school through Palestrina and contemporaries, and of the various keyboard and lute tablatures of the 16th and 17th centuries. Lecture, three hours; laboratory, one hour. Prereq: Consent of instructor.

MUS 702 SEMINAR IN MUSICOLOGY. (3)
Study and research in specific musicological problems. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

MUS 718 DOCTORAL SEMINAR. (3)
A seminar for Ph.D. and qualified D.M.A. students. Prereq: Two semesters of graduate study and fluent reading knowledge of French or German.

MUS 719 INDEPENDENT WORK
IN MUSICOLOGY. (1-3)
May be repeated to a maximum of six hours. Prereq: Four to six hours of graduate credit in the area of specialization and consent of instructor.

MUS 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

MUS 750 ADMINISTRATION AND
SUPERVISION OF PUBLIC SCHOOL MUSIC. (3)
A study of current trends in school music, curricula, testing programs, and other supervisory procedures.

MUS 751 HISTORY AND PHILOSOPHY OF
MUSIC EDUCATION. (3)
An historical survey of thought concerning the place and significance of music in the education of the individual and the group.

MUS 762 MUSIC IN HIGHER EDUCATION. (3)
Historical and comparative studies in the teaching and administration of music in colleges and universities. Includes case studies in administration, music in European higher education and the relationship of music to all other elements of the academic program. Prereq: MUS 751.

MUS 766 SEMINAR IN MUSIC EDUCATION. (3)
Advanced professional study in the theory and practice of music education. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MUS 767 INDEPENDENT WORK IN MUSIC
EDUCATION. (1-3)
May be repeated to a maximum of six hours. Prereq: Four to six hours of graduate credit in area of specialization and consent of instructor.

MUS 768 RESIDENCE CREDIT FOR THE
MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MUS 769 RESIDENCE CREDIT FOR THE
DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

MUS 770 PSYCHOLOGY OF MUSIC. (3)
A study of the processes of musical thinking and the effects of music on human behavior.

MUS 772 SEMINAR IN THEORY. (3)
Individual and group study of theoretical problems and areas of inquiry. May be repeated to a maximum of nine credits. Prereq: Graduate standing in Theory, or consent of instructor.

MUS 799 INDEPENDENT WORK
IN MUSIC THEORY. (1-3)
May be repeated to a maximum of six hours. Prereq: Four to six hours of credit in area of specialization and consent of instructor.

NURSING

NUR 001 ORIENTATION TO PROFESSIONAL NURSING. (0)
Provides opportunity for students enrolled as nursing or undeclared majors to clarify questions and elicit additional information about nursing from nursing faculty, clinicians, and students. Lecture, one hour per week.

NUR 440 WOMEN AND MENTAL HEALTH. (3)
An examination of historical and current factors affecting women's mental health across the life span. Emphasis is placed on identification of hidden biases; treatment and social control issues; and policy implications. Selected mental health problems are examined in-depth. (Same as AHE 440.)

NUR 520 SPECIAL TOPICS IN NURSING (Subtitle required). (2-4)
Exploration of selected topics or issues in nursing. Directed by a faculty member with expertise in the topic under study. May be repeated with different topics to a maximum of nine credits. Lecture, zero to four hours; laboratory, zero to 12 hours per week. Prereq: Variable, specified when topic identified.

NUR 543 GERONTOLOGIC NURSING. (3)
A study of health status and nursing needs of aged individuals. Includes psychosocial and biological theories of aging, demographic trends, and general concepts applicable to the nursing care of the aged in illness and in health. Limited laboratory experience is provided. Lecture, two hours; laboratory, one hour. Prereq: Graduate status (undergraduate students may register with consent of instructor).

NUR 550 NURSING PERSPECTIVES: CURRENT HEALTH CARE PROBLEMS AND ISSUES. (3)
An examination of current problems and issues in health care from local, regional and national perspectives. Discussions focus on health policy development, legislation, health planning and evaluation, financing, professional standards, quality assurance, and other current issues as they relate to the nursing profession. Prereq: Enrollment in the graduate program in nursing or consent of instructor.

NUR 560 NURSING MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Needs and problems of exceptional children and their families. How nurses can help families manage these children to maximize their potential, using available family and community resources. Concepts of human development and family dynamics will be used to clarify approaches to nursing management. Selected issues relating to care of exceptional children will be explored. Prereq: A course in child development, human development or an introductory course in exceptional children. At least senior standing in nursing and consent of instructor.

NUR 561 CONCEPTS OF NURSING ADMINISTRATION. (3)
An elective course in nursing administration. Selected conceptual frameworks for nursing administration will be explored and basic management skills for nurses in a variety of settings will be considered. Interpersonal aspects of management will be included. Prereq: Consent of instructor.

NUR 610 CONCEPTS AND THEORIES IN NURSING. (3)
Study of formulation of concepts and theories in nursing and the testing of existing theories in clinical practice. Prereq: Admission to graduate program in nursing.

NUR 612 SYSTEMATIC INQUIRY IN NURSING. (3)
Provides for the development of skills needed to understand and evaluate nursing research to identify problems in nursing which may be studied, and to formulate a study proposal. Prereq: Admission to graduate program in nursing.

NUR 614 PRACTICUM IN CLINICAL NURSING I. (2-4)
This course is designed to assist students in the application of advanced knowledge and skills in planning, implementing, and evaluating nursing care appropriate to the clinical area. Nursing theories are applied and research questions are identified. Laboratory, 6 to 12 hours per week. Prereq/Coreq: NUR 610. Coreq: NUR 770 and enrollment in the appropriate nursing component.

NUR 615 PRACTICUM IN CLINICAL NURSING II. (2-4)
Leadership skills and research findings are applied in clinical settings. Included are further testing of theoretical concepts related to the nursing management of clients. A study of health care systems and change, consultation, program planning and evaluation are included. Laboratory, 6 to 12 hours per week. Prereq: NUR 614, NUR 770. Coreq: NUR 771 and enrollment in the appropriate nursing component.

NUR 616 PRACTICUM IN CLINICAL NURSING III. (2-4)
Strategies to promote change and to resolve problems in nursing care delivery are examined. The research process is used in the study of an identified nursing problem. Advanced knowledge and skills in managing clients and their families in collaboration with other health care professionals are emphasized. Laboratory, 6 to 12 hours per week. Prereq: NUR 615 and enrollment in the appropriate nursing component.

NUR 619 TEACHING IN NURSING. (3)
Introduction to basic concepts and skills required to teach nursing in associate degree or baccalaureate nursing programs. This is a course on purposes and processes for writing objectives in nursing, teaching nursing in the classroom and in clinical areas, test item construction, and evaluation of clinical performance. Some attention is given to overall faculty responsibilities and to time management. Prereq: Enrollment in graduate program in nursing.

NUR 620 PROBLEMS IN CLINICAL NURSING. (2-6)
This course provides opportunity for the study of nursing problems in particular clinical areas and for the further development of techniques of nursing intervention. Discussion, one hour; laboratory, varied hours per week. May be repeated to a maximum of 12 credits. Prereq: Enrollment in graduate program in nursing.

NUR 621 CLINICAL SPECIALISTS: ROLES AND FUNCTIONS IN NURSING. (3)
This course provides an opportunity for students to explore theory, concepts and select research related to the clinical specialist. The course will include readings and discussion in a seminar format. Selected topics of special interest to clinical specialists will be covered. Topics will include role of clinical specialist, quality of care, standards of practice, patient advocacy, staff development, program planning and evaluation, informal methods of transmitting knowledge and consultation with nursing staff. Required for all students who select the clinical specialist role. Prereq: Enrollment in graduate program in nursing.

NUR 622 NURSING ADMINISTRATION. (3)
This course provides opportunities for students to explore theoretical concepts of nursing administration in relation to their applications in a variety of settings, i.e., health care settings and/or educational institutions. The emphasis will be on middle management skills especially on the interpersonal aspects of supervision. Prereq: Enrollment in the graduate program in nursing and consent of instructor.

NUR 623 PRACTICUM IN CLINICAL TEACHING OF NURSING. (1-4)
Under faculty guidance, students will have practice in the teaching of nursing in settings appropriate to their career goals. Prereq or concur: NUR 624, NUR 625, and NUR 626.

NUR 627 PRACTICUM IN NURSING ADMINISTRATION. (1-4)
Under faculty guidance, students who have selected the nursing administration track will have practice in selected nursing administrative settings. Prerequisite or concurrent: NUR 622.

NUR 628 HISTORICAL AND CONTEMPORARY PERSPECTIVES IN COMMUNITY HEALTH NURSING PRACTICE. (3)
An examination of historical and contemporary problems and issues in public health nursing practice from local, state, regional, and national perspectives. Analysis of concepts, theories, and perspectives from publc health and community health nursing will be emphasized. Attention will be given to such topics as the changing health care system and its impact on community health care delivery; economics; resource utilization; role relationships; as well as political, regulatory, legal, ethical and social factors impacting on the practices of illness prevention and health promotion. Prereq: Enrollment in graduate program in nursing.

NUR 650 PHYSICAL AND HEALTH ASSESSMENT. (2-6)
A variable credit lecture and laboratory course on the principles and techniques of obtaining a comprehensive health assessment in the context of psychological and physiological developmental parameters. Emphasis is on differentiating between normal and abnormal findings in children, young and middle adults, and the elderly. The pathophysiology of each body system is included for greater distinction between the normal and abnormal. Lecture, one to two hours; laboratory, 3 to 12 hours per week.

NUR 651 DIAGNOSTIC LABORATORY PROCEDURES. (1)
This course provides an overview of common laboratory procedures utilized in the primary care setting. Theory on practice in the principles and techniques of performing selected procedures is presented. Laboratory, three hours per week. Prereq: Graduate standing.

NUR 654 COMMON HEALTH PROBLEMS OF YOUNG, MIDDLE, AND OLDER ADULTS I. (3)
Focus is on the primary care nurse practitioner's role in the recognition and management of selected acute, chronic, and emergent health problems related to the basic human needs of the young, middle and older adult commonly encountered in ambulatory care, home health, and nursing home facilities. Problems related to elimination, eye, skin, sight, psychosocial needs, endocrine, cardiovascular, respiratory, and female reproductive systems are presented. Emphasis is on the role of the nurse practitioner as a collaborative member of the health care team. Prereq: NUR 650.

NUR 655 COMMON HEALTH PROBLEMS OF YOUNG, MIDDLE, AND OLDER ADULTS II. (3)
This is a sequential course to NUR 654 in which there is discussion of additional selected acute chronic and emergent health problems related to the basic human needs of adults of all ages managed by the nurse practitioner in ambulatory care settings, home health agencies and nursing home facilities. Emphasis is on analysis of the role of the nurse practitioner as a collaborative member of the health care team. Problems related to minor emergencies, abuse, family planning, pregnancy, hemotologic, gastrointestinal, male genitourinary, and neurologic systems are discussed. Prereq: NUR 650.

NUR 656 HEALTH PROBLEMS OF THE PEDIATRIC CLIENT. (2)
Focus is on the primary care nurse practitioner's role in the recognition and management of selected acute, chronic and emergent health problems related to the basic human needs of the pediatric client from birth through adolescence commonly encountered in ambulatory care, home health, and nursing home facilities. Emphasis is on the role of the nurse practitioner as a collaborative member of the health team and as a supportive resource for parents. Prereq: NUR 650.

NUR 660 BASIC NURSE-MIDWIFERY I. (6)
Using the nurse-midwifery modular approach, students in this course attain assessment and management skills in assuming responsibility for planning and providing health care to essentially normal women and newborns throughout the childbearing and interconceptional years. Focus is on the Antepartal and Interpartal areas. Lecture, two hours; laboratory, 12 hours per week. Prereq: NUR 650 and enrollment in the nurse-midwifery component.

NUR 662 PRIMARY CARE NURSE PRACTITIONER—CLINICAL PRACTICUM I. (3)
The initial clinical practicum is focused on a comprehensive approach to health assessment of individuals and families through the age continuum. Using problem-oriented recording, emphasis is placed on health maintenance and preventive care which includes counseling and teaching. Laboratory, nine hours per week. Prereq: NUR 650 and NUR 654.

NUR 670 BASIC NURSE-MIDWIFERY II. (6-9)
Continuation from NUR 660 of theoretical content and clinical experience which stresses the nurse-midwifery management process. Modules in Postpartum, Family Planning and Neonatology are covered. Lecture, two to three hours per week; laboratory 12 to 18 hours per week. Prereq: NUR 650, NUR 660.

NUR 672 PRIMARY CARE NURSE PRACTITIONER—CLINICAL PRACTICUM II. (3)
The second clinical practicum focuses on the continuing development of skills in management of health problems in a variety of settings. With nursing and medical supervision, students will gain experience in incorporating illness prevention, maintenance, restoration, health promotion, health education and management of common health problems into a practice style that emphasizes an interdisciplinary management plan. Laboratory, nine hours per week. Prereq: NUR 655 and NUR 662.

NUR 682 CLINICAL INTERNSHIP IN NURSING. (10)
The clinical internship focuses upon the synthesis of knowledge and skills gained in the clinical area of specialty. Students may obtain additional experience in a chosen area of clinical concentration. Emphasis will be placed on the leadership and management functions of the nurse in health care delivery. Prereq: NUR 672 or 615.

NUR 688 DEVELOPING AND TESTING NURSING KNOWLEDGE IN CLINICAL FIELD I. (3)
Analysis of nursing knowledge related to patients/clients and how to extend that body of knowledge will be covered. Existing conceptual-theoretical-empirical structures will be included. Knowledge from other disciplines to augment nursing knowledge will be considered. Prereq: NUR 790 and NUR 791.

NUR 689 DEVELOPING AND TESTING NURSING KNOWLEDGE IN CLINICAL FIELD II. (3)
Theoretical knowledge about problems related to nursing will be developed and tested. Knowledge from other disciplines to augment nursing knowledge will be applied. Prereq: NUR 688.

NUR 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

NUR 758 FAMILY AND COMMUNITY ASSESSMENT. (2)
Focus of this seminar is on concepts, theories, and methods of assessing families, groups, and communities. The evaluation of community resources to meet health care needs is emphasized. Selected field and observational experiences are included. Prereq: Admission to graduate program in nursing.

NUR 759 SEMINAR IN HEALTH PROMOTION AND NURSING PRACTICE. (2)
Focus is on discussion of theories, concepts, and techniques of health promotion designed to assist individuals/families to maximize their health status. Research related to effects of life styles, health habits, and health-promoting behaviors on levels of health will be reviewed. Prereq: Enrollment in the graduate program in nursing.

NUR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

NUR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

NUR 770 SEMINAR IN CLINICAL NURSING I. (2)
This seminar will focus on concepts and theories appropriate to the clinical area. Students are expected to become familiar with research findings and literature applicable to the clinical area. Concur: NUR 614 or enrollment in the nurse-midwifery component.

NUR 771 SEMINAR IN CLINICAL NURSING II. (2)
Emphasis will be upon the application of theories, concepts, and research findings to clinical decision making. Factors influencing the health care delivery system and the nurse's role as change agent are explored. The seminar will focus upon the leadership role of the master's prepared nurse. Prereq: NUR 770. Concurrent with NUR 615 or NUR 660.

NUR 772 SEMINAR IN PRIMARY/AMBULATORY CARE. (2)
The focus of this course is on the direct and indirect impact of health care legislation, health policies, research, resources, and financing on primary health care delivery in ambulatory care, nursing home care, and home health. The role of the nurse practitioner in a variety of health care settings and primary health care delivery issues is emphasized. Prereq: Enrollment in the Nurse Practitioner Component.

NUR 774 SEMINAR IN NURSING RESEARCH. (2)
This course offers additional analysis of problems encountered in implementing a research study and probable solutions to the problems than NUR 612. Emphasis of the course will be on data collection, analysis and interpretation of the data and preparation of the report. Prereq: STA 570 or EDP 557 and NUR 612. (Required for all students in beginning nurse researchers track and those writing theses.)

NUR 778 PROSEMINAR IN CONTEMPORARY HEALTH AND NURSING POLICY ISSUES. (3)
A critical analysis of current issues in U.S. health policy and nursing policy. Attention will be focused on the formation of a policy strategy to address a major policy issue affecting health care and the discipline of nursing.

NUR 779 DISSERTATION SEMINAR. (3)
Review and critique of aspects of the dissertation for students beginning development of a dissertation proposal. Prereq: Must have completed all research course requirements.

NUR 780 SEMINAR IN NURSE-MIDWIFERY. (2)
Discussion of the role and professional responsibilities of the nurse-midwife with emphasis on contemporary issues related to practice, health legislation, the process of change and interdisciplinary organizations as they pertain to maternal/child health. Prereq: NUR 660, 770, 771 and prerequisite of NUR 670 or concurrent with NUR 670.

NUR 781 INDEPENDENT STUDY IN NURSING. (1-3)
An elective course which gives the student an opportunity to explore independently a topic of special interest. May be repeated to a maximum of four credits. Prereq: Consent of adviser.

NUR 790 THEORY DEVELOPMENT AND RESEARCH IN NURSING I. (3)
This course will deal with the philosophy of nursing science, problems of logic as they relate to models, and conceptual and theoretical frameworks in nursing. Emphasis will be on planning research to test conceptual-theoretical frameworks in nursing. Prereq: Enrollment in the doctoral program in nursing.

NUR 791 THEORY DEVELOPMENT AND RESEARCH IN NURSING II. (3)
Approaches to developing clinical nursing research to test clinical hypotheses using qualitative strategies will be the focus of this course. Prereq: NUR 790.

NUR 792 THEORY DEVELOPMENT AND RESEARCH IN NURSING III. (3)
Approaches to developing clinical nursing research to test clinical hypotheses using quantitative strategies will be the focus of this course. Prereq: NUR 791.

NUR 814 PHILOSOPHY AND CONCEPTS OF PROFESSIONAL NURSING PRACTICE. (3)
An introduction to the history of nursing philosophies and theoretical frameworks for professional nursing and conceptual framework of the College of Nursing undergraduate program. Emphasis will be placed on tools of professional nursing practice: nursing process and scientific method. Prereq or coreq: NUR 814.

NUR 815 PSYCHOMOTOR SKILLS LABORATORY. (2)
Independent study and supervised practice directed toward the development of competence in selected psychomotor skills utilized in nursing, including considerations of biopsychosocial principles. Laboratory, six hours per week. Prereq: BIO 108, 109, PSY 223, ENG 102 or ENG 105, SOC 101, CHE 104, 106. Coreq: ANA 206, NFS 212, NUR 814.

NUR 820 NURSING CARE OF THE ADULT. (10)
Provides theoretical and clinical nursing experiences for generic baccalaureate nursing students in the nursing care of adult clients. The nursing process is utilized to identify and treat human responses to actual and potential health problems. Nursing care directed at all levels of adaptation is included. Focus will be on the nursing role in health promotion, illness prevention, and in the rehabilitation and treatment of adult clients. Lecture, 6 hours; laboratory, 12 hours. Prereq: NUR 816, PGY 206.

NUR 822 NURSING CARE OF THE CHILDBEARING AND CHILD REARING FAMILIES. (10)
Provides theoretical and clinical learning experiences for generic baccalaureate nursing students in the nursing care of childbearing and child rearing families. The nursing process is utilized to identify and treat human responses to actual and potential health problems. Nursing care directed toward all levels of adaptation is included. Focus will be on the nursing role in health promotion, illness prevention and in the rehabilitation and treatment of childbearing and child rearing families. Lecture, 6 hours; laboratory, 12 hours. Prereq: NUR 816, PGY 206.

NUR 848 HUMAN SEXUALITY IN HEALTH AND ILLNESS. (3)
An introduction to the basic concepts of human sexuality, designed to increase the student's knowledge of sexual function and dysfunction, as well as help the student become aware of his/her own attitudes and values related to sexuality. Emphasis is given to the nurse's role in promoting clients' sexual adaptation during periods of health and illness.

NUR 851 NURSING ASSESSMENT AND DIAGNOSIS. (6)
The nursing process is utilized with emphasis on assessment and nursing diagnosis. Theory and skills in communication will be stressed as essential to effective use of the nursing process. Data relevant to physiologic and psychosocial levels of adaptation will be defined with a focus on normal findings in different age groups. Application of theory will occur in the laboratory setting. Lecture, four hours; laboratory, six hours. Prereq or coreq: NUR 814.

NUR 853 CONCEPTS IN PROFESSIONAL NURSING: THE CHILDBEARING AND CHILD REARING FAMILY. (3)
Provides registered nurse students with didactic and clinical learning experiences in the nursing diagnosis and treatment of human responses to selected stressors that affect the health and adaptation of people during the childbearing and child rearing segments of the life cycle. Focus is on learning the nursing roles in health promotion and illness prevention and in the rehabilitation and treatment of people, within the context of familial and societal constellations, who are experiencing nursing problems. Lecture, six hours; laboratory, nine hours per week for five weeks. Prereq: NUR 814, NUR 851.

NUR 854 CONCEPTS OF PROFESSIONAL NURSING: ADVANCES IN PSYCHIATRY AND MENTAL HEALTH. (3)
Provides registered nurse students with didactic and clinical learning experiences in the nursing diagnosis and treatment of human responses to selected stressors that affect the adaptation and mental health of designated populations across the age continuum. Focus is on learning the nursing roles in health promotion and illness prevention and in the rehabilitation and treatment of people, within the context of familial and societal constellations, who are experiencing nursing problems. Lecture, six hours; laboratory, nine hours per week for five weeks. Prereq: NUR 814, NUR 851.

NUR 855 CONCEPTS OF PROFESSIONAL NURSING: THE ADULT CLIENT. (3)
Provides registered nurse students with didactic and clinical learning experiences in the nursing diagnosis and treatment of human responses to stressors which affect the functional capacities of adults. While emphasis will be on physiological stressors, responses and capacities, the effects of stress on the total person will be considered. Focus is on learning the nursing roles in health promotion and illness prevention and in the rehabilitation and treatment of adults, within the context of familial and societal constellations, who are experiencing nursing problems. Lecture, six hours; laboratory, nine hours per week for five weeks. Prereq: NUR 814, NUR 851.

NUR 857 PSYCHOSOCIAL NURSING. (8)
Provides theoretical and clinical learning opportunities for generic baccalaureate nursing students in the psychosocial nursing care of clients (individuals, groups, and community). The nursing process is utilized to identify and treat human responses to actual and potential health problems. Nursing care directed toward all levels of adaptation is included. Focus will be on the psychosocial nursing role in health promotion, illness prevention, treatment, rehabilitation and restoration of clients. Lecture, 4 hours; laboratory; 12 hours. Prereq: NUR 820 and 822, EDC 500, NUR 866, BSC 331, STA 200.

NUR 864 MANAGEMENT OF NURSING CARE. (3)
Provides the student with theoretical content on management functions, principles of administration, leadership role, and the development of leadership roles of nurses in the health care delivery system. Prereq: Senior standing in the nursing program.

NUR 866 IMPLICATIONS OF DRUG THERAPY FOR NURSES. (3)
The study of actions and reactions of medications frequently used as therapeutic agents. Prereq: NUR 816 for 4-year students.

NUR 867 NURSING IN COMMUNITY HEALTH. (10)
This course focuses on nursing care of persons of all ages—individuals, families and groups—in their usual living situations. The concepts of health promotion, health maintenance, disease prevention, wellness, and self-care will be used to promote optimal adaptive behaviors. An epidemiological approach will be used throughout the course. Skills needed to prepare students for the nursing role in home health care will be included. Lecture, 6 hours; laboratory, 12 hours. Prereq: NUR 820, 822, 866, BSC 331, EDC 500, STA 200.

NUR 876 ISSUES IN NURSING. (3)
Critical analyses of the emerging issues and problems affecting nursing and their impact on health care. Emphasizes the responsibilities of the individual practitioner and of the profession. Prereq: Senior standing in the College of Nursing.

NUR 877 CLINICAL PRACTICUM. (3-8)
This variable credit course provides students with opportunities for intensive supervised practice in the concepts and theories of nursing in a clinical area of interest or need. It also provides a mechanism for internalization of the professional role. The course will be required for a minimum of six credits for all registered nurse students. It may also be taken for a maximum of three credits for generic nursing students in their final semester of the nursing program with the permission of the instructor. Seminar, one hour; clinical, variable. Prereq or coreq: NUR 867, NUR 864, NUR 878.

NUR 878 INTRODUCTION TO NURSING RESEARCH. (3)
Provides a theoretical and methodological basis for beginning competence in analyzing and using nursing research. Skills necessary for intelligent participation in and consumption of nursing research are taught as are the legal and ethical ramifications of research. Prereq: STA 200 and second semester junior standing in nursing.

NUR 882 SPECIAL TOPICS IN NURSING. (1-3)
Study and analysis of current and topical problems and issues in nursing. Directed by a faculty member with expertise in the topic under study. May be repeated to a maximum of six credits. Prereq: Admission to the College of Nursing.

NUR 895 ELECTIVE STUDY IN NURSING. (1-4)
An independent study project investigating an area of interest under the guidance of faculty. May encompass library study or patient care utilizing aspects of scientific approach. May be repeated to a maximum of four credits. Prereq: Approval of sponsoring instructor and the assistant dean.

NUR 899 HONORS STUDY IN NURSING. (1-4)
An independent study project pursued with the guidance of faculty during the junior or senior year. The project must include scientific approach and written reporting of the project. Prereq: Grade-point average of 3.0 and endorsement of appropriate faculty.

NUTRITION AND FOOD SCIENCE

NFS 101 FOOD AND NUTRITION FOR MAN. (3)
Food composition, preservation, digestion, absorption and metabolism as related to selection of nutrients essential for human life, health, growth, reproduction, lactation and physical activity. Not open to NFS majors except restaurant management students.

NFS 110 JAPANESE LIFE: FAMILY, FOOD AND ENVIRONMENT. (3)
A study of Japanese life with emphasis on the philosophical and cultural differences with the West as expressed through family life, nutrition practices, and the designed environment. Lectures, discussion, written analysis and research. (Same as FAM/HED/HET 110.)

NFS 204 PRINCIPLES OF FOOD PREPARATION. (3)
Basic physical and chemical principles involved in preparation of foods in the Basic Four food groups. Skills, sanitation standards, and economics involved in preparation of foods of quality and maximum nutrient content. Lecture, one hour; laboratory, four hours.

NFS 206 MEAL MANAGEMENT. (3)
Provide study in the management of resources to feed individuals or groups by planning and implementing meal related functions which include: knowledge of the marketplace and food regulation, purchasing of food, storing food products safely, planning menus, preparing food and serving meals acceptable to the economic, social, psychological, cultural and nutritional demands of specific clientele. Lecture, one hour; laboratory, four hours.

NFS 212 INTRODUCTORY NUTRITION. (3)
An elementary study of the principles of nutrition and the application of these principles to providing adequate nutrition to humans. The chemical and physiological approach to nutrition is emphasized. Credit may not be earned for both NFS 101 and 212. Prereq: BIO 104; CHE 106 or 107. May be taken concurrently.

NFS 240 NUTRITION AND PHYSICAL FITNESS. (3)
Course focuses on the interrelationships between nutrition and physical fitness. The intent is to provide the student with the information necessary to formulate an individualized plan for the achievement and maintenance of adequate nutrition and physical fitness. Weight control will be discussed in this content. Team-taught by nutrition faculty and health, physical education and recreation faculty. Lecture, two hours; laboratory, two hours. (Same as HPR 240.)

NFS 301 PROFESSIONAL DIETETICS I: ORIENTATION. (3)
Development and role of dietetics as a profession. Includes qualifications and functions of dietitians in various settings, introduction to basic skills needed by a dietitian. Lecture, one hour; laboratory, four hours.

NFS 304 EXPERIMENTAL FOODS. (3)
Chemical and physical properties of food and the changes resulting from processing and preparation. Experimental study of variations in ingredients and preparation methods on food quality. Lecture, one hour; laboratory, four hours per week. Prereq: NFS 204 and CHE 236.

NFS 310 INTRODUCTION TO THE BIOCHEMISTRY OF FOODS. (2)
Study of chemical structures and properties of nutritive and nonnutritive substances in foods, including the effects of these chemical properties on food's nutritive value, acceptability and stability. Prereq: CHE 105 and 107.

NFS 311 NUTRITIONAL BIOCHEMISTRY. (3)
An introductory study of the biochemical basis of nutrition—the physiochemical properties of nutrients and other essential biochemicals and their role in physiological and metabolic processes. Prereq: CHE 236 or NFS 310; PGY 206 may be taken concurrently or consent of instructor.

NFS 312 APPLIED NUTRITION. (4)
A study of the application of nutritional principles in relation to the human life cycle. The study of the nutritional composition of foods, factors affecting the bioavailability and functions of nutrients and the scientific principles involved in the selection of adequate diet for individuals. Three hours lecture per week; two hours laboratory per week. Prereq: NFS 212 and organic chemistry.

NFS 315 NUTRITIONAL BIOCHEMISTRY LABORATORY. (1)
Laboratory for NFS 311, must be taken concurrently with NFS 311. Laboratory, three hours per week. Prereq: CHE 236 or NFS 310; prereq or concur: PGY 206.

NFS 340 INSTITUTIONAL PURCHASING. (3)
Fundamental principles and purchasing techniques for the selection of food and nonfood items in a food service system. Prereq: ECO 260 or 261.

NFS 342 QUANTITY FOOD PRODUCTION. (5)
Introduction to the production and service of food in quantity; includes production techniques and controls, safety and sanitation, menu planning and service. Lecture, two hours; laboratory, nine hours. Prereq: NFS 204.

NFS 344 FOOD SERVICE ACCOUNTING. (3)
Application of accounting principles to food service in the cafeteria, lunchroom, tea-room, restaurant, residence hall, hospital and other institutions. Lecture, one hour; laboratory, four hours. Prereq: NFS 340; ECO 260 or ECO 261.

NFS 346 BASIC MANAGEMENT PRINCIPLES OF FOOD SERVICE. (3)
An introduction to the principles, theories, and functions of management as related to food service. Major emphasis of the course is utilization of human resources. Prereq: NFS 342 or consent of instructor.

NFS 503 COMMUNITY NUTRITION. (3)
Study of nutrition education programs on a community level. Experience is provided for presenting nutrition in health clinics, schools, and state institutions. Lecture, two hours; laboratory, two hours. May be repeated to a maximum of six credits. Prereq or concur: NFS 312.

NFS 504 FOOD SCIENCE RESEARCH. (3)
Advanced study in food science emphasizing individualized research using the experimental approach under controlled conditions. Lecture, one hour; laboratory, four hours per week. Prereq: NFS 311, STA 291 or equivalent, and FSC 335.

NFS 508 SEMINAR IN NUTRITION. (1)
Investigations of recent research in nutrition. May be repeated to a maximum of three credits. Prereq: Senior or graduate standing.

NFS 510 ADVANCED NUTRITION. (3)
Application of biochemistry, physiology and nutrition to understanding the utilization and function of nutrients in the body relating the structure and functions of cells to their metabolic needs. Prereq: NFS 311 and NFS 312.

NFS 511 THERAPEUTIC NUTRITION. (3)
Changes in nutrient metabolism related to biochemical and physiological alterations in disease conditions; applications to formulation of therapeutic diets and their use in nutritional care plans. Lecture, two hours; laboratory, two hours. Prereq: NFS 311, NFS 312.

NFS 514 FOOD PRESERVATION. (3)
Principles of home food preservation. Canning, dehydration, and freezing of fruits, vegetables and meats; pickling of fruits and vegetables; making of jams, jellies and preserves; brining. Lecture, two hours; laboratory, two hours. Prereq: BIO 108, NFS 204.

NFS 516 MATERNAL AND CHILD NUTRITION. (3)
Food selection for optimal nutrition during pregnancy and lactation and for infant and child development through preadolescence. Cultural, social, and psychological aspects of food selection and dietary patterns, as they relate to mental and physical development. Prereq: NFS 312 or consent of instructor.

NFS 517 FOOD FOR SPECIAL OCCASIONS. (3)
Advanced work in culinary arts and skills. Preparation of attractive and appetizing dishes to help the homemaker in planning buffet suppers, receptions, picnics, wedding parties, formal meals. Laboratory, six hours. Prereq: NFS 204, 206.

NFS 542 FOOD SERVICE EQUIPMENT AND LAYOUT. (3)
Layout and design of efficient food service facilities in restaurants, hotels, and institutions; selection, operation and maintenance of equipment. Field trips. Lecture, two hours; laboratory, two hours per week. Prereq: NFS 342.

NFS 546 INSTITUTION ORGANIZATION AND MANAGEMENT. (3)
Principles of institution organization, types of institution service, personnel and financial management. Legal aspects of institution management. Personal and professional qualifications of an institution manager. Prereq: NFS 340, 342, 346 or equivalent.

NFS 548 INSTITUTION ADMINISTRATION. (3)
Application of scientific principles are developed in various aspects of food service management. May be repeated to a maximum of nine credits. Prereq: NFS 344, NFS 546 or consent of instructor.

NFS 560 FOOD AND THE CONSUMER. (3)
Trends in consumer economics, food availability and consumption as they affect family nutrition. Role of regulatory services in consumer protection in foods. Prereq: Six hours in social sciences and three hours in foods or nutrition, or consent of instructor.

NFS 590 FIELD WORK IN NUTRITION. (1)
Nutrition problems at different age levels, correlated with surveys and experimental studies to show the relation between diet selection and its physical and mental effects. Lecture and laboratory. May be repeated to a maximum of four credits. Prereq: NFS 503, or consent of instructor.

NFS 591 SPECIAL PROBLEMS IN FOODS AND NUTRITION. (1-3)
Intensive work on a specific phase of the field. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

NFS 594 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT. (1-3)
Intensive work on specific problems. Senior or graduate standing. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

NFS 601 RESEARCH METHODOLOGY IN NUTRITIONAL SCIENCES. (3)
Development of proficiency in laboratory skills, research methodology, instrumentation, advanced techniques and experimental design with emphasis on collection, analysis, interpretation and presentation of data. Proposal and manuscript writing are emphasized. Lecture, one hour; laboratory, six hours. Prereq: Option A- organic chemistry with laboratory and biochemistry with laboratory. Option B- STA 570 or consent of instructor.

NFS 603 ADVANCED COMMUNITY NUTRITION. (3)
Study of nutrition surveys and of bases for judging community nutrition. Emphasis is placed upon economic, geographic, social and educational causes of malnutrition. Experience is given in development of nutrition programs. May be repeated to a maximum of six credits. Prereq: NFS 503.

NFS 610 HUMAN NUTRITION: ASSESSMENT. (3)
Assessment of dietary, anthropometric and biochemical parameters of nutritional status in health and disease. Lecture, two hours; laboratory, three hours per week. Prereq: NFS 510, NFS 511 or equivalent.

NFS 660 FOOD TOXICOLOGY. (3)
A study of naturally occurring and-derived toxicants in foods. Deleterious effects in humans of chemical and biological contaminants and certain additives in food products. Prereq: Six hours graduate level nutrition courses or three hours graduate biochemistry courses.

NFS 680 NUTRITION AND AGING. (2)
Emphasis on current research in nutrition and aging, nutrition needs of the elderly and nutrition-related diseases associated with aging. Prereq: NFS 510 and 511 or equivalent.

NFS 685 MINERAL METABOLISM. (2)
An in-depth review of the function, requirement deficiency and toxicity of mineral elements in nutrition. Emphasis on the interactions between elements and current literature will be made. Prereq: ASC 378 or NFS 510 or equivalent. BCH 502 or equivalent or consent of instructor. (Same as ASC 685.)

NFS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

NFS 771 SEMINAR IN NUTRITION AND FOOD SCIENCE. (1)
Selected topics in nutrition and/or food science. May be repeated to a maximum of three credits.

NFS 772 CURRENT TOPICS IN HUMAN NUTRITION AND FOOD SCIENCE. (2)
A study of topics in vitamins, minerals, proteins, carbohydrates and lipids as they relate to human nutrition and food science. Current symposia and reviews in human foods, nutrients, digestion, absorption, metabolism and excretion will be discussed. May be repeated to a maximum of six credits. Prereq: NFS 771 and one year graduate standing or permission of instructor.

NFS 781 SPECIAL PROBLEMS IN FOODS AND NUTRITION. (1-3)
Independent advanced work on a specific problem. May be repeated to a maximum of six credits.

NFS 784 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT. (1-3)
Independent advanced work. May be repeated to a maximum of six credits.

NFS 803 NUTRITION AND THE LIFE CYCLE. (4)
A study of the nutritional needs of individuals in all stages of the life cycle, as affected by biochemical, physiological and socioeconomic factors; includes clinical experience in planning normal diets for clients of various health delivery systems. Three hours lecture per week; three clinical hours per week. Prereq: Admission to "CUP," NFS 212, and organic chemistry.

NFS 804 FOOD SERVICE SYSTEM I: MARKETING, PRODUCTION AND SERVICE. (7)
Introduction to institutional food service as an integrated system of functions: menu planning, forecasting, marketing, production, merchandising, service, employee scheduling and supervision; includes designated clinical experience in food service facilities both on campus and off campus. Lecture, four hours; clinical, nine hours. Prereq: Admission to "CUP," NFS 204, ECO 260 or ECO 261.

NFS 806 NUTRITION EDUCATION IN THE COMMUNITY. (5)
Study of nutrition education programs in public and private community agencies includes clinical experiences as a member of the community health delivery team in methods of promoting good nutrition for groups and individuals at various socio-economic levels and stages of the life cycle. Lecture, two hours; clinical, nine hours. Prereq: NFS 803.

NFS 811 APPLIED THERAPEUTIC NUTRITION. (6)
Changes in nutrient metabolism related to biochemical and physiological alterations in disease conditions; formulation of therapeutic diets and their use in nutritional care plans. Three hours lecture and nine clinical hours per week. Prereq: NFS 510, concurrent with NFS 806.

NFS 813 FOOD SERVICE SYSTEMS II. (6)
Study of the philosophy and functions of management in food service organizations: decision making, personnel administration, unionization, and layout and design. Includes management experience in off-campus health care facilities. Three lecture hours; nine clinical hours per week. Prereq: NFS 344, NFS 804.

NFS 814 FOOD SERVICE SYSTEMS III. (4)
Application of food service management principles in a clinical facility for the entry level generalist dietitian. Twelve clinical hours per week. Prereq: NFS 813, concurrent with NFS 816, 818.

NFS 816 PROFESSIONAL DIETETICS II: CLINICAL EXPERIENCES. (4)
In-depth clinical application of the principles of dietetics. Focuses on the team concept of patient care and gives advanced dietetic practice with opportunity to test and evaluate results. Clinical, 12 hours. Prereq: NFS 811 and NFS 813; concurrent with NFS 818.

NFS 818 PROFESSIONAL DIETETICS III: EVALUATION. (2)
Evaluation of clinical experiences in dietetics; includes the development of attitudes and values for the professional dietitian. Prereq: Senior in NFS coordinated undergraduate program in Dietetics concurrent with NFS 814 and 816.

NFS 820 ADVANCED THERAPEUTIC NUTRITION. (2)
Study of selected topics in therapeutic nutrition, including reports on current advances and presentation of case studies developed in field experiences. Lecture, one hour; laboratory, two hours. Prereq: NFS 811; concurrent with NFS 816.

OPERATIONS RESEARCH

OR 515 MATHEMATICAL PROGRAMMING AND EXTENSIONS. (3)
Mathematical and computational aspects of linear programming, large scale structures, quadratic programming, complementary pivoting, introduction to nonlinear programming. Applications to engineering and economics. Additional topics selected in geometric programming, stochastic programming. Prereq: A course in linear algebra or consent of instructor. (Same as MA/STA 515.)

OR 524 PROBABILITY. (3)
Sample space, random variables, distribution functions, conditional probability and independence, expectation, combinatorial analysis, generating functions, convergence of random variables, characteristic functions, laws of large numbers, central limit theorem and its applications. Prereq: MA 432G or 471G or consent of instructor. (Same as STA 524.)

OR 525 INTRODUCTORY STATISTICAL INFERENCE. (3)
Simple random sampling, statistics and their sampling distributions, sampling distributions for normal populations; concepts of loss and risk functions. Bayes and minimax inference procedures; point and interval estimation; hypothesis testing; introduction to nonparametric tests; regression and correlation. Prereq: STA 320 or STA 524 or STA 424G. (Same as STA 525.)

OR 616 NUMERICAL TECHNIQUES FOR NONLINEAR OPTIMIZATION. (3)
Unconstrained optimization, Kuhn-Tucker conditions for nonlinear programs (constrained optimization). Solutions procedures: methods of feasible directions, penality methods, approximation methods, the method of generalized Lagrangians. Discrete optimal control (dynamic formulation). Solutions methods for control problems: decomposition and structured problems. Prereq: MA 515 or consent of instructor. (Same as MA 616.)

OR 617 MARKOVIAN DECISION PROBLEMS. (3)
Control of discrete-time Markov processes by dynamic programming inventory theory. Computational approaches to control of Markov chains. State space methods: modelling of engineering and economic systems by linear stochastic difference equations. The discrete-time matrix Riccati equations, Kalman filtering. Optimal control of linear stochastic difference equations with complete or incomplete state information and with quadratic cost criterion. Prereq: STA 624. (Same as MA 617.)

OR 618 COMBINATORICS AND NETWORK. (3)
Graphs, networks, min flow-max cut theorem and applications; transportation problems, shortest route algorithms, critical path analysis, multi-commodity networks, covering and packing problems; integer programming, branch-and-bounding techniques, cutting plane algorithms, computational complexity. Prereq: MA 515; can be taken concurrently with MA 515. (Same as MA 618.)

OR 619 PROBLEMS SEMINAR IN OPERATIONS RESEARCH. (3)
In this course the student is exposed to the art of applying the tools of operations research to real world problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as EE/STA/BA 619 and MA 613.)

OR 624 APPLIED STOCHASTIC PROCESSES. (3)
Definition and classification of stochastic processes, renewal theory and applications, Markov chains, continuous time Markov chains, queuing theory, epidemic processes, Gaussian processes. Prereq: STA 524 or consent of instructor. (Same as STA 624.)

PHARMACY

PHR 222 DRUGS, MEDICINES, AND SOCIETY. (3)
The course is designed to enable the university graduate to be sufficiently sophisticated in his understanding of the physiological and behavioral effects of medicines, environmental toxicants, and psychoactive chemicals so that he may make informed decisions regarding their use in his life, home and community. This course provides such information in the context of drug development, standardization, distribution, control, use and misuse in a modern society. (Note: It is felt that this course might be of particular interest to freshmen.)

PHR 303 HISTORY AND ETHICS OF PHARMACY. (3)
A study of the development of the profession of pharmacy, emphasizing the historical background and ethical principles upon which the profession rests. The nature and place of pharmaceutical services in society are considered. The moral standards and professional conduct required of a pharmacist are emphasized.

PHR 336 PHYSIOLOGIC BASIS FOR THERAPEUTICS I. (4)
Basic concepts of human anatomy and physiology integrated with an introduction to pathophysiology and the pharmacodynamics of typical drugs. Strong emphasis is placed on homeostasis, cell and nerve function and the organization of the central and autonomic nervous systems. Lecture, four hours. Prereq: BIO 104, 105; CHE 232 and PHY 213.

PHR 337 PHYSIOLOGIC BASIS FOR THERAPEUTICS II. (3)
A continuation of PHR 336 involving the integrated physiology of the cardiovascular, renal and pulmonary systems with an introduction to the pathophysiology of each system and the pharmacodynamics of typical drugs. Lecture, three hours. Prereq: PHR 336.

PHR 340 PRINCIPLES OF MEDICINAL CHEMISTRY. (4)
A course designed to introduce the fundamental concepts of the application of chemical principles to the study of medicinal agents. Basic heterocyclic chemistry as is needed to develop the chemistry of physiologically active molecules. Physiochemical properties of drugs and their relation to physiological activity, and fundamental consideration of the metabolic changes in drug molecules are major areas of development of the course presentation. Prereq or concur: PHR 400.

PHR 395 INDEPENDENT WORK IN PHARMACEUTICAL CHEMISTRY. (1-3)
Selected problems of interest from the general field of pharmaceutical chemistry. May be repeated to a maximum of six credits. Prereq: Pharmacy major and standing of 3.0 in major. Consent of instructor.

PHR 400 BIOCHEMISTRY. (4)
A fundamental course in the chemistry and interrelationships of carbohydrates, lipids, and proteins, as well as the role of enzymes, vitamins, and hormones in physiological processes. Prereq: CHE 232, 233, or equivalent.

PHR 474 INDEPENDENT PROBLEMS IN TOXICOLOGY. (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in toxicology and satisfy professional elective requirements for pharmacy students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHR 475 INDEPENDENT PROBLEMS IN PHARMACOGNOSY. (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacognosy and satisfy professional elective requirements for pharmacy students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHR 476 INDEPENDENT PROBLEMS IN PHARMACOLOGY. (1-3)
Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacology and satisfy professional elective requirements for pharmacy students. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHR 510 MODERN METHODS IN PHARMACEUTICAL ANALYSIS. (5)
A course which deals with the application of modern analytical methods, primarily instrumental methods, in the determination of the strength, purity, and quality of drugs and pharmaceuticals. Laboratory exercises include analysis of raw materials and finished dosage forms. Lecture, three hours; laboratory, four hours. Prereq: CHE 226.

PHR 520 SPECIAL TOPICS IN PHARMACY LAW. (2)
Discussion of the legal framework and special legal issues in pharmacy practice. Topics will include application of antitrust laws to pharmacy, patent and trademark issues relevant to pharmacy, legal issues related to prescription drug insurance programs, professional liability and legislative issues such as drug product selection. Prereq: PHR 847.

PHR 525 INTRODUCTION TO SOCIOPHARMACOLOGY. (2)
An introductory study of drug-taking experiences and behaviors. The course provides an overview of theories and research findings which describe the relationships between social and cultural factors and drug-taking experiences. These theories and research findings are contrasted with the pharmacological paradigm of drug effects and the medical model. Prereq: Six credit hours in behavioral, social and pharmacologic sciences.

PHR 540 INDUSTRIAL PHARMACEUTICAL TECHNOLOGY. (4)
This course is designed to give the student a basic understanding of the technology used in the preparation of the principal types of dosage forms by the pharmaceutical industry. Lecture, two hours; laboratory, four hours. Prereq: PHR 825 or equivalent.

PHR 545 STERILE PARENTERALS AND DEVICES. (2-3)
The course will describe the fundamental concepts, principles and techniques involved in the characterization, development, evaluation and preparation of sterile products. Lecture, two credits; lecture with laboratory, three credits. Prereq: PHR 840 and PHR 825 or equivalent and consent of instructor.

PHR 595 INDEPENDENT PROBLEMS IN PHARMACY ADMINISTRATION. (1-3)
Selected problems of interest in the areas of behavioral, economic, ethical, historical, legal, psychological and social aspects of pharmacy. Methods may include literature search, surveys, field studies and experimental design. The course may serve as a professional elective for the pharmacy student and as a graduate course for the graduate student. May be repeated for a maximum of six credits. Prereq: Consent of the instructor.

PHR 612 QUANTITATIVE PHARMACODYNAMICS: PHARMACOKINETICS. (3)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of both mathematical models and model-independent approaches for describing these processes. Prereq: PHR 802 (or equivalent), MA 114 and consent of instructor. (Same as PHA 612.)

PHR 620 NATURAL PRODUCTS CHEMISTRY. (3)
Chemistry of natural products. A course designed to establish a bridge between organic chemistry, biochemistry and biology in terms of such areas as biogenesis, biotransformations, isolation, degradation, structure elucidation and synthesis of natural products of interest as medicinal agents. Prereq: PHR 400 or equivalent and consent of instructor.

PHR 622 ADVANCED BIOPHARMACEUTICS. (2)
An advanced treatment of the factors affecting drug availability from dosage forms and the influence of the route of administration and the dosage regimen on drug availability. Prereq: PHR 612.

PHR 630 PHARMACEUTICAL RATE PROCESSES. (3)
Kinetics of reactions of pharmaceutical interest; mechanisms of drug decomposition and theoretical approaches to stabilization and preservation; accelerated stability analysis. Prereq: Physical chemistry and chemical kinetics.

PHR 631 EQUILIBRIUM PHENOMENA IN PHARMACEUTICAL SYSTEMS. (3)
An advanced study in special topics of a physical chemical nature which are applicable to pharmacy, with special emphasis on physical properties and molecular structure, solubility, complexation and equilibria in solution. Prereq: Physical chemistry.

PHR 640 METHODS IN PHARMACOLOGICAL RESEARCH I. (2)
Introduction to biological techniques in laboratory research in the pharmaceutical sciences and closely related disciplines. Includes lecture and laboratory sessions on the general use of animals in teaching and research, on the proper use and handling of radiochemicals and on several basic in vivo and in vitro research techniques used in pharmacological experimentation. Offered only in first half of semester. Lecture, two hours; laboratory, six hours per week. Prereq: Consent of instructor. PHA 621 is a prerequisite for students majoring in pharmacology.

PHR 641 METHODS IN PHARMACOLOGICAL RESEARCH II. (2)
A continuation of PHR 640. This course provides more in-depth practical experience in specialized pharmacological research methods in areas such as cardiovascular, pulmonary, biochemical and receptor pharmacology. Offered only in second half of semester. Lecture, two hours; laboratory, six hours per week. Prereq: PHR 640 and consent of instructor.

PHA 664 THEORY AND PRACTICE OF DRUG METABOLISM. (3)
A broad overview of the chemistry of drug biotransformation with emphasis on experimental considerations and analytic methodology for the isolation and identification of metabolites and the study of metabolic processes. Prereq: BCH 501 and CHE 538 or consent of instructor.

PHR 680 RESEARCH METHODS IN SOCIAL AND ADMINISTRATIVE PHARMACY. (3)
A broad overview and study of research problems, methodologies and designs applicable to the area of administrative and social pharmacy. Analysis and critique of both good and poor designs and methods found in the pharmacy literature are included. Prereq: STA 570 or equivalent, or consent of instructor.

PHR 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PHR 760 TOPICS IN PHARMACEUTICAL SCIENCES. (2-4)
This course deals with emerging concepts in pharmaceutical sciences which are not being covered in other courses. May be repeated to a maximum of 10 hours. Prereq: Consent of instructor.

PHR 762 BIOORGANIC MECHANISMS. (3)
An in-depth discussion on the bioorganic chemistry aspects of the active sites of enzymes and drug receptors, the molecular basis of drug design, and principles of drug metabolism. Within these topics, the mode of action of some of the major coenzymes and drugs will be discussed from a mechanistic chemistry point of view. Prereq: CHE 538, CHE 633, BCH 501 or consent of instructor.

PHR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PHR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PHR 776 SEMINAR IN PHARMACEUTICAL SCIENCES I. (1)
Reports and discussion of pertinent research and literature in the pharmaceutical sciences. Required of all graduate students. Prereq: Graduate standing.

PHR 778 SEMINAR IN PHARMACEUTICAL SCIENCES II. (1)
Reports and discussion of pertinent research and literature in a disciplinary area of the pharmaceutical sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing.

PHR 780 SPECIAL PROBLEMS IN PHARMACEUTICAL SCIENCES. (1-6)
Selected problems of laboratory or literature nature in which a student pursues a topic of interest to him under the supervision of a faculty member particularly qualified in that area. May be repeated once. Prereq: Consent of instructor.

PHR 790 RESEARCH IN PHARMACEUTICAL SCIENCES. (1-12)
Research work to be conducted in selected areas of pharmaceutical sciences. Prereq: Approval of student's special committee and consent of instructor.

PHR 801 PHARMACEUTICAL ANALYSIS. (4)
A study of the analytical techniques commonly used to: 1) assure the potency, quality, and stability of raw materials and finished pharmaceutical dosage forms; 2) determine drug concentrations in biological fluids; and 3) evaluate the clinical status of the patient requiring medication. Lecture, three hours; laboratory, three hours.

PHR 802 PHARMACEUTICS. (5)
This course deals with the kinetics of drug stability and the pharmacokinetic principles of absorption, distribution, metabolism, and excretion. Physical-chemical principles are used to describe the interrelationships between body tissues, drugs, and drug dosage forms. Lecture, four hours; laboratory, three hours. Prereq: PHR 801 and PHR 825.

PHR 811 COMPUTER APPLICATIONS IN PHARMACY. (2)
A guide to the selection and use of computers in pharmaceutical practice. Descriptions of functions, cost-benefit considerations, hardware and software, capabilities of various systems, language, applications to patient profiles, inventory control and accounts are considered.

PHR 812 COMMUNICATION SKILLS FOR PHARMACISTS. (3)
An analysis and application of the factors that promote or hinder successful communication between pharmacists and patients, pharmacists and the general public, and pharmacists and other health care personnel. The course is designed to make the student more aware of the importance of the role of communication on interpersonal interaction and the consequences of poor communication. The primary focus is to improve upon the student's ability to communicate effectively in specific situations. Prereq: BSC 331, and PHR 847.

PHR 813 GERIATRIC PHARMACY. (3)
A course designed to educate students in the basic knowledge of attitudes and skills required to meet the pharmaceutical needs of the elderly. Topics include discussions of the aging process, phvsiological and psychological changes in the elderly, how these changes influence patient compliance and the responses to drug and nondrug treatments, monitoring drug use in long-term care facilities, and special community services available to the elderly. Prereq: PHR 849, 852, 853, 854 and 856 or permission of instructor. (Same as GRN 513.)

PHR 826 INTRODUCTION TO NUCLEAR PHARMACY. (3)
The subject matter in this course includes: an introduction to basic atomic structure, radioactivity, detection of radiation, interactions of radiation with matter, radiation safety, dosimetry, the major emphasis being placed on radiopharmaceuticals and nuclear medicine instrumentation. Prereq: PHR 802, and consent of instructor.

PHR 827 PRACTICE OF NUCLEAR PHARMACY. (3)
Basic theory and methodology in radionuclide labeling of agents used in nuclear medicine, drug product information, quality control procedures, legal requirements, dosage preparation, dose calculations, and basic manipulative functions using protective barriers. Two hours lecture and three hours laboratory per week. Prereq: PHR 826 and consent of instructor.

PHR 828 NUCLEAR PHARMACY EXTERNSHIP. (4, 8, 12, or 16)
This externship provides the student with an integrated practice experience in the provision of nuclear pharmaceutical services in various practice settings. Each four-credit block consists of four weeks of full time (40 hr/week) directed externship experience. The student may elect the externship experience in blocks of four credits. May be repeated to a maximum of 16 credits. Prereq: PHR 827 and consent of instructor.

PHR 830 BASIC PHARMACY MANAGEMENT. (3)
An introduction to the basic concepts, principles, and methods of pharmacy management applicable to all practice settings with emphasis on practice alternatives; management approaches and styles; organizational principles, behavior, and forms; personnel; purchasing and inventory control; pricing, professional fees, and pharmacy services and patronage. Prereq: ECO 260, PHR 847.

PHR 835 PHARMACEUTICAL LAW. (2)
A study of important legislation, regulations and rulings related to the practice of pharmacy. Prereq: PHR 846, PHR 847 and PHR 851.

PHR 838 COMMUNITY PHARMACY MANAGEMENT. (3)
A study of the principles and methods unique to the management of a community pharmacy, building on previous foundations and focusing on the entrepreneurial aspects of management. Prereq: PHR 830 and consent of instructor.

PHR 845 BIOPHARMACEUTICS. (4)
This course deals with the interrelationships of absorption, distribution, metabolism, storage and excretion of drugs with the physical-chemical properties of body tissues, drugs and drug dosage forms. The receptor site concept of drug action will also be introduced. Lecture, three hours; laboratory, three hours. Prereq: PHR 825.

PHR 846 PHARMACY PRACTICE I. (4)
An introduction to the literature of pharmacy, contemporary dosage forms, pharmaceutical calculations, and principles of compounding. Emphasis is placed on drug information retrieval and the elements of design, function and use of dosage forms. Laboratory experiences are directed toward compounding dosage forms utilizing principles of dosage form design. Demonstration of competence in pharmaceutical calculations by examination is required for passing the course. Lecture, three hours; laboratory, four hours.

PHR 847 PHARMACY PRACTICE II. (3)
An introduction to health care delivery systems in the United States. Particular emphasis is placed on the roles, function, and responsibilities of the pharmacist within these systems. Additional emphasis is placed on the relationship of the pharmacist and the patients as well as the interaction of the pharmacist with other health professionals.

PHR 848 PHARMACY PRACTICE III. (3)
An introduction to the practice of pharmacy in clinical settings. Emphasis is placed on the physical status of the patient as it relates to drug therapy. Aspects of communications with patients are presented as well as the basic principles of parenteral drug preparation. Lecture, 40; laboratory, 14 two-hour laboratories per semester. Prereq: PHR 846, PHR 847.

PHR 849 PHARMACY PRACTICE IV. (4)
A continuation of PHR 846 with increased emphasis on patient counseling, patient monitoring, drug interactions and physical/chemical incompatibilities. Lecture, three hours; laboratory, four hours. Prereq: PHR 848; demonstration of competency in pharmaceutical calculations.

PHR 851 PHARMACOTHERAPEUTICS: NERVOUS SYSTEMS. (5)
A study of human disease processes and rational pharmacotherapeutics relating to the autonomic and central nervous systems. Emphasis is placed on the scientific principles of pathophysiology, pharmacology and toxicology, the incorporation of these principles to the clinical application of modern drug therapy, and how these principles can be utilized in pharmacy practice. Prereq: PHR 802, PHR 340, PHR 337.

PHR 852 PHARMACOTHERAPEUTICS: CARDIOPULMONARY AND RENAL SYSTEMS. (5)
An extension of PHR 851 dealing primarily with cardiovascular, renal and respiratory pathologies and the agents used in their treatment. Prereq: PHR 851.

PHR 853 PHARMACOTHERAPEUTICS: ENDOCRINE SYSTEMS. (4)
A study of the physiology, pathology and therapeutics of the endocrine system. A discussion of principles of toxicology and the treatment of exposure to select chemicals is included. Prereq: PHR 337; coreq: PHR 851.

PHR 854 PHARMACOTHERAPEUTICS: NUTRITIONAL AND DERMATOLOGIC SYSTEMS. (4)
An extension of PHR 851, concentrating on the physiology and major pathologies of the gastrointestinal and dermatologic systems, the agents used in their treatments, and the problems and treatments of nutritional and hematologic disorders. Prereq: PHR 851.

PHR 855 PHARMACOTHERAPEUTICS: IMMUNE SYSTEMS. (4)
A study of the immune systems, immunotherapy, and select autoimmune diseases and their treatment. The course includes a discussion of neoplasias and antineoplastic therapy.

PHR 856 CHEMOTHERAPEUTICS. (3)
An extension of PHR 851, concentrating on infectious diseases and agents used in their treatment. Prereq: PHR 851 and PHR 855.

PHR 860 ANIMAL HEALTH PRODUCTS. (2)
A study of drug products used in the diagnosis and treatment of common animal diseases. Autotutorial. Prereq: PHR 842, PHR 853, PHR 854, and PHR 856.

PHR 865 DISEASE PROCESSES I. (5)
An interdisciplinary course in which in-depth study of specific disease processes, especially the quantifiable, pathognomonic parameters permit the student to develop a unique understanding of the pathologic factors influencing clinical drug use. Prereq: PHR 849,852, 853, 854 and 856.

PHR 866 APPLIED THERAPEUTICS I. (5)
An in-depth integration of patient factors including age, history, concurrent disease states, medications, allergies, renal and hepatic function, and drug product factors including bioavailability, pharmacokinetics, efficacy, toxicity, risk to benefit ratios, and cost in the application of drug therapy to specific patient situations. Also included are discussions of the prominent considerations relative to patient education about their disease and therapy. Prereq: PHR 849, 852, 853, 854 and 856.

PHR 867 DISEASE PROCESSES II. (4)
A continuation of PHR 865. Prereq: PHR 865.

PHR 868 APPLIED THERAPEUTICS II. (5)
A continuation of PHR 866, including a presentation of physical assessment techniques necessary for monitoring drug response. Prereq: PHR 866.

PHR 870 CLINICAL ORIENTATION CLERKSHIP. (6)
This course acquaints the student with the techniques and various considerations involved in the diagnosis and evaluation of disease states and their treatment. It affords the student opportunity to gain an appreciation of the scientific, social, emotional and psychological aspects of illness and provides the student with ability to work with other health professionals. Offered for letter grade credit only (A, B, C, D, E, I). Prereq: PHR 849, PHR 852, PHR 853, PHR 854, and PHR 856.

PHR 872 NONPRESCRIPTION PHARMACEUTICALS AND SUPPLIES. (4)
A study of various nonprescription pharmaceuticals, medical and surgical supplies, and appliances commonly found in community pharmacy practice. Their evaluation, rational use and therapeutic efficacy will be stressed. The use of home remedies and their limitations in the treatment of minor ailments will be considered. Prereq: PHR 848, PHR 851, PHR 853, and PHR 855.

PHR 873 PHARMACY SERVICES IN LONG-TERM CARE FACILITIES. (2)
A presentation of the rules and regulations governing long-term care facilities and the policies and procedures for providing pharmacy services in such a facility. The course prepares the student, subsequent to licensure, for this particular type of practice. Autotutorial, with one discussion hour per week.

PHR 874 DRUG LITERATURE EVALUATION. (3)
This course apprises the student of the pharmacological and toxicological principles and techniques employed in the clinical evaluation of drugs and enables the student to use more effectively the clinical literature. Prereq: PHR 852, PHR 853, PHR 854 and PHR 856.

PHR 875 CLINICAL PHARMACOKINETICS. (4)
Application of pharmacokinetic principles to drug dosing on an individual patient basis, with emphasis on those drugs which have narrow therapeutic ranges or have unique pharmacokinetic or pharmacologic properties. Prereq: PHR 802 or consent of instructor.

PHR 880 INTRODUCTION TO INSTITUTIONAL PRACTICE. (3)
A presentation of the fundamental concepts and procedures involving the acquisition, distribution and control of drugs by pharmacists in hosptials. It is designed to acquaint the student with hospital pharmacy as a specialized area of practice. Prereq: Consent of instructor.

PHR 881 PHARMACY PRACTICE EXTERNSHIP. (4, 8, 12, or 16)
This externship is designed to provide the student with a faculty-directed, integrated experience in the provision of pharmaceutical services in a variety of patient care settings under the supervision of selected pharmacy practitioners on a one-to-one basis of student to practitioner. This experience includes participation in new and innovative pharmacy practice models as well as in traditional practice settings. Each four-credit block consists of four weeks of full-time (not less than 40 hours per week) directed externship experience. The student may elect the type(s) of externship experience(s) in blocks of four credits. May be repeated to a maximum of 16 credits. Offered on a pass/fail basis only. Prereq: PHR 849, PHR 852, PHR 854, permission of instructor and a 2.0 Pharmacy cumulative GPA.

PHR 882 PHARMACY PRACTICE CLERKSHIP: MEDICINE. (6)
A clinical experience in the use of drugs in the diagnosis, treatment and management of diseases. Experience will be obtained in general internal medicine. Emphasis is placed on the rationale of drug therapy. Prereq: PHR 868, 874, 875 and 867 or 870.

PHR 883 PHARMACY PRACTICE CLERKSHIP: CLINICS. (6)
A clinical experience in the use of drugs in the treatment of diseases in ambulatory patients. Experience will be obtained in ambulatory care clinics. Prereq: PHR 868, 874, 875, and 867 or 870.

PHR 884 PHARMACY PRACTICE CLERKSHIP: SPECIALTY AREAS. (6)
A clinical experience in the use of drugs in the treatment of diseases encountered in specialized areas. Areas in which experience may be obtained include (but are not limited to) pediatrics, surgery, intensive care and psychiatry. May be repeated to a maximum of 18 credits. Prereq: PHR 868, 874, 875, 867 or 870.

PHR 890 CLINICAL PHARMACY SEMINAR. (1)
Topics in areas of clinical pharmacy concepts and principles of practice emphasizing the technical and professional knowledge and abilities required for involvement of the pharmacist in the health care team. May be repeated to a maximum of two credits. Prereq: Admission to the Doctor of Pharmacy program.

PHR 892 CLINICAL DRUG COMMUNICATIONS. (1-5)
The course is designed as a natural continuation of PHR 874 and serves the specific purpose of providing instruction and experience of such a nature and quality as to promote the professional role of the pharmacist in the communication of clinical pharmacology data and therapeutics information. May be repeated to a maximum of 10 credits. Lecture, one hour; laboratory, four-16 hours.

PHR 895 INDEPENDENT PROBLEMS IN CLINICAL PHARMACY. (1-3)
Selected problems in patient care, drug information, pharmacy administration, and pharmaceutical technology as related to pharmaceutical services. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHR 896 INDEPENDENT PROBLEMS IN PHARMACY. (1-3)
Selected problems pertaining to the various aspects of pharmacy which may include such problems as pharmaceutical procedures, pharmaceutical formulations, pharmaceutical history, and pharmaceutical economics. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHILOSOPHY

Note: Prior to the advance registration period each semester, the Department of Philosophy publishes information on courses (200 level and above) to be offered for the next semester. This information includes details on course topics and materials to be used in each course. Students are encouraged to obtain the information to assist them in course selection.

PHI 100 INTRODUCTION TO PHILOSOPHY: KNOWLEDGE AND REALITY. (3)
An introduction to philosophical studies with emphasis on issues of knowing, reality, and meaning related to human existence.

PHI 120 INTRODUCTORY LOGIC. (3)
A course which treats argumentation, syllogistic, and sentential logic. The focus will be on the use of formal methods in the construction and criticism of actual arguments, the aim being to inculcate standards of good reasoning, e.g., clarity, consistency and validity. Credit is not given to students who already have credit for PHI 320.

PHI 130 INTRODUCTION TO PHILOSOPHY: MORALITY AND SOCIETY. (3)
An introduction to philosophical studies with emphasis on a critical study of principles of moral action and social and political values.

PHI 260 HISTORY OF PHILOSOPHY I: FROM GREEK BEGINNINGS TO THE MIDDLE AGES. (3)
An introductory study of the development of Western philosophy from ancient through late medieval times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Plato, Aristotle, Augustine and Aquinas.

PHI 270 HISTORY OF PHILOSOPHY II: FROM THE RENAISSANCE TO THE PRESENT ERA. (3)
An introductory study of the development of Western philosophy from early modern to recent times including systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Occam, Descartes, Hume and Kant.

PHI 300 UNDERGRADUATE SEMINAR. (3)
An intensive study of special topics in philosophy with emphasis on current scholarship. The focus may be intradisciplinary or interdisciplinary. Prerequisites appropriate to the specific topic will be listed in the schedule book for each offering. May be repeated to a maximum of six hours.

PHI 305 HEALTH CARE ETHICS. (3)
A consideration of the ethical issues and difficult choices generated or made acute by advances in biology, technology, and medicine. Typical issues include: informed consent, healer-patient relationships, truth telling, confidentiality, problem of birth defects, abortion, placebos and health, allocation of scarce medical resources, genetic research and experimentation, cost containment in health care, accountability of health care professionals, care of the dying, and death.

PHI 310 PHILOSOPHY OF HUMAN NATURE. (3)
A course introducing philosophy at the upper division level which studies various issues involved in analyzing what it means to be human, in the interest of developing a coherent conception of man. Answers will be sought to questions like these: Is there a human nature? What would differentiate the properly human from the nonhuman? What kind of relations tie a human being to environment, society, and history?

PHI 317 EXISTENTIALIST THOUGHT AND LITERATURE. (3)
A survey of existentialism as a literary movement as well as a philosophical one, with emphasis upon their intersection and interaction. The course will trace the emergence of existentialist themes in modern thought and culture, and will analyze and assess the movements' continuing significance.

PHI 320 SYMBOLIC LOGIC I. (3)
A systematic study of sentential logic, elementary quantification, and the logic of identity. The student will acquire specific skills in symbolic methods in analysis which are necessary for further study in logic as well as useful for addressing complex issues in philosophy and other areas.

PHI 330 PROFESSIONAL ETHICS. (3)
A study of ethical issues related to professional roles, especially those of physicians and lawyers. Among the topics to be considered are the nature and justification of professional responsibilities and duties; obligations of professions to society; the professional-client relationship and its rights and obligations; enforcement of codes of ethics.

PHI 333 AGRICULTURAL ETHICS. (3)
This course examines the moral dilemmas which arise from the production, distribution and consumption of food in modern societies. Various theoretical positions, such as Libertarianism, Utilitarianism, Egalitarianism, are examined. In addition the course will consider how the right of everyone to an adequate diet can be justified as well as what that right implies for public policy decisions.

PHI 335 THE INDIVIDUAL AND SOCIETY. (3)
An examination of several incompatible views concerning the relation between the individual and society, including radical individualism and collectivism, as well as more moderate theories. Attention will be given to contemporary as well as classical spokesmen for these views and emphasis will be placed upon relating these theories to contemporary social, cultural, and political issues.

PHI 337 INTRODUCTION TO LEGAL PHILOSOPHY. (3)
A general introduction to basic concepts, institutions, and mechanisms of law. Understanding of the legal system and its methods is promoted through discussion of topics which include: basic legal reasoning, the function of the legal process, fundamental legal concepts and categories (such as property, crime, and contract).

PHI 338 MORALITY AND BUSINESS. (3)
A systematic analysis of moral questions for business and economics. How do major ethical theories view the practice of business in general? What moral principles underlie activities such as stock issuance, advertising, accounting and the social audit? What ethical issues are involved in hiring and promotion, ecological concerns and conflicts of interest?

PHI 343 ASIAN PHILOSOPHY. (3)
An introduction to the main concepts, assumptions, problems and texts of one or more Asian philosophical traditions, such as Hinduism, Buddhism, Taoism, and Confucianism.

PHI 350 DEATH, DYING AND THE QUALITY OF LIFE. (3)
A philosophical and interdisciplinary investigation of a cluster of prominent issues about the meaning of life and death, caring for dying persons, and the quality of life of the terminally ill. Among topics included are: death definitions and criteria; allowing to die vs. killing; euthanasia and suicide; life prolongation, ethics of care of the terminally ill; and rights of the dying.

PHI 361 BIOLOGY AND SOCIETY. (3)
A study of the implications of biology for understanding and changing society. Emphasis is on sociobiology and the value of viewing social behavior as a product of adaptive evolution by natural selection. Representative philosophical issues include biological constraints on human nature and society, genetic engineering, reductionism, the scientific method, and bioethics. Prereq: A college course in biology or consent of instructor.

PHI 395 INDEPENDENT WORK. (3)
Open only to students who have distinguished themselves in philosophy or in allied subjects. May be repeated to a maximum of 12 credits. Prereq: Major and standing of 3.0 in department.

PHI 399 EXPERIENTIAL LEARNING. (1-6)
To provide the opportunity for students to earn credit for work-study experience. The student must work with a faculty member to describe the nature of the experience, the work to be performed, and accompanying philosophical reflection and study, appropriate course credit for the work, and criteria by which the work may be evaluated. This information must be written and filed in the Philosophy Department and the Office for Experiential Education prior to the student's registration for the course. May be repeated to a maximum of 12 credits. Pass-fail only. Prereq: Consent of instructor and department chairperson; completion of a departmental learning agreement.

PHI 520 SYMBOLIC LOGIC II. (3)
An intermediate course in symbolic logic which reviews sentential logic, develops further the logic of quantification, and introduces metalogical issues such as the construction, consistency, and completeness of deductive systems. Prereq: PHI 320 or consent of instructor.

GROUP A

PHI 503 TOPICS IN ANCIENT PHILOSOPHY. (3)
A study of representative texts and issues in Ancient Philosophy with special attention to historical continuity and the interrelations of thinkers and problems. Possible Topics: Pre-Socratic Philosophers, Plato, Aristotle, Stoicism, Epicureanism, Scepticism. May be repeated to a maximum of six credits.

PHI 506 TOPICS IN MEDIEVAL PHILOSOPHY. (3)
An investigation of issues in Medieval Philosophy. Topics will be chosen which illustrate continuity both with Ancient Greek Sources and with problems in Modern Philosophy. Possible Topics: Neo-Platonism, Faith and Reason, Freedom and Determinism, Universals, the Existence of God, Renaissance reactions. May be repeated to a maximum of six credits.

PHI 509 TOPICS IN THE HISTORY OF MODERN PHILOSOPHY. (3)
A selective study of representative issues and texts in modern philosophy, with special emphasis upon historical continuity and interrelation of thinkers and problems. Possible topics: British empiricism; Leibniz and Locke; Descartes and his critics; Hobbes and Rousseau; Hume and Kant; philosophy and the rise of modern science. May be repeated to a maximum of six credits.

PHI 513 NINETEENTH CENTURY PHILOSOPHY. (3)
An examination of the major topics and trends in 19th century philosophy. Prereq: PHI 270 or consent of instructor.

PHI 514 AMERICAN PHILOSOPHY. (3)
A study of the development of the philosophy in America from colonial to recent times with attention to religious, political, literary and scientific influences on American thought. The focus will be on the pragmatic spirit that was the moving force from 19th century idealism to 20th century naturalism, with emphasis on the works of such thinkers as Royce, Peirce, James and Dewey.

PHI 515 CONTEMPORARY PHILOSOPHY: THE ANALYTIC TURN. (3)
A survey of several 20th century philosophical movements, such as logical positivism and ordinary language philosophy, whose members agree that careful attention to language is one of the keys to the resolution of philosophical problems. The works of representative thinkers such as Moore, Russell, the Vienna Circle, Wittgenstein and Austin will be studied.

PHI 516 CONTEMPORARY PHILOSOPHY: PHENOMENOLOGICAL DIRECTIONS. (3)
A study of 20th century philosophies represented by the works of thinkers such as Husserl and Heidegger, Gadamer and Ricoeur, Habermas and Apel. Generally based in a reflection on human experience, these philosophies undertake a radical criticism of common conceptions of human nature while variously emphasizing rationality, ontology, language, or social and historical context. Prereq: PHI 270 or consent of instructor.

PHI 517 EXISTENTIALISM. (3)
A systematic study of the fundamental concepts and problems of existentialism. Readings selected from such philosophers as Kierkegaard, Nietzsche, Sartre, Marcel, Heidegger, and Jaspers.

GROUP B

PHI 530 ETHICAL THEORY. (3)
A study of ethical theories by detailed examination of a few selected works. Theories considered may include naturalism, intuitionism, noncognitivism, utilitarianism, universalizability, and natural law.

PHI 535 SOCIAL AND POLITICAL PHILOSOPHY. (3)
A critical examination of some philosophical problems concerning the nature and evaluation of social and political organizations. For example, questions concerning the nature, justification, and limits of political power may be explored in connection with a study of important classical positions. Prereq: One course in philosophy.

PHI 537 PHILOSOPHY OF LAW. (3)
Concept of law; relations between law and morals; nature of legal reasoning; analysis of legal concepts; justification of punishment. (Same as LAW 837.)

PHI 545 PHILOSOPHY OF RELIGION. (3)
An analysis of the philosophical issues raised by religion, such as the problem of religious knowledge, the nature of religious language, science and religion, concepts of God, death, and evil.

PHI 592 AESTHETICS. (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. Lectures, discussions, reports. (Same as A-H 592.)

GROUP C

PHI 550 PHILOSOPHICAL PROBLEMS IN KNOWLEDGE AND REALITY. (3)
Critical examination of issues regarding the foundations of knowledge, the nature of reality and the relation between the two. Evidence, belief, certainty, perception and justification will be among problems considered. Understandings of truth, existence, causality, freedom, time, space and matter will also be attended to. Prereq: PHI 100 or PHI 260 or PHI 270 or equivalent.

PHI 560 PHILOSOPHY OF SCIENTIFIC METHOD. (3)
An examination of the logical and epistemological foundations of empirical science, including fundamentals of concept formation, criteria of cognitive significance, issues of explanation, interpretation, and prediction, and testing and confirmation of theories and laws. Prereq: PHI 120 or equivalent or consent of instructor.

PHI 561 PHILOSOPHICAL PROBLEMS IN THE NATURAL SCIENCES (Subtitle required). (3)
A systematic examination of selected conceptual and/or metaphysical problems in the natural sciences. Possible topics include: reductionism, teleology, causality and determinism, the structure of space-time, and the "anthropic principle" in cosmology. Prereq: PHI 120 or PHI 320, or two semesters of natural sciences or consent of instructor.

PHI 562 PHILOSOPHICAL PROBLEMS IN THE SOCIAL AND BEHAVIORAL SCIENCES. (3)
An examination of various methodological issues and broader philosophical questions of special concern in the social sciences. Among the topics to be studied: the structure of theories and the roles of mathematics and experimentation in the social sciences, the possibility of an objective or value free social science, and the conceptions of human nature presupposed by different schools of social science.

PHI 565 PHILOSOPHY OF LANGUAGE. (3)
An investigation of problems current in the philosophy of language such as meaning and reference, the nature of analysis, linguistic relativity and the relation of linguistics to philosophy.

PHI 570 PHILOSOPHY OF HISTORY. (3)
An examination of the theories and methods utilized by historians with special attention to the problems of laws and explanations in history, the nature of historical knowledge and narrative, and the roles of causal judgments and historical understanding. Attention will also be given to theoretical interpretations of history as offered by Marx, Hegel, Toynbee and others.

PHI 575 PHILOSOPHY OF MIND. (3)
An examination of problems current in the philosophy of mind, such as the concept of person, the relation of mind and body, the relation of minds and machines, knowledge of other minds, and the roles of dispositions and volitions in human action. Attention will be given to the philosophical analysis of such psychological categories as consciousness, feeling, emotion, perception, imagination, thinking and will.

GRADUATE SEMINARS

PHI 630 SEMINAR IN MORAL PHILOSOPHY. (3)
A specialized graduate course in moral philosophy that treats the history of moral issues and doctrines, or emphasizes contemporary methodological discussions, or examines the concrete societal implications of major theories, or combines these approaches. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHI 650 SEMINAR IN METAPHYSICS AND EPISTEMOLOGY (Subtitle required). (3)
A specialized advanced study of topics in traditional areas of metaphysics and epistemology or of more contemporary topics, some of which may cut across or even challenge the framework of those traditional domains. Topics may include such issues as the nature of human action, problems of reference and modality, conceptions of time and space, and the sociology of knowledge. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

PHI 680 SPECIAL TOPICS IN PHILOSOPHY. (3)
Studies in philosophical problems which either cut across or lie outside the standard areas of philosophical inquiry. May be repeated to a maximum of six credits.

PHI 700 SEMINAR IN ANCIENT PHILOSOPHY. (3)
Intensive study of original works of such major classical philosophers as Plato and Aristotle. May be repeated to a maximum of six credits. Prereq: PHI 260 or equivalent.

PHI 705 SEMINAR IN MEDIEVAL PHILOSOPHY. (3)
An intensive study of the issues treated by one or more medieval philosophers, e.g., Augustine, Aquinas, Scotus or Ockham. May be repeated to a maximum of six credits. Prereq: PHI 506.

PHI 710 SEMINAR IN MODERN PHILOSOPHY. (3)
Intensive study in the major works of such prominent philosophers of modern times as Descartes, Locke, Hume, Kant, and Hegel. May be repeated to a maximum of six credits. Prereq: PHI 270 or equivalent.

PHI 715 SEMINAR IN RECENT PHILOSOPHY. (3)
Intensive study of major philosophers of the 20th Century such as Russell, Wittgenstein, J.L. Austin, and Merleau-Ponty. May be repeated to a maximum of six credits. Prereq: PHI 515 or equivalent.

PHI 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PHI 750 SEMINAR IN INTERDISCIPLINARY ISSUES. (3)
This course focuses on issues and topics which require the integration of philosophical aims and methods with work in other disciplines. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

PHI 755 TUTORIAL IN INTERDISCIPLINARY ISSUES. (1-6)
As a tutorial, this course is structured individually to a student's research and study projects. Topics and issues are to be chosen and pursued in work that integrates philosophical methods and ideas within other disciplinary areas. May be repeated to a maximum of nine credits. Prereq: Approval of the Student's Advisory Committee.

PHI 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PHI 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PHI 790 RESEARCH IN PHILOSOPHY. (3)
This course is primarily intended for advanced students who desire and are prepared to do research in philosophy. May be repeated to a maximum of 12 credits.

PHYSICAL THERAPY

PT 604 PHYSICAL THERAPY IN THE EDUCATIONAL SETTING. (3)
This course is designed for graduate students in special education, adaptive physical education or other related disciplines. It will provide these students with an understanding of the role of the physical therapist; the principles of motor function, motor development and motor dysfunction; and how these principles can be utilized to integrate the educational program and the physical therapy program for the child who has motor dysfunction. Prereq: EDS 520, EDS 527 or HPR 579 or consent of instructor.

PT 645 MEASUREMENT IN PHYSICAL THERAPY. (3)
An analysis of various procedures and measuring instruments used in clinical practice and research in physical therapy. Emphasis is placed on the theory, application, and interpretation of the measurements. Relevant measurement applications and their problems are investigated in laboratory sessions. Lecture, eight and one-half hours; laboratory, four hours per week in four-week intersession. Prereq: STA 570 or EDP 557 or consent of instructor.

PT 805 NORMAL FUNCTIONAL ANATOMY. (3)
A regional study of the normal functional aspects of the neuromusculoskeletal systems, including the basic principles of biomechanics and human locomotion. Prereq: ANA 811, ANA 513 or consent of instructor.

PT 807 CLINICAL FUNCTIONAL ANATOMY. (2)
A regional study of common pathomechanical conditions of the neuromusculoskeletal systems, including the pathomechanics of human motion and an introduction to basic neuromusculoskeletal assessment techniques for each anatomical region. Prereq: PT 805.

PT 815 BASIC CLINIC SKILLS. (4)
Theory, techniques, rationale, physiological effects, and indications of basic physical therapeutic procedures of hydrotherapy and massage, muscle testing and goniometry evaluations, gait analysis and muscle function are presented in lecture. Techniques are demonstrated and practiced in laboratory. Prereq: ANA 811, ANA 813, PT 834, PT 805 should be taken concurrently or consent of instructor.

PT 816 SUMMER CLERKSHIP. (2)
The student participates in a 17-day session at a specialized camping facility for handicapped children (Camp Kysoc). They participate in the 24-hour-per-day care of these children in conjunction with students from other specialties, e.g., general, special, and physical education, recreation, social work, and nursing. Offered on a pass-fail basis only. Prereq: Admission to the physical therapy curriculum.

PT 826 PROSTHETICS. (2)
Prepare the student as a participating member of a prosthetic clinic team with emphasis on the role of the physical therapist. Patient evaluation, pre- and post-prosthetic training techniques are demonstrated and practiced. Lecture, one hour; laboratory, three hours. Prereq: PT 815, AHE 854, or consent of instructor.

PT 827 ORTHOTICS AND SPINAL CORD REHABILITATION TECHNIQUES. (3)
Prepare the student as a participating member of an orthotic and rehabilitation clinic team with emphasis on the role of the physical therapist. Patient evaluation, physical restoration, and vocational training for a variety of long-term illnesses are presented, discussed, demonstrated, and clinical techniques practiced. Prereq: PT 826, ANA 802, BIO 350 or consent of instructor.

PT 828 INTRODUCTION TO GERONTOLOGY FOR HEALTH SCIENCE STUDENTS. (1)
A study of the fundamental concepts of aging including physiology, medical, behavioral, nursing and physical therapy implications. Field visits will be arranged. Eleven lecture hours per semester; eight laboratory hours per semester. Prereq: Allied Health students or consent of instructor.

PT 834 INTRODUCTION TO PHYSICAL THERAPY. (2)
An orientation to the profession of physical therapy including history, professional organization, role in health care, ethical and medicolegal considerations, elementary patient care skills, use of medical library and professional documentation. Prereq: Admission to the Physical Therapy curriculum.

PT 835 CLINICAL CLERKSHIP I. (1)
The student observes patient treatment by experienced staff members and is supervised in the performance of elementary procedures involved in patient care. Offered on a pass-fail basis only. Prereq: PT 834, ANA 801, ANA 811, ANA 813, BIO 350 or consent of instructor.

PT 837 CLINICAL CLERKSHIP II. (3)
Under competent supervision, students participate clinically in the care of patients in a variety of extramural facilities: general, children's and Veteran's Administration hospitals, and special out-patient facilities. Offered on a pass/fail basis. Prereq: PT 805, 806, 856, 835, 826, 815, 846.

PT 838 CLINICAL CLERKSHIP IV. (2)
Continuation of PT 837. Includes a unit of study planning and coordination of hospital and community services in comprehensive care of patients by way of seminars and case presentations. Offered on a pass/fail basis only. Clinic, 130 hours. Prereq: PT 877, PT 806, AHE 855, PT 887, PT 827, PT 837, PT 847, PT 857, or consent of instructor.

PT 839 CLINICAL INTERNSHIP IN PHYSICAL THERAPY. (9-16)
Supervised internship through which the student acquires understanding and skill in physical therapy procedures. Offered on a pass-fail basis. Sixty clock hours equal one credit hour. Prereq: AHE 841, PT 838 and completion of all other physical therapy academic courses.

PT 846 MEDICAL AND PHYSICAL THERAPY MANAGEMENT OF ORTHOPEDIC PROBLEMS. (2)
An introduction to medical procedures, including history, physical exam, laboratory data, radiographic film and medical and physical therapy management of orthopedic problems, including fractures, soft tissue injuries, scoliosis, joint replacements, muscle transplants and tendon repairs, will be presented. Prereq: PT 805, PT 815, AHE 854, or consent of instructor.

PT 847 MEDICAL AND PHYSICAL THERAPY MANAGEMENT OF NEUROLOGICAL PROBLEMS. (3)
Medical and Physical Therapy management of neurological problems, including the neurological examination, seizures, degenerative and neurological diseases, will be presented. Lecture/laboratory, patient contact, and case study formats will be used. Lecture, two hours; laboratory, two hours. Prereq: ANA 802, PGY 502, or consent of instructor.

PT 856 THERAPEUTIC EXERCISE I. (1)
This introductory course provides an overview of therapeutic exercise and its relation to patient management, and development of skill in basic therapeutic exercise approaches for improving muscle performance, relaxation, and mobilization. Lecture and laboratory session are included. Prereq: ANA 811, PGY 412G.

PT 857 THERAPEUTIC EXERCISE II. (4)
Includes the physiological effects of exercise; neurophysiological basis of movement and its relation to treatment of patients with central nervous system deficits; and the development of skill in utilizing therapeutic exercise techniques which emphasize proprioceptive feedback. Prereq: PT 856, ANA 802 or consent of instructor.

PT 858 THERAPEUTIC EXERCISE III. (4)
Includes the normal and abnormal development of movement and its relation to treatment of children with central nervous system deficits. Medical and physical therapy management of patients with burns, mental retardation and oral control problems are also presented in lecture and laboratory. Prereq: PT 857.

PT 864 RESEARCH METHODOLOGY. (2)
This course will introduce the student to the scientific method of problem solving, basic statistics with emphasis on interpretation and analysis of scientific literature. Prereq: PT 834 or consent of instructor.

PT 866 ELECTROMODALITIES. (1)
Theory and techniques of electromodalities are presented. Techniques are demonstrated and practiced in laboratory. Lab, two hours. Prereq: BIO 350, ANA 811, ANA 802, AHE 854, PT 815, PT 834 or consent of instructor.

PT 868 RESEARCH PROBLEMS. (2)
This course is intended to introduce the student to methods of analyzing data and problems of writing a scientific paper for publication. Students are required to collect and analyze data as it relates to their research problems. Also required is an oral presentation of their finished manuscript. Prereq: Admission to the physical therapy curriculum.

PT 876 ELECTROPHYSIOLOGICAL TESTING AND THERAPEUTICS. (2)
The student is introduced to the principles of electricity, how it affects the muscle and nerve, its use in physical therapy for patient assessment and management, and its safety aspects. Lectures and laboratory exercises are included. Prereq: ANA 802, ANA 815, PT 847, PGY 412G.

PT 877 CARDIO-RESPIRATORY THERAPY. (2)
A combined lecture, laboratory series dealing with the mechanics and physiology of normal cardio-respiratory functions; medical and surgical pathologies; and physical theory evaluation and treatment techniques for respiratory problems, cardiac arrhythmias, myocardial infraction rehabilitation, and various cardiac stress tests. Prereq: ANA 811, BIO 350, AHE 854.

PT 887 INTRODUCTION TO PHYSICAL THERAPY MANAGEMENT. (1)
An introduction to basic management techniques including purpose, goals and objectives; contracts; task statements and analysis; position descriptions; medicare and medicaid; quality assurance; placement services. Prereq: PT 834.

PT 888 ADVANCED PHYSICAL THERAPY MANAGEMENT. (3)
Emphasis is placed on operational aspects of physical therapy department including relationship to total facility operation, designing and equipping a department, contracts, salaries, fees, personnel policies, records, data processing, budget process, medical-legal implication, continuing education, and the consultative process. Prereq: PT 887 or consent of instructor.

PT 898 INDEPENDENT STUDY. (1-4)
The student will pursue in-depth a particular aspect of physical therapy or related fields. May be repeated to a maximum of four credits. Prereq: Consent of instructor.

PHYSICIAN ASSISTANT STUDIES

PAS 842 CLINICAL PRACTICUM IN PHYSICIAN ASSISTANT STUDIES. (1-6)
This field assignment offers supervised clinical experience appropriate to the PA student's chosen area of practice. May be repeated to a maximum of 12 credits. Studio, 40 hours per week. Prereq: Enrollment in Physician Assistant Program.

PAS 850 CLINICAL METHODS. (3)
This course is designed to provide the general principles of obtaining medical histories and performing physical examinations. Lecture, two hours; laboratory, three hours. Prereq: Enrollment in the Physician Assistant Program.

PAS 851 INTRODUCTION TO THE PROFESSION. (1)
This course provides an overview of selected areas of primary health care delivery and focuses on contemporary dimensions of the physician assistant role within these systems. In addition, the course provides a forum for examination of critical issues impacting on current and future roles of physician assistants. The goal is to provide students with an informational and conceptual basis from which they can begin to assume the role of a physician assistant. Prereq: Enrollment in the Physician Assistant Program.

PAS 853 INTRODUCTION TO HEALTH AND DISEASE. (3)
An overview of the etiology, distribution, and prevention of basic disease processes. Prereq: Enrollment in Physician Assistant Program.

PAS 854 CLINICAL LECTURE SERIES. (5)
A study of common disease entities identifying causes, clinical presentation, diagnostic evaluation, and management. Emphasis is on primary care problems with substantial overlap in the major medical specialties. Prereq: Enrollment in Physician Assistant Program or consent of instructor.

PAS 855 PSYCHOSOCIAL FACTORS IN PRIMARY HEALTH CARE. (3)
This course focuses on psychosocial factors which play an important role in the development and treatment of common primary health care problems. Prereq: Admission to Physician Assistant Program.

PAS 856 PATIENT EVALUATION AND MANAGEMENT. (3)
A combination of formal presentations, laboratory practice sessions, and supervised patient care experiences involving patient evaluation and management skills. Lecture, one hour; laboratory, five hours per week. Prereq: Enrollment in Physician Assistant Program or consent of instructor.

PAS 857 CLINICAL LABORATORY PROCEDURES. (2)
This is a survey laboratory course covering common laboratory procedures performed in the primary care clinical setting. Emphasis will be placed on performing and interpreting basic clinical tests. Lecture, one hour; laboratory, three hours per week. Prereq: Enrollment in the Physician Assistant Program.

PAS 860 FAMILY MEDICINE CLERKSHIP. (5)
This is a five-week clinical course designed to provide the student physician assistant experience associated with family medicine. The student will have the opportunity to function in either an office-based or clinical setting supervised by a family physician. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 861 PEDIATRIC CLERKSHIP. (5)
This is a five-week clinical course designed to acquaint the student physician assistant with clinical experience in evaluating pediatric patients. The student will have the opportunity to function within a pediatric practice under medical supervision. Emphasis will be placed on the diagnosis and management of diseases of children. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 862 OBSTETRICS AND GYNECOLOGY CLERKSHIP. (5)
This is a five-week course designed to provide the student physician assistant experiences in the care of the obstetrical patient involving prenatal labor and delivery and post-partum care under medical supervision. Emphasis will be placed on gynecologic problems commonly seen in primary care settings. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 863 SURGERY CLERKSHIP. (5)
This is a five-week clinical course that provides the student physician assistant experiences in the management of patients with surgical problems. Emphasis will be placed on the central principles of surgery. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 867 PRECEPTORSHIP I. (4)
Provides the PA student with the opportunity to integrate his previous year of didactic education and seven months of clinical course work into a functioning system. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 868 PRECEPTORSHIP II. (4)
This course provides the student with the opportunity to integrate his previous year of didactic education and seven months of clinical course work into a functioning system. This course is a continuation of Preceptorship I. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 869 INTERNAL MEDICINE CLERKSHIP. (5)
This course provides the students with an experience in evaluating the adult patient with the variety of acute and chronic problems seen in an outpatient setting. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 870 EMERGENCY MEDICINE CLERKSHIP. (5)
This course provides the student with training in triaging, evaluating and managing patients with a wide variety of complaints seen in an emergency room setting. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 871 PSYCHIATRIC CLERKSHIP. (5)
This course provides the student with an experience in evaluating psycho-social problems and mental health in an outpatient setting, and observation of the ongoing management of these problems. An assigned textbook and specified reading assignments will be required. In addition, students will be required to successfully pass practical as well as written examinations on course content. Prereq: Successful completion of the junior year and enrollment in the Physician Assistant Program.

PAS 872 PRACTICAL THERAPEUTICS. (3)
The purpose of this course is to provide the student with an understanding of the practical use of drugs utilized in primary care. Prereq: Enrollment in the Physician Assistant Program.

PAS 880 SEMINAR IN PHYSICIAN ASSISTANT STUDIES. (1-3)
A study of selected topics and contemporary issues regarding the delivery of health care services by physician assistants. May be repeated to a maximum of six credits. Prereq: Enrollment in Physician Assistant Program or consent of instructor.

PHYSICS

Note: It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "consent of instructor."

PHY 105 PHYSICS AND ASTRONOMY TODAY. (1)
This course is intended for freshmen and others who wish to find out what physics is and how it relates to other fields of study. It is especially useful for physics majors or for those considering physics as a major or minor. One demonstration lecture per week presented by various members of the physics faculty. May only be taken on a pass/fail basis.

PHY 140 ACOUSTICS OF MUSIC INSTRUMENTS. (3)
First musical sounds themselves will be analyzed. Then the tone production of the following musical instruments will be studied: keyboard string instruments, bowed string instruments, brass instruments, organ pipes and woodwinds. Lecture, discussion and demonstrations, three hours.

PHY 151 INTRODUCTION TO PHYSICS. (3)
A lecture demonstration course covering the mechanics of solids, liquids, gases, heat, and sound. Credit is not given to students who already have credit for PHY 201, 211 or 231.

PHY 152 INTRODUCTION TO PHYSICS. (3)
A lecture demonstration course covering magnetism and electricity, and optics. Credit is not given to students who already have credit for PHY 203, 213 or 232.

PHY 201 GENERAL ELEMENTARY PHYSICS. (4)
Same as PHY 211, but without laboratory. Credit is not given to students who already have credit for PHY 211 or 231. Prereq: A working knowledge of algebra as obtainable, for example, in MA 109 or MA 122-123, or demonstrated by an ACT standard score in mathematics of at least 25.

PHY 203 GENERAL ELEMENTARY PHYSICS. (4)
Same as PHY 213, but without laboratory. Credit is not given to students who already have credit for PHY 213 or 232. Prereq: PHY 201.

PHY 211 GENERAL ELEMENTARY PHYSICS. (5)
An elementary course covering the mechanics of solids, liquids, and gases; and heat. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for PHY 231 and 241. Prereq: A working knowledge of algebra as obtainable, for example, in MA 109 or MA 122-123, or demonstrated by an ACT standard score in mathematics of at least 25.

PHY 213 GENERAL ELEMENTARY PHYSICS. (5)
Continuation of PHY 211, covering magnetism and electricity, sound, optics and radiation physics. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for 232 and 242. This course is a prerequisite to a significant number of courses in this and related areas of study. Prereq: PHY 211 or equivalent.

PHY 231 GENERAL UNIVERSITY PHYSICS. (4)
An advanced general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture, three hours; recitation, one hour. Prereq or concur: MA 114.

PHY 232 GENERAL UNIVERSITY PHYSICS. (4)
An advanced general course covering electricity, magnetism, and optics. Lecture, three hours; recitation, one hour. This course is prerequisite to a significant number of courses in this and related areas of study. Prereq: PHY 231; concur: MA 213.

PHY 241 GENERAL UNIVERSITY PHYSICS LABORATORY. (1)
An advanced general laboratory course with experiments on the mechanics of solids, liquids, and gases; and on heat and sound. Prereq or concur: PHY 231.

PHY 242 GENERAL UNIVERSITY PHYSICS LABORATORY. (1)
An advanced general laboratory course with experiments on electricity, magnetism, and light. This course is prerequisite to other courses in physics and related areas of study. Prereq: PHY 241; concur: PHY 232.

PHY 361 PRINCIPLES OF MODERN PHYSICS. (3)
An introduction to the principles of special relativity, elementary concepts of quantum mechanics and selected topics in atomic and nuclear physics. Prereq: MA 114, PHY 211 or 231, PHY 213 or 232. Note: If necessary, PHY 213 or 232 may be taken concurrently with PHY 361.

PHY 395 INDEPENDENT WORK IN PHYSICS. (1-3)
Students may select an approved topic for study under the direction of a faculty member. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

PHY 401G SPECIAL TOPICS IN PHYSICS AND ASTRONOMY FOR ELEMENTARY AND HIGH SCHOOL TEACHERS. (2-4)
Selected topics in physics and astronomy of special interest to teachers will be discussed. When the course is offered, a specific title with specific credits, the number of hours in lecture-discussion and laboratory will be announced. Lecture/discussion, two-four hours; laboratory, zero-four hours. May be repeated to a maximum of eight credits. Prereq: Open only to elementary school and/or high school teachers; consent of instructor.

PHY 402G ELECTRONIC INSTRUMENTATION AND MEASUREMENTS. (3)
Elementary laboratory treatment of electronic circuits. Topics will include AC circuits, filters, simple circuits using transistors and other semiconductor devices, simple treatment of operational amplifiers, and an introduction to digital circuits. Lecture, two hours; laboratory, three hours. (Note: Not open for graduate credit to graduate students in Physics and Electrical Engineering.) Prereq: EE 305 or PHY 242 or consent of instructor. (Same as EE 402G.)

PHY 404G MECHANICS. (3)
A lecture and problem course covering the fundamental laws of mechanics. Newton's Laws, statics and dynamics of a particle and rigid bodies, and oscillatory motion. Prereq: PHY 232, 242 or 213; concur: MA 214.

PHY 416G ELECTRICITY AND MAGNETISM. (3)
A lecture and problem course covering the theory of electrostatic fields, conductors, dielectrics, and steady currents. Prereq: PHY 232, 242 or 213; MA 213.

PHY 417G ELECTRICITY AND MAGNETISM. (3)
A continuation of PHY 416G. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents and electromagnetic radiation. Prereq: PHY 416G.

PHY 472G INTERACTION OF RADIATION WITH MATTER. (3)
Basic aspects of the interaction of ionizing radiation with matter. Bohr atom, atomic spectra, radioactivity, energetics of decay. Sources of radiation, penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; selected nuclear reactions; basic radiation detection and dosimetry. Prereq: PHY 213 or 232; MA 114 (may be taken concurrently); or equivalent. (Same as RM 472G.)

PHY 504 ADVANCED MECHANICS. (3)
A continuation and extension of PHY 404G. Includes dynamics of a particle, rigid bodies, Lagrange's equations, constrained motions, and oscillations. Prereq: PHY 404G, MA 214.

PHY 506 METHODS OF THEORETICAL PHYSICS I. (3)
The course and its sequel (MA/PHY 507) are designed to develop, for first-year graduate students, familiarity with the mathematical tools useful in physics. Topics include curvilinear coordinates, infinite series, integrating and solving differential equations of physics, and methods of complex variables. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: PHY 404G or equivalent. (Same as MA 506.)

PHY 507 METHODS OF THEORETICAL PHYSICS II. (3)
Continuation of MA/PHY 506. Fourier and Laplace Transforms, the special functions (Bessel, Elliptic, Gamma, etc.) are described. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: MA/PHY 506. (Same as MA 507.)

PHY 508 OPTICS. (3)
A lecture and problems course covering the basic phenomena of geometrical and physical optics. Topics include thick lenses, apertures, wave motion, interference, diffraction, polarization, double refraction, and the theory of selected optical instruments. Prereq: PHY 232, 242 or 213; MA 213.

PHY 520 INTRODUCTION TO QUANTUM MECHANICS. (3)
A lecture and problem course providing an introduction to quantum mechanics at the undergraduate level. Primary emphasis is on the Schrodinger equation, and its applications. Prereq: PHY 361, MA 214.

PHY 522 HEAT AND THERMODYNAMICS. (3)
A lecture and problem course stressing some of the fundamental principles of heat phenomena, the laws of thermodynamics, equations of state for ideal and real gases, continuity, derivation of thermodynamic relations. Prereq: PHY 361 and MA 214.

PHY 524 AND 525 SOLID STATE PHYSICS. (3 ea.)
Introductory solid state physics with emphasis on the properties of electrons in crystals; crystal structure, crystal diffraction, reciprocal lattice, lattice vibrations and phonons, free electron theory, energy bands in solids, semiconductors. Prereq: (For 524) PHY 520 or consent of instructor. PHY 525 is a continuation of PHY 524. Crystal binding; elastic constants and elastic waves; superconductivity; ferromagnetism; optical and transport properties of metals, semiconductors, insulators, and interfaces. Prereq: (For 525) PHY 524.

PHY 530 EXPERIMENTAL PHYSICS: SPECTROSCOPY. (2)
An advanced laboratory course in the use and properties of various light sources, spectrographs, photographic materials, and photometric methods; analysis of unknown materials by spectrographic methods. Prereq: PHY 508 or 510.

PHY 535 EXPERIMENTAL PHYSICS: ATOMIC AND NUCLEAR. (2)
Measurement of e, e/m, h/e, resonance potentials, X-ray absorption, half-lives, beta-ray and gamma-ray absorption, gamma spectra, specific activity, alphaparticle ranges, and radiation dosage. Prereq: PHY 361.

PHY 538 EXPERIMENTAL PHYSICS: LIGHT. (2)
An advanced laboratory course dealing with the properties of lenses, mirrors, prisms, gratings, and combinations of these elements in optical systems. The important phenomena of optics are studied experimentally by means of microscope, telescope, spectrometer, interferometer, polarimeter. Prereq: PHY 508.

PHY 545 RADIATION HAZARDS AND PROTECTION. (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and nonionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as HRS/RM 545.)

PHY 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as RM/HRS 546.)

PHY 554 FUNDAMENTAL ATOMIC PHYSICS. (3)
Topics covered include electromagnetic radiation, atomic spectra and their interpretation in terms of atomic models, the Zeeman and Stark effects. Prereq: PHY 520.

PHY 555 FUNDAMENTAL NUCLEAR PHYSICS. (3)
Topics covered include nuclear systematics, the nucleon-nucleon-interaction, nuclear models, radioactivity, nuclear reactions, fission and fusion. Prereq: PHY 520.

PHY 567 INTRODUCTION TO LASERS AND MASERS. (3)
Basic principles of laser action, atomic transitions; population inversion; two-and three-level systems; optical resonators; pumping methods; applications. Prereq: Engineering upper division status or consent of instructor. (Same as EE 567.)

PHY 591 COSMOLOGY I. (3)
Consideration of observational basis of cosmology, cosmological theories of general relativity, the steady state theory, and kinematic relativity. Prereq: MA 213.

PHY 592 COSMOLOGY II. (3)
A study of the universe as a complete physical unit. Consideration of the various relativistic models and theory evaluation in the light of current observations. Prereq: PHY 591.

PHY 595 INTRODUCTION TO ASTROPHYSICS I. (3)
Introductory astrophysics with emphasis on the basic physics which governs the behavior of selected phenomena in the universe. Topics include stellar structure and evolution, and the interstellar medium. Prereq: PHY 361 and PHY 417G. (Same as AST 595.)

PHY 600 SELECTED TOPICS IN ADVANCED PHYSICS. (2-3)
Topics of an advanced and specialized nature such as the theory of angular momentum, topics in advanced theoretical nuclear physics, topics in advanced statistical mechanics. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

PHY 604 CLASSICAL MECHANICS. (3)
A lecture and problem course covering the methods of Lagrange and Hamilton and their application to particles, systems of particles, and continuous media; variational principles; and transformation theory. Prereq: PHY 504, MA 214.

PHY 611 ELECTROMAGNETIC THEORY I. (3)
A lecture and problem course treating electrostatics, boundary conditions, potential problems, energy in electric and magnetic fields, magnetic materials and Maxwell's equations. Prereq: PHY 416G; MA 214.

PHY 613 ELECTROMAGNETIC THEORY II. (3)
Continuation and extension of PHY 611. Includes theory of electromagnetic waves and applications to optical phenomena of reflection, refraction, polarization and absorption. Prereq: PHY 611.

PHY 624, 625 THEORY OF THE SOLID STATE. (3 ea.)
A lecture and problem course covering the fundamental theories of the structure and properties of solids, including lattice dynamics, electron propagation, electrical, thermal and optical properties. Prereq: PHY 524, 525 and 714.

PHY 629 NUCLEAR PHYSICS I. (3)
A lecture and problem course dealing with advanced experimental nuclear physics. Topics include properties of nuclei, nuclear transformations, observational methods, radioactivity and interaction of radiation with matter. Prereq: PHY 604.

PHY 630 NUCLEAR PHYSICS II. (3)
A lecture and problem course concerned with the theories of the structure of atomic nuclei. Topics include nuclear shell structure, internuclear forces, nuclear binding energies, and theory of nuclear reactions. Prereq: PHY 714.

PHY 632 STATISTICAL MECHANICS. (3)
A lecture and problem course dealing with the thermal properties of matter from the standpoint of statistical mechanics. Topics include thermodynamic properties, perfect gases, and Fermi-Dirac statistics. Prereq: PHY 522, 604.

PHY 639 THEORETICAL ASTROPHYSICS. (3)
A study of the physics of astronomical universe. A study of those branches of physics which have thus far proved most useful in astronomical applications and a thorough treatment of several major astronomical problems which have been elucidated by these methods. Prereq for PHY 639: PHY 504, 611. Prereq for PHY 640: PHY 639 or equivalent.

PHY 714 QUANTUM MECHANICS I. (3)
A lecture course covering a brief review of the origin of quantum theories, mathematical techniques of quantum mechanics, the general aspects of wave mechanics and matrix mechanics, the uncertainty principle.

PHY 715 QUANTUM MECHANICS II. (3)
A continuation of PHY 714 with extensions into special methods of solving problems in the theory, problems in more than one dimension, and the Pauli and Dirac theories of the electron. Prereq: PHY 714.

PHY 716 ADVANCED QUANTUM MECHANICS. (3)
A continuation of PHY 715. Topics covered will include the relativistic wave equations, second quantization, quantum electrodynamics. Prereq: PHY 715.

PHY 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PHY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PHY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PHY 770 COLLOQUIUM. (1)
A weekly meeting of the staff and advanced students for the discussion of recent developments in physics and of work in progress in the department. Credit is given to those who satisfactorily present papers. May be repeated to a maximum of eight credits.

PHY 781 INDEPENDENT WORK IN PHYSICS. (3)
May be repeated to a maximum of 12 credits.

PHY 790 RESEARCH IN PHYSICS. (3)
May be repeated to a maximum of six credits.

PHY 791 RESEARCH IN PHYSICS. (5)
May be repeated to a maximum of 10 credits.

PLANT PATHOLOGY

PPA 400G PRINCIPLES OF PLANT PATHOLOGY. (3)
To present students with the principles of plant pathology. The causes, effects, control and nature of plant diseases will be studied; the laboratory will expose students to common diseases and pathogens discussed in lecture. Emphasis will be given to diseases important in Kentucky. Lecture, two hours; laboratory, two hours. Prereq: One semester of botany (e.g. BIO 351) and microbiology (e.g. BIO 108/109) or consent of instructor.

PPA 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107, BIO 150 and 151 or BIO 351. (Same as FOR 410.)

PPA 503 PLANT BIOCHEMISTRY. (3)
The chemical constituents of plants, their interaction and the regulation of their interaction in key plant metabolic systems will be studied. Included in the course will be discussions of photosynthesis, nitrogen fixation, nitrate reduction, nitrogen assimilation, plant growth and its regulation and the structure and metabolism of constituents unique to plants. Prereq: BCH 501 and 502 or CHE 550 and 552 or equivalent. May be taken concurrently with BCH 502 or CHE 552. (Same as BCH 503.)

PPA 595 EPIDEMIOLOGY AND CONTROL OF PLANT DISEASES. (4)
Disease valuation and modeling; effects of environment on disease; and control of disease by genetic, cultural, biological and chemical methods. Lecture: three hours; laboratory, two hours. Prereq: PPA 400G.

PPA 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BIO/BCH/MI 601.)

PPA 640 IDENTIFICATION OF PLANT DISEASES. (3)
Recognition and identification of plant diseases and their causes and development. The course is designed to give students practical experience in dealing with a wide array of plant diseases, symptom expressions, causal agents and interactions wtih environmental factors encountered in the difficult task of identifying plant diseases. May be repeated to a maximum of nine credits. Lecture, one hour; laboratory, six hours. Prereq: PPA 400G or equivalent.

PPA 652 PLANT PATHOGENIC FUNGI. (3)
An advanced study of plant pathogenic fungi with emphasis on diagnosis and identification of fungus plant diseases and innoculation and infection of plants. Lecture, two hours; laboratory, three hours. Prereq: PPA 400G.

PPA 656 PLANT VIROLOGY. (4)
Structure of viruses and viroids that cause plant diseases; replication and genome expression; biology of plant virus infections; ecology, epidemiology and control strategies for virus diseases. Two 75-minute lectures; one four-hour laboratory weekly. Prereq: PPA 400G and BCH 401G or consent of instructor.

PPA 660 DYNAMICS OF PLANT-PATHOGEN INTERACTIONS. (3)
Lectures, discussions, and independent reading on biochemical, cytological, molecular and phyiological aspects of plant disease. Prereq: PPA 400G, BCH 501, BCH 502, PPA 503 or BIO 735; consent of instructor.

PPA 661 GENETICS OF PLANT-MICROBE INTERACTIONS. (3)
Genetics and molecular genetics of interactions between organisms. Primary emphasis will be plant interactions with fungi and bacteria. Areas of study will be: principles of interorganismal genetics and the gene-for-gene model; race-cultivar interactions; genetic determinants of disease in pathogenic relationships, and symbiosis in mutualistic relationships. Examples will include Flor's flax/flax rust system, plant transformation by *Agrobacterium*, mutualisms involving *Rhizobium*, and others. Prereq: AGR 562 or equivalent, or consent of instructor.

PPA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PPA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PPA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PPA 770 PLANT PATHOLOGY SEMINAR. (1)
Reports and discussion of problems and investigations of problems in plant pathology. May be repeated to a maximum of four credits.

PPA 784 SPECIAL PROBLEMS IN PLANT PATHOLOGY. (1-3)
May be repeated to a maximum of nine credits. Prereq: PPA 400G.

PPA 794 RESEARCH IN PLANT PATHOLOGY. (1-4)
May be repeated to a maximum of 12 credits. Prereq: PPA 400G.

POLITICAL SCIENCE

Note: It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "consent of instructor."

PS 101 AMERICAN GOVERNMENT. (3)
A survey of national government and the political process in the United States, with emphasis on the Constitution, the President, Congress, and the judicial system.

PS 202 ORIENTATION TO POLITICAL SCIENCE. (1)
An introduction to topics studied by political scientists and the techniques used in these studies. Lectures, discussions and assigned readings will cover major fields of the discipline and will introduce students to research methods. The course will be offered Pass/Fail only.

PS 210 COMPARATIVE POLITICS AND POLITICAL DEVELOPMENT. (3)
An introduction to the comparative study of domestic policies in other nations with an emphasis on the topic of political change. Course will include developed and developing nations.

PS 235 WORLD POLITICS. (3)
A study of the most significant problems of world politics, including the fundamental factors governing international relations, the techniques and instruments of power politics, and the conflicting interests in organizing world peace.

PS 240 IDEOLOGY, POLITICAL CHANGE, AND CONTEMPORARY INDUSTRIAL SOCIETY. (3)
A study of contemporary political ideas, social and political change, and their reciprocal relationship primarily in the advanced industrial societies. Ideology as a tool of both political action and analysis will be examined. Substantive discussion of political doctrines will deal with traditional and contemporary forms of liberalism, conservatism, socialism, anarchism and fascism, as well as current revolutionary movements and ideologies.

PS 245 INTRODUCTION TO POLITICAL ANALYSIS. (3)
Introduction to the basic knowledge of research methodology in political science; a review of methods of data collection; historical, quantitative and comparative techniques of analysis.

PS 255 STATE GOVERNMENT. (3)
An introduction to the institutions, political processes and policies of state governments, and the relationships of state governments with other levels of government in the United States.

PS 271 INTRODUCTION TO POLITICAL BEHAVIOR. (3)
The study of behavior in a political context; the analysis of basic behavioral concepts used in political science such as political roles, group behavior, belief systems, personality, power and decision-making.

PS 280 ISSUES IN PUBLIC POLICY. (3)
An examination of selected major public policy problems, focusing on their nature, political ramifications and alternate methods of dealing with them. Policies covered will vary from semester to semester, but will include such areas as poverty, health care, energy, education, race relations, environment, etc. Prereq: PS 101.

PS 390 SEMINAR IN POLITICAL SCIENCE. (1-3)
A topical seminar primarily for majors in political science and in related fields. May be repeated to a maximum of 12 credits in seminars of differing topics. Prereq: A standing of 3.0 in the student's major department or consent of instructor.

PS 395 INDEPENDENT WORK. (1-6)
Consent of instructor. May be repeated to a maximum of 12 credits. Prereq: A standing of 3.0 in political science courses.

PS 399 INTERNSHIP IN GOVERNMENT. (1-6)
This course is designed for students who are participating in a state, local or federal internship program with which the political science department is associated. The student must have approval of the department chairperson upon the recommendation of the Committee on Internship and Experiential Education to take the course, negotiate a learning contract with a departmental academic supervisor, and provide the department with a report or a paper on his internship. Pass/Fail only. May be repeated to a maximum of 12 credits.

PS 412G COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES II. (3)
A study of the political systems of selected continental European countries with special attention to France and Germany.

PS 417G SURVEY OF SUB-SAHARAN POLITICS. (3)
A survey of sub-Saharan government and politics intended to give the student broad knowledge about the setting of African politics, precolonial African political systems, the political legacies of major European colonial powers, and problems of political development.

PS 419G THE GOVERNMENTS AND POLITICS OF EASTERN ASIA. (3)
A comparative analysis of the modern political experiences of China and Japan, exploring their responses to the West, the development of differing political elites in each country, and contemporary problems of the Chinese Communist and Japanese politics.

PS 420G GOVERNMENTS AND POLITICS OF SOUTH ASIA. (3)
A comparative analysis of contemporary political development in India, Pakistan, Bangladesh and Sri Lanka, with emphasis on political cultures, participation, institutions and the capabilities of these political systems.

PS 421G GOVERNMENT AND POLITICS OF SOUTHEAST ASIA. (3)
Study of the political processes, problems and behavior of the several states of Southeast Asia with emphasis on their chief determinants. The different patterns of political development will be examined. Lecture, three hours.

PS 427G EAST EUROPEAN POLITICS. (3)
This course is meant to provide an opportunity for advanced undergraduates and graduate students to (1) understand the historical, socioeconomic and philosophical context of the communist party states in Eastern Europe, (2) to learn who governs in Eastern Europe and the structures through which they rule, (3) to assess the "dynamics" of communist politics, i.e., factors contributing to political change vis-a-vis political continuity. Prereq: Junior or senior standing and instructor's written permission.

PS 428G LATIN AMERICAN GOVERNMENT AND POLITICS. (3)
A study of contemporary Latin American political institutions and of the dynamics of the Latin American political process.

PS 429G GOVERNMENT AND POLITICS OF THE SOVIET UNION. (3)
Analysis of political development in the Soviet Union with emphasis on party-government relations, Communist ideology, and major approaches to the study of Soviet politics.

PHY 242 GENERAL UNIVERSITY PHYSICS LABORATORY. (1)
An advanced general laboratory course with experiments on electricity, magnetism, and light. This course is prerequisite to other courses in physics and related areas of study. Prereq: PHY 241; concur: PHY 232.

PHY 361 PRINCIPLES OF MODERN PHYSICS. (3)
An introduction to the principles of special relativity, elementary concepts of quantum mechanics and selected topics in atomic and nuclear physics. Prereq: MA 114, PHY 211 or 231, PHY 213 or 232. Note: If necessary, PHY 213 or 232 may be taken concurrently with PHY 361.

PHY 395 INDEPENDENT WORK IN PHYSICS. (1-3)
Students may select an approved topic for study under the direction of a faculty member. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

PHY 401G SPECIAL TOPICS IN PHYSICS AND ASTRONOMY FOR ELEMENTARY AND HIGH SCHOOL TEACHERS. (2-4)
Selected topics in physics and astronomy of special interest to teachers will be discussed. When the course is offered, a specific title with specific credits, the number of hours in lecture-discussion and laboratory will be announced. Lecture/discussion, two-four hours; laboratory, zero-four hours. May be repeated to a maximum of eight credits. Prereq: Open only to elementary school and/or high school teachers; consent of instructor.

PHY 402G ELECTRONIC INSTRUMENTATION AND MEASUREMENTS. (3)
Elementary laboratory treatment of electronic circuits. Topics will include AC circuits, filters, simple circuits using transistors and other semiconductor devices, simple treatment of operational amplifiers, and an introduction to digital circuits. Lecture, two hours; laboratory, three hours. (Note: Not open for graduate credit to graduate students in Physics and Electrical Engineering.) Prereq: EE 305 or PHY 242 or consent of instructor. (Same as EE 402G.)

PHY 404G MECHANICS. (3)
A lecture and problem course covering the fundamental laws of mechanics. Newton's Laws, statics and dynamics of a particle and rigid bodies, and oscillatory motion. Prereq: PHY 232, 242 or 213; concur: MA 214.

PHY 416G ELECTRICITY AND MAGNETISM. (3)
A lecture and problem course covering the theory of electrostatic fields, conductors, dielectrics, and steady currents. Prereq: PHY 232, 242 or 213; MA 213.

PHY 417G ELECTRICITY AND MAGNETISM. (3)
A continuation of PHY 416G. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents and electromagnetic radiation. Prereq: PHY 416G.

PHY 472G INTERACTION OF RADIATION WITH MATTER. (3)
Basic aspects of the interaction of ionizing radiation with matter. Bohr atom, atomic spectra, radioactivity, energetics of decay. Sources of radiation, penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; selected nuclear reactions; basic radiation detection and dosimetry. Prereq: PHY 213 or 232; MA 114 (may be taken concurrently); or equivalent. (Same as RM 472G.)

PHY 504 ADVANCED MECHANICS. (3)
A continuation and extension of PHY 404G. Includes dynamics of a particle, rigid bodies, Lagrange's equations, constrained motions, and oscillations. Prereq: PHY 404G, MA 214.

PHY 506 METHODS OF THEORETICAL PHYSICS I. (3)
The course and its sequel (MA/PHY 507) are designed to develop, for first-year graduate students, familiarity with the mathematical tools useful in physics. Topics include curvilinear coordinates, infinite series, integrating and solving differential equations of physics, and methods of complex variables. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: PHY 404G or equivalent. (Same as MA 506.)

PHY 507 METHODS OF THEORETICAL PHYSICS II. (3)
Continuation of MA/PHY 506. Fourier and Laplace Transforms, the special functions (Bessel, Elliptic, Gamma, etc.) are described. Work with Green's functions, eigenvalues, matrices and the calculus of variations are included as a part of MA/PHY 506 and 507. Prereq: MA/PHY 506. (Same as MA 507.)

PHY 508 OPTICS. (3)
A lecture and problems course covering the basic phenomena of geometrical and physical optics. Topics include thick lenses, apertures, wave motion, interference, diffraction, polarization, double refraction, and the theory of selected optical instruments. Prereq: PHY 232, 242 or 213; MA 213.

PHY 520 INTRODUCTION TO QUANTUM MECHANICS. (3)
A lecture and problem course providing an introduction to quantum mechanics at the undergraduate level. Primary emphasis is on the Schrodinger equation, and its applications. Prereq: PHY 361, MA 214.

PHY 522 HEAT AND THERMODYNAMICS. (3)
A lecture and problem course stressing some of the fundamental principles of heat phenomena, the laws of thermodynamics, equations of state for ideal and real gases, continuity, derivation of thermodynamic relations. Prereq: PHY 361 and MA 214.

PHY 524 AND 525 SOLID STATE PHYSICS. (3 ea.)
Introductory solid state physics with emphasis on the properties of electrons in crystals; crystal structure, crystal diffraction, reciprocal lattice, lattice vibrations and phonons, free electron theory, energy bands in solids, semiconductors. Prereq: (For 524) PHY 520 or consent of instructor. PHY 525 is a continuation of PHY 524. Crystal binding; elastic constants and elastic waves; superconductivity; ferromagnetism; optical and transport properties of metals, semiconductors, insulators, and interfaces. Prereq: (For 525) PHY 524.

PHY 530 EXPERIMENTAL PHYSICS: SPECTROSCOPY. (2)
An advanced laboratory course in the use and properties of various light sources, spectrographs, photographic materials, and photometric methods; analysis of unknown materials by spectrographic methods. Prereq: PHY 508 or 510.

PHY 535 EXPERIMENTAL PHYSICS: ATOMIC AND NUCLEAR. (2)
Measurement of e, e/m, h/e, resonance potentials, X-ray absorption, half-lives, beta-ray and gamma-ray absorption, gamma spectra, specific activity, alphaparticle ranges, and radiation dosage. Prereq: PHY 361.

PHY 538 EXPERIMENTAL PHYSICS: LIGHT. (2)
An advanced laboratory course dealing with the properties of lenses, mirrors, prisms, gratings, and combinations of these elements in optical systems. The important phenomena of optics are studied experimentally by means of microscope, telescope, spectrometer, interferometer, polarimeter. Prereq: PHY 508.

PHY 545 RADIATION HAZARDS AND PROTECTION. (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and nonionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as HRS/RM 545.)

PHY 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as RM/HRS 546.)

PHY 554 FUNDAMENTAL ATOMIC PHYSICS. (3)
Topics covered include electromagnetic radiation, atomic spectra and their interpretation in terms of atomic models, the Zeeman and Stark effects. Prereq: PHY 520.

PHY 555 FUNDAMENTAL NUCLEAR PHYSICS. (3)
Topics covered include nuclear systematics, the nucleon-nucleon-interaction, nuclear models, radioactivity, nuclear reactions, fission and fusion. Prereq: PHY 520.

PHY 567 INTRODUCTION TO LASERS AND MASERS. (3)
Basic principles of laser action, atomic transitions; population inversion; two-and three-level systems; optical resonators; pumping methods; applications. Prereq: Engineering upper division status or consent of instructor. (Same as EE 567.)

PHY 591 COSMOLOGY I. (3)
Consideration of observational basis of cosmology, cosmological theories of general relativity, the steady state theory, and kinematic relativity. Prereq: MA 213.

PHY 592 COSMOLOGY II. (3)
A study of the universe as a complete physical unit. Consideration of the various relativistic models and theory evaluation in the light of current observations. Prereq: PHY 591.

PHY 595 INTRODUCTION TO ASTROPHYSICS I. (3)
Introductory astrophysics with emphasis on the basic physics which governs the behavior of selected phenomena in the universe. Topics include stellar structure and evolution, and the interstellar medium. Prereq: PHY 361 and PHY 417G. (Same as AST 595.)

PHY 600 SELECTED TOPICS IN ADVANCED PHYSICS. (2-3)
Topics of an advanced and specialized nature such as the theory of angular momentum, topics in advanced theoretical nuclear physics, topics in advanced statistical mechanics. May be repeated to a maximum of nine hours. Prereq: Consent of instructor.

PHY 604 CLASSICAL MECHANICS. (3)
A lecture and problem course covering the methods of Lagrange and Hamilton and their application to particles, systems of particles, and continuous media; variational principles; and transformation theory. Prereq: PHY 504, MA 214.

PHY 611 ELECTROMAGNETIC THEORY I. (3)
A lecture and problem course treating electrostatics, boundary conditions, potential problems, energy in electric and magnetic fields, magnetic materials and Maxwell's equations. Prereq: PHY 416G; MA 214.

PHY 613 ELECTROMAGNETIC THEORY II. (3)
Continuation and extension of PHY 611. Includes theory of electromagnetic waves and applications to optical phenomena of reflection, refraction, polarization and absorption. Prereq: PHY 611.

PHY 624, 625 THEORY OF THE SOLID STATE. (3 ea.)
A lecture and problem course covering the fundamental theories of the structure and properties of solids, including lattice dynamics, electron propagation, electrical, thermal and optical properties. Prereq: PHY 524, 525 and 714.

PHY 629 NUCLEAR PHYSICS I. (3)
A lecture and problem course dealing with advanced experimental nuclear physics. Topics include properties of nuclei, nuclear transformations, observational methods, radioactivity and interaction of radiation with matter. Prereq: PHY 604.

PHY 630 NUCLEAR PHYSICS II. (3)
A lecture and problem course concerned with the theories of the structure of atomic nuclei. Topics include nuclear shell structure, internuclear forces, nuclear binding energies, and theory of nuclear reactions. Prereq: PHY 714.

PHY 632 STATISTICAL MECHANICS. (3)
A lecture and problem course dealing with the thermal properties of matter from the standpoint of statistical mechanics. Topics include thermodynamic properties, perfect gases, and Fermi-Dirac statistics. Prereq: PHY 522, 604.

PHY 639 THEORETICAL ASTROPHYSICS. (3)
A study of the physics of astronomical universe. A study of those branches of physics which have thus far proved most useful in astronomical applications and a thorough treatment of several major astronomical problems which have been elucidated by these methods. Prereq for PHY 639: PHY 504, 611. Prereq for PHY 640: PHY 639 or equivalent.

PHY 714 QUANTUM MECHANICS I. (3)
A lecture course covering a brief review of the origin of quantum theories, mathematical techniques of quantum mechanics, the general aspects of wave mechanics and matrix mechanics, the uncertainty principle.

PHY 715 QUANTUM MECHANICS II. (3)
A continuation of PHY 714 with extensions into special methods of solving problems in the theory, problems in more than one dimension, and the Pauli and Dirac theories of the electron. Prereq: PHY 714.

PHY 716 ADVANCED QUANTUM MECHANICS. (3)
A continuation of PHY 715. Topics covered will include the relativistic wave equations, second quantization, quantum electrodynamics. Prereq: PHY 715.

PHY 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PHY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PHY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PHY 770 COLLOQUIUM. (1)
A weekly meeting of the staff and advanced students for the discussion of recent developments in physics and of work in progress in the department. Credit is given to those who satisfactorily present papers. May be repeated to a maximum of eight credits.

PHY 781 INDEPENDENT WORK IN PHYSICS. (3)
May be repeated to a maximum of 12 credits.

PHY 790 RESEARCH IN PHYSICS. (3)
May be repeated to a maximum of six credits.

PHY 791 RESEARCH IN PHYSICS. (5)
May be repeated to a maximum of 10 credits.

PLANT PATHOLOGY

PPA 400G PRINCIPLES OF PLANT PATHOLOGY. (3)
To present students with the principles of plant pathology. The causes, effects, control and nature of plant diseases will be studied; the laboratory will expose students to common diseases and pathogens discussed in lecture. Emphasis will be given to diseases important in Kentucky. Lecture, two hours; laboratory, two hours. Prereq: One semester of botany (e.g. BIO 351) and microbiology (e.g. BIO 108/109) or consent of instructor.

PPA 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relations and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107, BIO 150 and 151 or BIO 351. (Same as FOR 410.)

PPA 503 PLANT BIOCHEMISTRY. (3)
The chemical constituents of plants, their interaction and the regulation of their interaction in key plant metabolic systems will be studied. Included in the course will be discussions of photosynthesis, nitrogen fixation, nitrate reduction, nitrogen assimilation, plant growth and its regulation and the structure and metabolism of constituents unique to plants. Prereq: BCH 501 and 502 or CHE 550 and 552 or equivalent. May be taken concurrently with BCH 502 or CHE 552. (Same as BCH 503.)

PPA 595 EPIDEMIOLOGY AND CONTROL OF PLANT DISEASES. (4)
Disease valuation and modeling; effects of environment on disease; and control of disease by genetic, cultural, biological and chemical methods. Lecture: three hours; laboratory, two hours. Prereq: PPA 400G.

PPA 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BIO/BCH/MI 601.)

PPA 640 IDENTIFICATION OF PLANT DISEASES. (3)
Recognition and identification of plant diseases and their causes and development. The course is designed to give students practical experience in dealing with a wide array of plant diseases, symptom expressions, causal agents and interactions wtih environmental factors encountered in the difficult task of identifying plant diseases. May be repeated to a maximum of nine credits. Lecture, one hour; laboratory, six hours. Prereq: PPA 400G or equivalent.

PPA 652 PLANT PATHOGENIC FUNGI. (3)
An advanced study of plant pathogenic fungi with emphasis on diagnosis and identification of fungus plant diseases and innoculation and infection of plants. Lecture, two hours; laboratory, three hours. Prereq: PPA 400G.

PPA 656 PLANT VIROLOGY. (4)
Structure of viruses and viroids that cause plant diseases; replication and genome expression; biology of plant virus infections; ecology, epidemiology and control strategies for virus diseases. Two 75-minute lectures; one four-hour laboratory weekly. Prereq: PPA 400G and BCH 401G or consent of instructor.

PPA 660 DYNAMICS OF PLANT-PATHOGEN INTERACTIONS. (3)
Lectures, discussions, and independent reading on biochemical, cytological, molecular and phyiological aspects of plant disease. Prereq: PPA 400G, BCH 501, BCH 502, PPA 503 or BIO 735; consent of instructor.

PPA 661 GENETICS OF PLANT-MICROBE INTERACTIONS. (3)
Genetics and molecular genetics of interactions between organisms. Primary emphasis will be plant interactions with fungi and bacteria. Areas of study will be: principles of interorganismal genetics and the gene-for-gene model; race-cultivar interactions; genetic determinants of disease in pathogenic relationships, and symbiosis in mutualistic relationships. Examples will include Flor's flax/flax rust system, plant transformation by *Agrobacterium*, mutualisms involving *Rhizobium*, and others. Prereq: AGR 562 or equivalent, or consent of instructor.

PPA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PPA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PPA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PPA 770 PLANT PATHOLOGY SEMINAR. (1)
Reports and discussion of problems and investigations of problems in plant pathology. May be repeated to a maximum of four credits.

PPA 784 SPECIAL PROBLEMS IN PLANT PATHOLOGY. (1-3)
May be repeated to a maximum of nine credits. Prereq: PPA 400G.

PPA 794 RESEARCH IN PLANT PATHOLOGY. (1-4)
May be repeated to a maximum of 12 credits. Prereq: PPA 400G.

POLITICAL SCIENCE

Note: It is assumed that all prerequisites include, in addition to any specific course listed, the phrase "or equivalent," or "consent of instructor."

PS 101 AMERICAN GOVERNMENT. (3)
A survey of national government and the political process in the United States, with emphasis on the Constitution, the President, Congress, and the judicial system.

PS 202 ORIENTATION TO POLITICAL SCIENCE. (1)
An introduction to topics studied by political scientists and the techniques used in these studies. Lectures, discussions and assigned readings will cover major fields of the discipline and will introduce students to research methods. The course will be offered Pass/Fail only.

PS 210 COMPARATIVE POLITICS AND POLITICAL DEVELOPMENT. (3)
An introduction to the comparative study of domestic policies in other nations with an emphasis on the topic of political change. Course will include developed and developing nations.

PS 235 WORLD POLITICS. (3)
A study of the most significant problems of world politics, including the fundamental factors governing international relations, the techniques and instruments of power politics, and the conflicting interests in organizing world peace.

PS 240 IDEOLOGY, POLITICAL CHANGE, AND CONTEMPORARY INDUSTRIAL SOCIETY. (3)
A study of contemporary political ideas, social and political change, and their reciprocal relationship primarily in the advanced industrial societies. Ideology as a tool of both political action and analysis will be examined. Substantive discussion of political doctrines will deal with traditional and contemporary forms of liberalism, conservatism, socialism, anarchism and fascism, as well as current revolutionary movements and ideologies.

PS 245 INTRODUCTION TO POLITICAL ANALYSIS. (3)
Introduction to the basic knowledge of research methodology in political science; a review of methods of data collection; historical, quantitative and comparative techniques of analysis.

PS 255 STATE GOVERNMENT. (3)
An introduction to the institutions, political processes and policies of state governments, and the relationships of state governments with other levels of government in the United States.

PS 271 INTRODUCTION TO POLITICAL BEHAVIOR. (3)
The study of behavior in a political context; the analysis of basic behavioral concepts used in political science such as political roles, group behavior, belief systems, personality, power and decision-making.

PS 280 ISSUES IN PUBLIC POLICY. (3)
An examination of selected major public policy problems, focusing on their nature, political ramifications and alternate methods of dealing with them. Policies covered will vary from semester to semester, but will include such areas as poverty, health care, energy, education, race relations, environment, etc. Prereq: PS 101.

PS 390 SEMINAR IN POLITICAL SCIENCE. (1-3)
A topical seminar primarily for majors in political science and in related fields. May be repeated to a maximum of 12 credits in seminars of differing topics. Prereq: A standing of 3.0 in the student's major department or consent of instructor.

PS 395 INDEPENDENT WORK. (1-6)
Consent of instructor. May be repeated to a maximum of 12 credits. Prereq: A standing of 3.0 in political science courses.

PS 399 INTERNSHIP IN GOVERNMENT. (1-6)
This course is designed for students who are participating in a state, local or federal internship program with which the political science department is associated. The student must have approval of the department chairperson upon the recommendation of the Committee on Internship and Experiential Education to take the course, negotiate a learning contract with a departmental academic supervisor, and provide the department with a report or a paper on his internship. Pass/Fail only. May be repeated to a maximum of 12 credits.

PS 412G COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES II. (3)
A study of the political systems of selected continental European countries with special attention to France and Germany.

PS 417G SURVEY OF SUB-SAHARAN POLITICS. (3)
A survey of sub-Saharan government and politics intended to give the student broad knowledge about the setting of African politics, precolonial African political systems, the political legacies of major European colonial powers, and problems of political development.

PS 419G THE GOVERNMENTS AND POLITICS OF EASTERN ASIA. (3)
A comparative analysis of the modern political experiences of China and Japan, exploring their responses to the West, the development of differing political elites in each country, and contemporary problems of the Chinese Communist and Japanese politics.

PS 420G GOVERNMENTS AND POLITICS OF SOUTH ASIA. (3)
A comparative analysis of contemporary political development in India, Pakistan, Bangladesh and Sri Lanka, with emphasis on political cultures, participation, institutions and the capabilities of these political systems.

PS 421G GOVERNMENT AND POLITICS OF SOUTHEAST ASIA. (3)
Study of the political processes, problems and behavior of the several states of Southeast Asia with emphasis on their chief determinants. The different patterns of political development will be examined. Lecture, three hours.

PS 427G EAST EUROPEAN POLITICS. (3)
This course is meant to provide an opportunity for advanced undergraduates and graduate students to (1) understand the historical, socioeconomic and philosophical context of the communist party states in Eastern Europe, (2) to learn who governs in Eastern Europe and the structures through which they rule, (3) to assess the "dynamics" of communist politics, i.e., factors contributing to political change vis-a-vis political continunity. Prereq: Junior or senior standing and instructor's written permission.

PS 428G LATIN AMERICAN GOVERNMENT AND POLITICS. (3)
A study of contemporary Latin American political institutions and of the dynamics of the Latin American political process.

PS 429G GOVERNMENT AND POLITICS OF THE SOVIET UNION. (3)
Analysis of political development in the Soviet Union with emphasis on party-government relations, Communist ideology, and major approaches to the study of Soviet politics.

PS 430G THE CONDUCT OF AMERICAN FOREIGN RELATIONS. (3)
The formulation of American foreign policy from several analytic perspectives, with somewhat more emphasis on inputs and process than on substantive outputs. Prereq: PS 101 or consent of instructor.

PS 431G NATIONAL SECURITY POLICY. (3)
The organization and formulation of military policy; the theory and practice of deterrence; and the problems of disarmament and arms control. Prereq: PS 235 or consent of instructor.

PS 433G POLITICS OF INTERNATIONAL ECONOMIC RELATIONS. (3)
The course examines contending theoretical approaches to global political economy. These approaches are used to analyze various issues of global political economy, such as the international monetary system, multinational corporations, foreign aid, and trade.

PS 436G INTERNATIONAL ORGANIZATION. (3)
A study of the evolution of international organizations in the 20th Century. Examination of the increasing size, complexity, and diversity of contemporary global and regional international organizations. The role of international organizations in future world order.

PS 437G DYNAMICS OF INTERNATIONAL LAW. (3)
An examination of the politics of the development of international law and its operation in a multicultural world. Legal principles and international political processes are discussed through illustrative issue areas: management of conflict; distribution of territorial resources; environmental problems; and human rights.

PS 439G CONTEMPORARY INTERNATIONAL PROBLEMS. (3)
An examination of selected current problems in world politics and foreign policy. Students will be encouraged to apply their knowledge to the analysis of contemporary international issues.

PS 441G EARLY POLITICAL THEORY. (3)
A survey of political theorists in the Western political tradition from classical Greece to the Renaissance. The formative influences upon our conceptions of politics, citizenship, justice, and natural rights will be highlighted and key issues in controversies over rhetoric and philosophy, time and political order, education and the body politic, and political action and human artifice will be illuminated.

PS 442G MODERN POLITICAL THEORY. (3)
Western political theory from Machiavelli to Marx and Weber with emphasis on the impact of early modern culture and liberalism upon contemporary views of power, individualism, community, and political consciousness. Key contributions of modern political theorists to perennial debates on power and the intellectual, institutional bases of modern constitutionalism, human nature and aggression, the sources of alienation, and the relation of modern science and technology to contemporary forms of domination will be explored.

PS 450G RURAL LOCAL GOVERNMENT. (3)
A study of the organization and functioning of units of local government in the United States with primary emphasis on government in Kentucky counties.

PS 452G MUNICIPAL GOVERNMENT. (3)
An introductory course in the study of the structure, functions and problems of modern city governments with some attention to other forms of local government.

PS 455G INTERGOVERNMENTAL RELATIONS IN THE AMERICAN FEDERAL SYSTEM. (3)
A study of the institutions and processes of American federalism. Particular emphasis will be given to the fiscal and political impacts of categorical grants, block grant programs and general revenue sharing. Prereq: PS 101 or equivalent.

PS 456G APPALACHIAN POLITICS. (3)
A study of the interrelationships of the Southern Appalachian region and its people with the larger American political system, culture, and economy. Selective examination of public policies and major issues and their development in the politics of the region.

PS 461G CIVIL LIBERTIES. (3)
A study of the philosophy and development of civil liberties in the U.S. Major concentration on the interpretation of constitutional guarantees by the Supreme Court.

PS 463G THE AMERICAN JUDICIAL PROCESS. (3)
A study from the standpoint of the social sciences, of the judicial process at the state and national levels, dealing with the organization of courts, the making of judicial decisions, and the exercising of judicial power.

PS 465G CONSTITUTIONAL POLITICS. (3)
A survey of the role of the Supreme Court in the American political system and of the political consequences of Supreme Court decisions. Concentrates upon the Supreme Court's decision-making and interpretation of the Constitution in all substantive areas except civil liberties.

PS 470G AMERICAN POLITICAL PARTIES. (3)
An analysis of American national and state party systems, organization, and functions; nominations and elections; and voting patterns.

PS 472G POLITICAL CAMPAIGNS AND ELECTIONS. (3)
An analysis of individual voting behavior and candidate strategies during presidential and congressional elections. The effect of the mass media, political action committees, and political advertising on the vote decision is examined. Attention is also devoted to candidates' campaign organizations and communication strategies.

PS 473G PUBLIC OPINION. (3)
An introduction to the nature and content of public opinion, how polls are conducted, the political effects of polling, and the role of public opinion in the policymaking process.

PS 476G LEGISLATIVE PROCESS. (3)
A study of Congress and the state legislatures, covering the legislative power structure, legislative committees, the selection of legislators and the roles they play, decision making, and the relations of the legislative and executive branches.

PS 479 WOMEN AND POLITICS. (3)
A study of the role of women as political actors in the United States including the status of women in American society and the contribution of government policy to maintaining or changing that status. The political behavior of women at the mass and elite level will be examined.

PS 487G INTRODUCTION TO PUBLIC ADMINISTRATION. (3)
A study of theories of administration and organization, problems of management and control, the principal staff and auxiliary functions and agencies, and the problem of administrative responsibilities under democratic government, and the political, social, and institutional context of administration.

PS 489G THE ANALYSIS OF PUBLIC POLICY. (3)
A study of the development, implementation and impacts of government policies; and the sources of variation in policies adopted by differing governmental units.

PS 490 HONORS IN POLITICAL SCIENCE. (3)
This course will provide, in a seminar setting, the opportunity for students to concentrate on developing and implementing research projects on topics of their own choice. The course will allow discussion of various perspectives in political science as well as on problems encountered in the research process. Prereq: Senior standing with 3.25 overall GPA and 3.75 GPA in the major.

PS 491 SPECIAL TOPICS IN POLITICAL SCIENCE (Subtitle required). (1-3)
Course will focus on selected topics drawn from various areas of political science taught by faculty members with special interests and competence. May be repeated in courses of differing topics to a maximum of 12 credits.

PS 532 COMPARATIVE FOREIGN POLICIES. (3)
This course will emphasize comparative analysis and the development of propositions to explain why states behave as they do. May be repeated to a maximum of six hours if topics differ. Prereq: PS 265 or consent of instructor.

PS 538 LATIN AMERICAN RELATIONS. (3)
An examination of (1) national development strategies as determinants of Latin American foreign policies, (2) the origins and political consequences of economic nationalism, (3) historical patterns of U.S. response to reformist and/or revolutionary change, (4) the role of extracontinental contenders for influence in the Americas, and (5) at least one contemporary foreign policy issue in inter-American relations. Prereq: PS 428G or permission of instructor.

PS 539 THE FOREIGN POLICY OF THE SOVIET UNION. (3)
A broad survey of Soviet foreign affairs from the Bolshevik Revolution to the present and an introduction to the key theories, guiding concepts, and competing techniques for analyzing Soviet foreign policy-making. A critical and comparative approach, informed by relevant case studies, will be used to clarify the strategic, technological, organizational, and political dimensions of the Soviet policy-making process in the international realm. Prereq: PS 429G or consent of instructor.

PS 545 AMERICAN POLITICAL THOUGHT. (3)
This course explores the American tradition of political thought, its formation, and the ways it is involved in major problems of culture, political economy, ideology, and identity. Alternative ideas of work, power, political obligation, science and technology, and related issues are examined. Relationships of theory and practice, public and private, and government and society are analyzed.

PS 549 SCIENCE, TECHNOLOGY AND POLITICAL THEORY. (3)
An investigation of key themes, concepts, and issues in political theory relating to the origins, development, and impact of modern science and technology upon culture and politics. Chief among its theoretical and conceptual foci will be the relationships of modern science and technology to utopia, ideology, rationality, democracy and participation, revolution, and the future. A critical and comparative approach to these issues will be adopted throughout the course. Prereq: PS 442G or 545 or consent of instructor.

PS 553 URBAN GOVERNMENT AND POLITICS. (3)
An analysis of the formulation of public policy in small towns, middle-sized cities, and metropolitan areas. A theoretical model appropriate to all three settings will be formulated. The principal methods of studying community decision-making will be evaluated.

PS 554 POLITICS OF LAND USE AND GROWTH MANAGEMENT. (3)
A study of the legal and structural features of the land use regulatory system, the social and political environments within which this system operates, and the values, stakes, and perspectives of those who operate or seek to influence this system. Topics will include land use planning, zoning and other regulatory tools, as well as growth management techniques and problems. Prereq: PS 101, PS 553 or permission of instructor.

PS 557 KENTUCKY GOVERNMENT AND POLITICS. (3)
A study of current political issues and institutions in Kentucky.

PS 571 INTEREST GROUPS. (3)
A study of interest groups, their roles in the political process, and techniques of lobbying and influencing opinion. Prereq: Junior standing.

PS 580 THE BUDGETARY PROCESS. (3)
A study of the development of budgetary techniques in the United States, the uses to which budgets are put, the roles of the budgetary process in budgetary politics and in the functioning of the government, and the distribution of government resources through the budget.

PS 584 THE AMERICAN PRESIDENCY AND THE FEDERAL EXECUTIVE. (3)
A course in the American presidency, emphasizing institutional developments and the impact of recent presidents on the office, on other governmental institutions, on domestic and foreign policies, and including an examination of the broader context of the executive branch of government.

PS 611 ETHICAL ISSUES IN POLITICAL LIFE. (3)
Exploration of ethical dilemmas in politics and public policy making as well as ethical issues relating to social research and its impact on the political arena. Examines possibilities and limitations of politics as an ethical realm of human activity. Considers ethical implications of current perceptions of domestic problems and of related policy analyses. Prereq: Consent of instructor.

PS 612 POLLING AND SURVEY RESEARCH. (3)
Study in the practical aspects of survey research: interactions with clients, instrument design, sampling, data collection and analysis, and reporting. Features actual conduct of county-wide poll. Of interest to those working for political campaigns, government agencies, organizations, or citizens' groups. Prereq: Consent of instructor.

PS 620 COMPARATIVE POLITICS: THEORY AND METHOD. (3)
A study of the evolution and development of comparative government and politics within the discipline with particular emphasis upon the formulation, application, and limitations of the theories, taxonomies and conceptual frameworks employed in comparative research.

PS 630 PROSEMINAR IN NON-INSTITUTIONAL POLITICAL BEHAVIOR. (3)
Focuses on literature with implications for individual-level political behavior, particularly mass behavior. Major works in such fields as political socialization, biopolitics, political communication, and political games and coalitions. Specific content may vary in response to current demands. Readings in a substantive field such as voting behavior are also examined as examples of the application of listed areas. Prereq: Consent of instructor.

PS 654 PROSEMINAR IN JUDICIAL PROCESS. (3)
A thorough survey of the recent literature in the judicial process, focusing particularly on judicial recruitment, the relationship of the judiciary to other power centers, and the decision-making process of judges.

PS 671 STRATEGIES OF INQUIRY IN POLITICAL SCIENCE. (3)
Analysis of research paradigms for political science, and investigation into the foundations of scientific inquiry. Emphasis on topics such as explanation, concept formation, the construction and function of theory, data, and verification.

PS 672 INTRODUCTION TO TECHNIQUES OF POLITICAL RESEARCH. (3)
Basic techniques of data collection, coding, and processing applicable to political research are introduced. Various statistical techniques of data analysis are discussed and applied to political data. Prereq: PS 671, familiarity with appropriate statistical methods and consent of instructor.

PS 674 PROSEMINAR IN THEORIES OF INTERNATIONAL POLITICS. (3)
A survey of the major theoretical approaches to the study of international systems and processes.

PS 680 PROSEMINAR IN POLITICAL INSTITUTIONS AND PROCESS. (3)
A thorough survey of recent literature on political institutions and the political process, including political parties and the legislative and executive processes, at the national and sub-national levels.

PS 685 PROSEMINAR IN PUBLIC ADMINISTRATION AND POLICY. (3)
A survey of recent literature on public administration and public policy, including organizational theory, the political environment of administration, public budgeting, public personnel administration, public policy administration, and public management.

PS 690 CONTEMPORARY POLITICAL THOUGHT: THEORETICAL FOUNDATIONS OF POLITICAL CONCEPTS AND ISSUES IN THE 20th CENTURY. (3)
An examination of the history and nature of political theory, its relationship to and role in contemporary political science. Attention will be given to fundamental concepts and problems such as ideology, development, and pluralism. Relationships of thought and action, knowledge and power, especially in advanced industrial societies, will be studied.

PS 711 TOPICAL SEMINAR IN POLITICAL SCIENCE (Subtitle required). (3)
Topic and instructor will vary from semester to semester. Faculty member presents seminar on topic in which he has particular research competence or special expertise. May be repeated under different subtitle to a maximum of nine hours. Prereq: Two semesters of graduate work and consent of instructor.

PS 737 TRANSNATIONAL ORGANIZATIONS AND PROCESSES. (3)
An analysis of approaches to the study of international, transnational and regional political and economic organizations and processes within the context of world politics. An examination of the impact of these activities and processes on contemporary problems of world order. Prereq: Graduate student status.

PS 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PS 750 POLITICAL PARTIES AND ELECTIONS IN AMERICA. (3)
A study of the organization and functions of political parties, nominations and elections, and voting alignments. Prereq: An undergraduate political parties course or consent of instructor.

PS 751 SEMINAR IN METROPOLITICS. (3)
Overview of research on metropolitan government and politics; power structures, voting behavior and elections in metropolitan areas; emphasis on student research in metropolitan problems. Prereq: PS 553 or consent of instructor.

PS 752 PROBLEMS IN STATE AND LOCAL GOVERNMENT. (3)
An intensive study of the basic problems of state and local government. Special emphasis will be given to such current problems as are of fundamental importance. May be repeated to a maximum of six credits.

PS 757 SEMINAR IN COMPARATIVE DEMOCRATIC POLITICAL SYSTEMS. (3)
An analysis of democratic political systems with emphasis upon the comparative approach as a method of political analysis. Prereq: PS 411G or consent of instructor.

PS 758 SEMINAR IN SOVIET POLITICS, GOVERNMENT AND FOREIGN POLICY. (3)
Emphasis on methodology of various approaches to the study of the USSR, as well as substantive research. Subjects will alternate yearly between Soviet politics and Soviet foreign policy. Prereq: PS 429G and PS 539 or consent of instructor.

PS 761 THE CONSTITUTION AND CIVIL RIGHTS. (3)
The American conception of civil rights as expounded by the Constitutional Fathers and as interpreted by the courts. The social, economic, and political aspects and implications of these rights.

PS 762 SEMINAR IN JUDICIAL POLICY MAKING. (3)
Formulation, development and implementation of Constitutional policy by the United States Supreme Court and other agencies. Primary focus on areas of contemporary importance (excluding civil rights). Cases and supporting materials. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PS 763 SEMINAR IN ADMINISTRATIVE POLITICS. (3)
The process by which administrative agencies establish and enforce policy are analyzed in terms of both legal and political considerations and behavioral theory. Prereq: Consent of instructor.

PS 764 RESEARCH IN JUDICIAL BEHAVIOR. (3)
Participant research on selected substantive inquiries about judicial behavior; in-depth examination of related theory, methods, and research strategies. Prereq: Consent of instructor.

PS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PS 770 SEMINAR IN CONTEMPORARY POLITICAL THEORY. (3)
An intensive study of contemporary political ideologies. May be repeated to a maximum of six credits.

PS 772 ADVANCED PROBLEMS IN RESEARCH METHODS. (3)
A seminar in selected topics; the application of mathematical models and advanced statistical techniques to political science data. May be repeated to a maximum of six credits.

PS 775 SEMINAR IN PUBLIC POLICY. (3)
A political analysis of the domestic policy process including the formation, implementation, and impact of policy.

PS 777 RESEARCH PROBLEMS IN INTERNATIONAL RELATIONS. (3)
This seminar focuses on research strategies that can be utilized in dealing with problems in international relations. May be repeated to a maximum of six hours with consent of instructor. Prereq: PS 674 or consent of instructor. (Same as DIP 777.)

PS 779 VOTING BEHAVIOR. (3)
A study of recent research in the field of voting behavior, including analysis of survey research techniques. Prereq: An undergraduate course in parties or public opinion or consent of instructor.

PS 780 LEGISLATIVE BEHAVIOR. (3)
A study of recent research in the legislative process emphasizing both the substantive and methodological aspects. Prereq: An upper division course in the legislative process or consent of instructor.

PS 785 PSYCHOLOGICAL BASES OF POLITICAL BEHAVIOR. (3)
The role of psychological constructs and theory in political explanation; measurement and inference problems; critical analysis of research concerned with such topics as the effect of psychological mechanisms on loyalty, quiescence, participation, political change and revolution. Prereq: PS 671 and PS 672 or consent of instructor.

PS 795 SPECIAL PROBLEMS IN POLITICAL SCIENCE. (1-3)
Specific programs of readings are developed to meet the needs of individual students. May be repeated to a maximum of six credits for master's students and 12 credits for Ph.D. students. Prereq: Any 600 level course in political science or consent of the Director of Graduate Study.

PS 796 DIRECTED RESEARCH IN POLITICAL SCIENCE. (1-3)
Individual research in a particular field of political science under the supervision of selected faculty. Open to advanced graduate students who are prepared for intensive study and research beyond that offered in regular classes in each field. May be repeated to a maximum of six hours. Prereq: Consent of the instructor and the director of graduate studies.

PSYCHOLOGY

PSY 100 INTRODUCTION TO PSYCHOLOGY. (4)
An introduction to the study of behavior covering theories, methods and findings of research in major areas of psychology. Topics covered will include the biological foundations of behavior; learning, perception, motivation, personality; developmental, abnormal, and social behavior; and methods of assessment. This course is a prerequisite to a significant number of courses in this and related areas of study. Lecture, three hours; laboratory/discussion, two hours.

PSY 200 THINKING AND PROBLEM SOLVING. (3)
An introduction to psychological research on human thought processes. Topics include skill acquisition, memory, decision making, logical thinking, and creativity. Students will be taught to apply these principles to enhance their own problem-solving skills by completing a series of structured exercises. Prereq: Completion of PSY 100 recommended.

PSY 215 EXPERIMENTAL PSYCHOLOGY. (4)
A study of the application of scientific methods to psychological research. Special emphasis is placed on the critical evaluation of contemporary research in experimental psychology. Particular attention is focused on the design, execution, and written report of laboratory research. Lecture, three hours; laboratory, two hours. Prereq: PSY 100 and sophomore standing, or consent of instructor.

PSY 216 APPLICATIONS OF STATISTICS IN PSYCHOLOGY. (4)
An introduction to statistical procedures used in making decisions based on psychological data. Not available for credit to students who have had a previous statistics course and may not be used to satisfy the laboratory requirements in the College of Arts and Sciences. Lecture, three hours; laboratory, two hours. Prereq: PSY 100.

PSY 223 DEVELOPMENTAL PSYCHOLOGY. (3)
An introduction to the principles of developmental psychology as seen in human growth over the entire lifespan, with the primary focus on infancy through adolescence. Emphasis is placed on theory and data relating to the developmental aspects of cognition, language and personality. Prereq: PSY 100 or equivalent. (Same as FAM 254.)

PSY 301 INTRODUCTION TO HUMANISTIC PSYCHOLOGY. (3)
A study of the various psychological views of human experience and behavior with particular attention given to the psychology of intentionality, human values, authenticity, autonomy, creativity, spontaneity, and transcendental experiences. Prereq: PSY 100.

PSY 305 PSYCHOLOGY OF SEX ROLES. (3)
A survey of the psychology of sex roles designed for the upper division undergraduate. The course will explore sex roles as they have been examined in the research literature of the social personality, developmental, physiological, and clinical areas of psychology. Both theoretical concepts and research findings will be considered. Prereq: PSY 100 and sophomore standing.

PSY 331 THE PSYCHOLOGY OF ADJUSTMENT. (3)
The individual's psychological adjustment to society is analyzed from a mental health perspective. The course provides a general orientation to the normal-abnormal continuum of behavior, including individual, social, and cultural determinants of behavior. Prereq: PSY 100. Not open to students who have had CH 520.

PSY 395 INDEPENDENT WORK IN PSYCHOLOGY. (3)
Designed for advanced students who undertake minor research problems to be conducted in regular consultation with the instructor. Prereq: Major in the department with a standing of 3.0 in psychology courses. A signed contract between student and faculty member must be filed in the departmental office prior to enrollment in the course. May be repeated to a maximum of 12 credits.

PSY 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-6)
A community-based or field-based experience in psychology, under the supervision of a faculty member. May be repeated to a maximum of 12 credits (if applicable). Pass-fail only. Prereq: Consent of instructor and department chairperson; filing of a learning contract with departmental office and Office for Experiential Education; completion of 12 hours in psychology with a GPA of 2.5 in psychology courses. Psychology majors, juniors and seniors only.

PSY 400 THEORIES OF PSYCHOLOGY IN HISTORICAL PERSPECTIVE. (3)
The course is designed primarily for majors in psychology in the senior year. A review of the history of psychology with special emphasis on the development of major psychological theories. The philosophical origins of psychology as a science are analyzed along with their impact on important psychologists. The influence of psychology's history on its current concepts, methods and problems is studied.

PSY 423G PROCESSES OF PSYCHOLOGICAL DEVELOPMENT. (3)
An advanced lecture course for majors in the life sciences (social, behavioral, and biological). The course will examine the nature of developmental processes in the areas of intelligence, learning, personality, and social behavior. Students will be required to do extensive reading in primary source materials. Prereq: PSY 223 or consent of instructor.

PSY 444G SOCIAL PSYCHOLOGY. (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. (Note: Not open for graduate credit to graduate students in Psychology and Sociology.) Prereq: The introductory level sociology course or GEN 102. (Same as SOC 444G.)

PSY 459G DRUGS AND BEHAVIOR. (3)
General principles of drug action from a physiological perspective. Major emphasis is on the psychoactive drugs encountered in experimental, clinical and social settings. Prereq: PSY 215 and BIO 104 or BIO 110.

PSY 495 SENIOR THESIS SEMINAR. (3)
This course focus will be on the development and presentation of a research question, and the design of an experimental test of the question. The course will use a seminar format. Students will be expected to give both an oral and written presentation of their research proposal and to participate in the discussion of the proposals of other students. Prereq: Major in psychology, senior status, research sponsor, approval of instructor.

PSY 496 SENIOR THESIS RESEARCH. (3)
This course focus will be on the oral and written presentation of research results. The course will use a seminar format. Students will complete their thesis research, prepare a written report, and present it to the seminar. Prereq: PSY 495.

PSY 500 SENIOR SEMINAR IN PSYCHOLOGY. (3)
A topical seminar designed for majors in psychology enrolled in the senior year. The purpose will be to study, intensively, topics of contemporary interest in the several content areas of psychology. Coverage will usually be confined to a single major topic in one of the subdisciplines of psychology in a given semester. Prereq: Major in psychology and senior standing. Open to graduate students only with permission of instructor. May be repeated to a maximum of six credits.

PSY 502 INTRODUCTION TO INDUSTRIAL PSYCHOLOGY. (3)
Review of the functions and findings of psychology applicable to business and industry. Topics covered are employment procedures, personnel testing, attitude analysis, motivation, and morale. Prereq: PSY 100.

PSY 503 PSYCHOLOGY OF INDUSTRIAL PERSONNEL PROCEDURE. (3)
A practical course for those preparing for personnel administration and for psychology in industry and business. A study is made of the theory and methods of position classification, job analysis, job evaluation, merit rating, supervisor selection and training, and collective bargaining. Prereq: PSY 100.

PSY 521 COGNITIVE PROCESSES LABORATORY. (1)
Laboratory for PSY 527 to provide experience with the research methods of cognitive psychology. Lab sessions involve participation in a series of experiments on attention, memory, language, and problem-solving. Laboratory: two hours. Prereq or concurrent: PSY 527.

PSY 523 RESEARCH METHODS IN DEVELOPMENTAL PSYCHOLOGY. (4)
An advanced course in research methods in human development. Emphasis will be placed on the understanding and use of research designs and techniques that examine behavior change from a developmental perspective. Students are expected to design and carry out a research project. Lecture, three hours; laboratory, two hours. Prereq: PSY 100, 215, and 216.

PSY 525 HUMAN SENSES AND PERCEPTION. (3)
A study of the stimulus, receptor and organism variables that underlie perceptual experience and perceptually based behavior with emphasis upon theory and experimental method. Prereq: PSY 100.

PSY 526 HUMAN SENSE AND PERCEPTION LABORATORY. (1)
Laboratory to accompany PSY 525. Laboratory consists of a series of exercises and experiments with students serving as experimenters and subjects. Emphasis is on perceptual content, but methods and report writing are also stressed. The course includes prescribed studies of visual fields, auditory discrimination, visual acuity, form perception, space perception and binocular rivalry in addition to a final independent project of the student's own choice. Laboratory, two hours. Prereq or concur: PSY 525; PSY 216 is recommended.

PSY 527 COGNITIVE PROCESSES. (3)
Theory and experimental techniques in the study of human thought processes. Emphasis on research in memory, information processing, language, and concept formation. Prereq: PSY 100.

PSY 528 DIMENSIONS OF AGING. (3)
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. Prereq: Upper division or graduate level standing. (Same as SOC 528, ANT 528.)

PSY 529 PSYCHOLINGUISTICS. (3)
Study of the acquisition, production and perception of human language. The relationship between linguistic theories and experimental data will be critically examined. Prereq: Either PSY 215 or LIN 301.

PSY 532 PERSONALITY. (3)
An examination of several prominent personality theories in terms of the contexts in which they were originated, their influence upon contemporary psychological thought, and their present applications. Prereq: PSY 100 plus one of the following: PSY 215, 216 or 223.

PSY 533 ABNORMAL PSYCHOLOGY. (3)
A study of the major mental disorders, especially the psychoneuroses and the psychoses, and the biological, psychological, and sociological factors which contribute to their causation. Prereq: PSY 100 plus one of the following: PSY 215, 216 or 223.

PSY 535 PSYCHOLOGICAL TESTING. (3)
A general orientation to the field of psychological testing. Introduction to the principles and methods of psychological testing, and a survey of the various kinds of psychological tests. Prereq: PSY 100 and 216.

PSY 539 INTERPERSONAL DYNAMICS. (3)
A systematic analysis of interpersonal behavior in a group setting. Particular emphasis upon experiential methods of applying theoretical and research findings to interpersonal group development and process. Prereq: PSY 100.

PSY 545 SMALL GROUP BEHAVIOR. (3)
Detailed theoretical and empirical analysis of small groups. The course systematically covers properties of groups and how these properties have been manipulated experimentally. Prereq: PSY/SOC 444G or SOC 151 or equivalent, or consent of instructor. (Same as SOC 545.)

PSY 547 EXPERIMENTAL SOCIAL PSYCHOLOGY. (4)
An advanced laboratory course in social psychology for students who have had some background in social and experimental psychology. Theory and research methods involving several major traditions within social psychology will be dealt with. Both laboratory and field approaches to research will be stressed. Lecture, two hours; laboratory, two hours. Prereq: PSY 215, PSY 216, PSY 444G, or equivalent.

PSY 548 APPLIED SOCIAL PSYCHOLOGY. (3)
Stresses the application of social psychological knowledge, both theoretical and empirical, to relevant contemporary social issues. Coverage will include application to such diverse topics as the environment, education, mental illness, drugs, riots, poverty, and international relations. (Same as SOC 548.) Prereq: PSY 100, PSY 444G, and introductory sociology.

PSY 550 PSYCHOLOGY OF LEARNING. (3)
Fundamental principles and findings from laboratory investigations of classical, instrumental, and verbal learning. Prereq: PSY 215.

PSY 551 PSYCHOLOGY OF LEARNING LABORATORY. (1)
Laboratory demonstrations of, and participation in, the use of scientific methodology as it applies to basic principles of learning appearing in human and subhuman subjects. Laboratory, two hours. Prereq or concur: PSY 550. PSY 216 is recommended.

PSY 552 ANIMAL BEHAVIOR. (3)
Experimental techniques used in the study of animal behavior. Particular emphasis is placed on the assessment of intellectual capacities in animals. Topics include: memory, concept learning, imitation, tool use, language, cooperation, and altruism. Prereq: PSY 215 or consent of instructor.

PSY 553 ANIMAL BEHAVIOR LABORATORY. (1)
Application of techniques used in the study of animal behavior. The class will design and carry out experiments in animal behavior. Students will organize and discuss results and will explore theoretical and applied implications of the research. Laboratory, two hours. Prereq or concur: PSY 552. Prereq: PSY 216.

PSY 556 PHYSIOLOGICAL PSYCHOLOGY. (3)
An intensive study of physiological bases of behavior. Principal concerns are the neural and chemical substrates of processes such as sensation and perception, learning and memory, motivation and emotion, and behavior disorders. Prereq: PSY 215 and BIO 104 or equivalent, or consent of instructor.

PSY 557 PHYSIOLOGICAL PSYCHOLOGY LABORATORY. (1)
Laboratory for PSY 556 provides firsthand experience with the research methodology of physiological psychology. Prereq or concur: PSY 556.

PSY 558 BIOLOGY OF MOTIVATION. (3)
An examination of the causes of human and nonhuman behavior from a biological perspective. Special attention is paid to the interaction between genetic inheritance, individual experience, and physiological state in the control of the appetitive and consummatory behaviors. Prereq: PSY 215 and BIO 104 or equivalent, or permission of instructor.

PSY 603 PSYCHOPATHOLOGY. (3)
An examination of the descriptive, theoretical, and research material relevant to the major classes of disturbed behavior. Special attention is devoted to the stylistic features of neurotic and psychotic communication and behavior. Prereq: Enrollment in the graduate program in clinical psychology.

PSY 610 PSYCHOMETRICS. (3)
Analysis and interpretation of human measurements. The course deals with the application of basic inferential procedures to the analysis and interpretation of psychological data. Required of all graduate students in psychology. Prereq: A course in statistics.

PSY 611 PSYCHOLOGICAL RESEARCH. (3)
The course deals with the design of psychological experiments. Emphasis is upon issues concerning choice of appropriate designs for psychological research. Both experimental and correlational research designs are studied. Required of all graduate students in psychology. Prereq: PSY 610 or permission of instructor.

PSY 616 RESEARCH DESIGN IN CLINICAL PSYCHOLOGY. (3)
Concentrates on current methodologies utilized in clinical research and on the application of sophisticated techniques to traditional research problems. Students are expected to master critical skills for the evaluation of research designs and are encouraged to explore creative approaches to research in important clinical areas. Prereq: Enrollment in the graduate program in clinical psychology.

PSY 618 EXPERIMENTAL APPROACHES TO PSYCHOPATHOLOGY. (3)
A critical evaluation of experimental studies in selected areas of psychopathology. Each student is required to design and conduct an empirical investigation of a specific problem. Lecture, two hours; laboratory, three hours. Prereq: Completion of one year of graduate program in psychology, or consent of instructor.

PSY 620 PROSEMINAR IN SYSTEMATIC PSYCHOLOGY. (3)
An examination of some works of important theorists in psychology of the last 40 years. Prereq: PSY 550 or equivalent.

PSY 621 PROSEMINAR IN LEARNING. (3)
An intensive treatment of concepts, methodology, and current developments in the field of learning. Prereq: PSY 550 or equivalent.

PSY 622 PROSEMINAR IN PERSONALITY. (3)
An intensive treatment of theories, methods of investigation and current developments in the area of personality. Prereq: PSY 532 or equivalent.

PSY 623 PROSEMINAR IN SENSATION AND PERCEPTION. (3)
An intensive examination of the facts, methods and concepts involved in the study of sensory and perceptual processes. Prereq: Consent of instructor.

PSY 624 PROSEMINAR IN SOCIAL PSYCHOLOGY. (3)
An intensive examination of the methods and data of social psychology with emphasis on social attitudes. Prereq: PSY 444G or equivalent.

PSY 625 PROSEMINAR IN DEVELOPMENTAL PSYCHOLOGY. (3)
An intensive treatment of theoretical and experimental literature, both classical and contemporary, in developmental psychology. Prereq: Admission to the graduate program in psychology or consent of instructor.

PSY 626 SURVEY OF HEALTH PSYCHOLOGY. (3)
A survey of the field of health psychology. It will explore the ways in which social and psychological research contribute to an understanding of health and illness behavior. Prereq: Graduate or professional standing and consent of instructor. (Same as BSC 626.)

PSY 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate standing or permission of instructor. (Same as PGY 627.)

PSY 628 PROSEMINAR IN COGNITIVE PROCESSES. (3)
An intensive examination of theoretical and empirical evidence concerning mental processes in the adult human, including attention, memory, language, and problem-solving. Prereq: Graduate standing in psychology, or consent of instructor.

PSY 629 INTRODUCTION TO CLINICAL PSYCHOLOGY. (2)
Offered conjointly by the clinical faculty; covers the broad perspectives of clinical psychology, methods, history, ethics, and professional issues. Prereq: Enrollment in the graduate program in psychology.

PSY 630 CLINICAL METHODOLOGY I. (2)
An intensive survey and evaluation of tests of intelligence and objective methods of assessment of normal and abnormal personality. Special emphasis is given to major theoretical issues and relevant quantitative methods. Prereq: PSY 216, 532, 533, 535, or equivalent, and enrollment in graduate program in psychology.

PSY 631 PRACTICUM IN CLINICAL METHODOLOGY I. (2)
Clinical interviewing and practice in writing reports on behavioral observations, content of verbalization, and case history data. Practice in administration, scoring and interpretation of intelligence tests and objective personality tests. Laboratory, four hours. Prereq: PSY 532, 533, and 535, or the equivalent, and enrollment in the graduate program in clinical psychology. Prereq or concur: PSY 630.

PSY 632 CLINICAL METHODOLOGY II. (2)
Theoretical issues, quantitative methods and research findings on the projective methods of assessment of normal and abnormal personality. Prereq: PSY 630, and enrollment in graduate program in psychology.

PSY 633 PRACTICUM IN CLINICAL METHODOLOGY II. (2)
Practice in the administration and scoring of projective techniques and batteries of clinical tests. Laboratory, four hours. Prereq: PSY 630 and 631, and enrollment in graduate program in clinical psychology. Prereq or concur: PSY 632.

PSY 634 PRACTICUM IN CLINICAL PSYCHOLOGY III. (3)
Administration, scoring, and interpretation of projective techniques and personality inventories, individually administered. Laboratory, nine hours. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

PSY 636 SYSTEMS OF PSYCHOTHERAPY. (3)
An intensive examination of the major theoretical and research approaches to therapeutic behavior change. Prereq: PSY 632 and 633, and enrollment in graduate program in clinical psychology.

PSY 637 PRACTICUM IN PSYCHOTHERAPY AND BEHAVIOR CHANGE. (1-3)
Supervised experience in the techniques of psychotherapy with adults, children and groups, and in community mental health approaches. Laboratory, two to six hours. Each clinical student must have a cumulative minimum of three different supervisors. May be repeated to a maximum of six credits. Prereq: PSY 636 and enrollment in graduate program in clinical psychology.

PSY 638 CLINICAL CHILD PSYCHOLOGY. (3)
Theory and research relevant to behavior problems of children; orientation to assessment and treatment of disturbed children and families. Prereq: Enrollment in graduate program in clinical psychology and consent of instructor.

PSY 644 METHODS OF SOCIAL PSYCHOLOGICAL INQUIRY. (3)
Selected topics in the design of research and the analysis of data in social psychology are examined. Specific issues will include procedures of laboratory and field investigation, techniques for the manipulation and control of relevant variables and data reduction and processing. Prereq: A graduate course in social psychology and permission of the instructor.

PSY 663 PRACTICUM IN INDUSTRIAL PSYCHOLOGY. (3)
Nine hours of supervised work each week. May be repeated to a maximum of 12 credits.

PSY 700 TOPICAL SEMINAR IN BEHAVIOR MODIFICATION. (3)
Considers the general behavioristic orientation, history, theoretical foundations, research investigations and case study material related to clinical approaches to behavior modification. Prereq: Enrollment in the graduate program in clinical psychology and consent of instructor. May be repeated to a maximum of six credits.

PSY 701 TOPICAL SEMINAR IN CLINICAL CHILD PSYCHOLOGY. (3)
Theory and research relevant to behavior problems of children. Prereq: Enrollment in graduate program and consent of instructor. May be repeated to a maximum of six credits.

PSY 703 SEMINAR IN GROUP THERAPY. (3)
An examination of the major theoretical and research approaches to individual behavior change within a group. Prereq: Enrollment in the graduate program in clinical psychology and consent of instructor.

PSY 705 RESEARCH IN PSYCHOTHERAPY AND BEHAVIOR CHANGE. (3)
A critical examination of experimental studies in selected areas of psychotherapy and behavior change. Prereq: Enrollment in the graduate program in clinical psychology and consent of instructor.

PSY 710 TOPICAL SEMINAR IN CLINICAL PSYCHOLOGY. (3)
A selected topics course designed to cover content areas which are not being met by the current faculty; may be taught by persons with special qualifications from the community or by existing faculty exploring new areas. The topics, which may be offered as the need arises, may include on a semester basis mental retardation, intensive psychoanalytic theory, psychopharmacology, etc. May be repeated to a maximum of six credits. Prereq: Enrollment in graduate program and consent of instructor.

PSY 713 PRACTICUM IN GROUP THERAPY. (3)
The purposes of this course are as follows: (1) to aid the student in acquiring the interpersonal skills required to function effectively in small groups; (2) to learn how to conceptualize group processes in a way that enables the student to evaluate independently group progress and group problems; and (3) to organize the students' interpersonal values and cope with their effective responses in a manner which permits the student to become a more effective human being. Lecture, one hour; laboratory, three hours. Prereq: PSY 703.

PSY 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PSY 767 TOPICAL SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)
A study of selected topics in physiological psychology with emphasis on recent research and theory. May be repeated to a maximum of nine credits. Prereq: Consent of instructor. This course may be elected to fulfill requirements in the psychology and physiology graduate programs. (Same as PGY 767.)

PSY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PSY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PSY 772 TOPICAL SEMINAR IN LEARNING. (3)
The study of selected topics in the learning area with emphasis on the recent experimental and theoretical literature. May be repeated to a maximum of six credits. Prereq: PSY 550 and consent of instructor.

PSY 775 TOPICAL SEMINAR IN PERCEPTION. (3)
A study of the major theoretical approaches to perception and an examination of critical experiments and well established phenomena in the field of perception from the vantage point of these theories. Prereq: PSY 623 or equivalent. May be repeated to a maximum of six credits.

PSY 778 TOPICAL SEMINAR IN DEVELOPMENTAL PSYCHOLOGY. (3)
An advanced seminar in selected topics in human development, including cognition, learning, language, personality, socialization, life span issues, and developmental aspects of psychopathology. Prereq: PSY 625 and enrollment in graduate psychology program, or consent of instructor. May be repeated a maximum of six credits.

PSY 779 TOPICAL SEMINAR IN SOCIAL PSYCHOLOGY. (3)
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structures and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: PSY 444G; SOC 101. (Same as SOC 779.)

PSY 780 PROBLEMS IN PSYCHOLOGY. (1-3)
This number is used for topical seminars taught on an experimental basis or covering special material that may not be presented again. May be repeated to a maximum of six credits.

PSY 781 RESEARCH PARTICIPATION. (1)
Emphasis on the team approach to research. Designed primarily for first year graduate students. May be repeated to a maximum of four credits. Laboratory, two to four hours. Prereq: Enrollment in the graduate program in psychology.

PSY 790 RESEARCH IN PSYCHOLOGY. (1-12)
A minimum of three hours per credit a week is required on research conducted in consultation with the instructor. May be repeated as necessary with the approval of the Director of Graduate Studies.

PUBLIC ADMINISTRATION

PA 621 QUANTITATIVE METHODS I: RESEARCH METHODS. (3)
A survey of behavioral science research methods for the public administrator. Emphasis is placed upon problem selection and identification, research design, and data analytic techniques. Prereq: MPA program status or consent of instructor.

PA 622 QUANTITATIVE METHODS II: EVALUATION METHODS. (3)
This course is designed to provide students with the conceptual and analytical tools to evaluate the effectiveness of public programs and policies. The focus will be on program monitoring and evaluation. Of particular concern will be program process and outcome measurement; quasi-experimental design; multiple regression analysis; and analysis of variance models. Prereq: MPA program status or consent of instructor.

PA 623 QUANTITATIVE METHODS III: DECISION SCIENCE. (3)
An introduction to organizational decision making under conditions of uncertainty, risk, and certainty. Concepts of analysis from the areas of economics, mathematics, and statistics will be utilized in terms of administrative decision making in public administration. Prereq: MPA program status or consent of instructor.

PA 631 FINANCIAL MANAGEMENT I: FINANCE AND BUDGETING. (3)
Focusing on budget structure and management; revenue structure and administration; and the administration of public debt and idle funds, this course will emphasize an applied focus and comparative analysis of alternative budget, revenue, and debt management structures and strategies. Prereq: MPA program status or consent of instructor.

PA 632 FINANCIAL MANAGEMENT II: PUBLIC SECTOR ACCOUNTING. (3)
A study of accounting systems and the information they provide as an aid to the decision-making process involved in the planning and control functions within an organizational framework. Consideration will be given to the underlying assumption of the database and the models used in not-for-profit institutions as well as for profit-oriented organizations. Special emphasis will be given to budgetary concepts and fund accounting. Prereq: MPA program status or consent of instructor.

PA 636 HEALTH ECONOMICS. (3)
A study of the application of general economic theory to the health care system: the health care market, the costs of health services, financing and payment mechanisms, the application of cost-benefit and cost-effectiveness analysis to health problems, and major economic issues in health service provision. Prereq or concurrent: PA 671 or consent of instructor. (Same as CH 621/ECO 636.)

PA 637 HEALTH FINANCE. (3)
This course applies general principles of finance to the financial management of health care institutions. The major financial incentives which dictate how health care is delivered are studied and proposals to change these incentives are explored. Prereq: ACC 201, 202 or equivalent; PA 632 or equivalent; and consent of instructor. (Same as CH/FIN 637.)

PA 641 PUBLIC ORGANIZATIONS I: POLITICAL ENVIRONMENT. (3)
A study of those aspects of political and legal systems that particularly affect the administration of public agencies. Emphasis on party systems, legislative and executive processes, administrative law, and judicial review of administration. Prereq: MPA program status or consent of instructor.

PA 642 PUBLIC ORGANIZATIONS II: THEORY AND BEHAVIOR. (3)
A course which examines the interaction of both external and internal resources and constraints upon the administrative decision processes in a number of public organizational settings. The objective is an understanding of the practice of administration in public organizations. Prereq: MPA program status or consent of instructor.

PA 651 PUBLIC POLICY I: THE POLICY PROCESS. (3)
Broad-based course in public policy formulation and social planning. Emphasis is on the parameters of policy formulation as well as the social planning and impact variables. Both policy processes and relevant content areas will be stressed. Prereq: MPA program status or consent of instructor.

PA 652 PUBLIC POLICY II: ECONOMIC ANALYSIS. (3)
Principles and practices of economical resource management in the governmental sector: tax and expenditure types, intergovernmental fiscal cooperation, debt financing, budgeting and financial planning. Prereq: MPA program status or consent of instructor. (Same as ECO 652.)

PA 656 HEALTH PROGRAM PLANNING AND EVALUATION. (3)
A study of the tools necessary for planning and evaluating health programs: planning systems, needs assessment methodologies, data analysis skills, the epidemiologic method, effectiveness and efficiency evaluation. An overview of trends and requirements leading to increased emphasis on planning and program accountability. Prereq: or concurrent, PA 671 or consent of instructor. (Same as CH 622.)

PA 671 OVERVIEW OF THE HEALTH CARE DELIVERY SYSTEM. (3)
An introduction to the health care delivery system in the United States, including its composition, functioning, the interrelationships of organizations and professional groups within the system in various settings, health care terminology, and major problems and issues in the delivery of health services. Prereq: Consent of instructor. (Same as CH 601.)

PA 673 HEALTH POLICY DEVELOPMENT. (3)
An analysis of the development and implementation of health policy on a national, state, local and organizational level. The course will focus on issue and policy analysis, formal and informal processes of policy development and the issues, values and political and community factors affecting policy development and program implementation. Prereq: CH 601 and one of the following courses: CH 611, CH 621, CH 622 or consent of instructor. (Same as CH 631.)

PA 711 INTERNSHIP IN PUBLIC ADMINISTRATION. (3)
Practical field experience in an administrative setting under the direction of an academic and a workplace supervisor. Prereq: MPA program status or consent of instructor.

PA 721 PUBLIC PLANNING. (3)
This course examines the status of public planning theory, concepts, and principles. Included is an analysis of the process of planning in the contemporary U.S. economy and its application to projects, programs, and policies. Additional topics covered include project management and its relationship to planning. Prereq: MPA program status or consent of instructor.

PA 724 PUBLIC FINANCIAL MANAGEMENT. (3)
The course will present a broad view of public financial management and administration problems and techniques, as well as include sections on state and local finance and finance in the Federal sector as it influences other levels of government. Prereq: PA 632 and PA 652 or equivalent; MPA program status or consent of instructor.

PA 725 PUBLIC MANAGEMENT COMPUTER APPLICATIONS. (3)
A general introduction to the computer, including an emphasis on usage of PL/I, specific and generic computer packages, design and implementation of large scale information systems, the concept of the database and public sector computer issues. Prereq: MPA program status or consent of instructor.

PA 727 ENVIRONMENTAL ECONOMICS, REGULATION AND POLICY. (3)
This course takes a balanced practitioner approach to the problems of the environment and environmental regulation. Efficiency aspects will be developed carefully, so as to provide a background for an extensive coverage of various available alternative policies. Prereq: MPA or economics program status or consent of instructor. (Same as ECO 684.)

PA 728 PERSONNEL MANAGEMENT IN THE PUBLIC SECTOR. (3)
The course will present an overview of career development, human resource planning, staffing, training and development in the public sector. Prereq: MPA program status; consent of instructor.

PA 731 FISCAL AND BUDGETARY POLICY. (3)
This course examines public budgeting and finance in the public sector. Included is an analysis of economic, managerial, and political approaches to public budgeting and finance. These approaches are then used to analyze several current topics in public finance. Prereq: PA 631 or equivalent, and Ph.D. program status or consent of instructor.

PA 742 THEORY OF PUBLIC ORGANIZATIONS. (3)
This course provides doctoral students an in-depth knowledge of the various aspects of public organization theory. It will attempt to integrate the work on public organizations which is currently spread over the fields of organization theory and behavior, executive and bureaucratic politics and public choice economics. Prereq: PA 642 or equivalent, and Ph.D. program status or consent of instructor.

PA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying examinations.

PA 751 PUBLIC POLICY FORMULATION AND ANALYSIS. (3)
The major goals of this course are to examine how public problems and needs become policy proposals, how various proposals are filtered into (or out of) the political process, shaped by political institutions and rules, and adopted and legitimated by political authorities. Prereq: PA 651, or equivalent and Ph.D. program status or consent of instructor.

PA 752 THE ECONOMICS OF POLICY ANALYSIS. (3)
This course examines economic approaches to policy analysis. Included is an analysis of the major concepts of economic analysis and their application to a number of policy problems. Prereq: PA 652 or equivalent, and Ph.D. program status or consent of instructor.

PA 753 PUBLIC POLICY IMPLEMENTATION. (3)
This course will focus on the process of public policy implementation. The major goal is to develop and assess explanations for the realization or nonrealization of program objectives in a number of policy areas. Prereq: PA 751 or equivalent, and Ph.D. program status or consent of instructor.

PA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PA 775 SPECIAL TOPICS IN HEALTH ADMINISTRATION. (2-3)
An analysis of selected issues with special significance for health administration. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as CH 775.)

PA 785 INDEPENDENT STUDY IN HEALTH ADMINISTRATION. (1-3)
Supervised individual research on a topic related to health administration selected by the student. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as CH 785.)

PA 795 SPECIAL TOPICS IN PUBLIC ADMINISTRATION. (1-3)
Analysis of specialized topics in public administration of particular interest to practitioners. May be repeated to a maximum of six credits. Prereq: MPA program status or consent of instructor.

PA 796 INDEPENDENT STUDY IN PUBLIC ADMINISTRATION. (1-3)
Tutorial course of directed readings, discussion, and analysis of special topics on public administration. May be repeated to a maximum of six credits. Prereq: MPA program status and consent of instructor.

REHABILITATION COUNSELING

RC 510 ORIENTATION TO REHABILITATION RESOURCES. (3)
A study of the breadth of agencies involved in the rehabilitation process: medical, educational, vocational, institutional, and community services for handicapped adults. Relationships among agencies, staffing patterns, funding resources, and gaps and overlaps in services. Two hours lecture per week; two hours laboratory per week. Prereq: Twelve hours of social or behavioral sciences, or graduate standing, or consent of instructor.

RC 512 MEDICAL KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (3)
A description and analysis of physical illnesses and disabilities met in practice by social professionals with consideration of their implications for the delivery of health and welfare services. Prereq: Basic knowledge of biology and psychology is recommended. (Same as SW 512.)

RC 520 PRINCIPLES OF REHABILITATION COUNSELING. (3)
A comprehensive introduction to rehabilitation as a human service system in modern America. Philosophical, historical, legislative, and organizational structures; rehabilitation programs and related specialties; referral and delivery systems; the rehabilitation process; and professional issues and ethics. Prereq: Twelve hours of social or behavioral science, or graduate standing, or consent of instructor.

RC 530 PSYCHO-SOCIAL IMPACT OF DISABILITY. (3)
Focus on impact in all spheres of normal life: education and training, family and friends, vocation and leisure, personal needs, activities of daily living (housing, transportation), sexuality, etc. Prereq: Twelve hours in social or behavioral sciences or graduate standing or consent of instructor.

RC 540 REHABILITATION IN BUSINESS AND INDUSTRY. (3)
This course is designed to provide students with a comprehensive knowledge of rehabilitation in the private sector. Skills to develop a professional working relationship between the rehabilitation professional, employers, the insurance industry, and other professionals will be taught. A thorough overview of worker compensation, related legislation, and other insurance will be presented. The roles and functions of the rehabilitation professional in proprietary rehabilitation will be discussed. Prereq: RC 520 or consent of instructor.

RC 550 SPECIAL TOPICS IN REHABILITATION. (1-3)
Study of a selected topic within the field of rehabilitation. Topic to be chosen annually in accordance with student needs and interests. May be repeated to a maximum of six credits.

RC 610 CASE MANAGEMENT IN REHABILITATION COUNSELING. (3)
Development of rehabilitation counseling skills and techniques. Understanding of behavior, and implementation of appropriate intervention strategies for facilitating handicapped persons through the rehabilitation process. Case management techniques, ethics, consultation strategies, and specialized counseling skills development. Prereq: EDP 652 and RC 520 or consent of instructor.

RC 620 VOCATIONAL EVALUATION AND WORK ADJUSTMENT FOR THE SEVERELY HANDICAPPED. (2)
Methods and techniques used in determining and enhancing the vocational potential of handicapped persons. Commercial evaluation systems, work adjustment techniques, personal adjustment training, the role of evaluation in rehabilitation. Prereq: A vocational theories course and RC 520 or consent of instructor.

RC 630 PLACEMENT SERVICES AND TECHNIQUES IN REHABILITATION COUNSELING. (3)
Development of skills for placement of handicapped persons into a variety of settings—competitive employment, supported employment, independent living, philosophy of placement, preplacement analysis, client readiness techniques, job development, job engineering, employer attitudes, insurance rehabilitation, and social security disability. Occupation information and its use in the placement process. Labor market analysis and procedures for analyzing client residual and transferrable work skills. Procedures for employability skills development. Prereq: A vocational theories course, RC 520 and 620 or consent of instructor.

RC 710 PRACTICUM IN REHABILITATION COUNSELING. (3)
Learning experiences under faculty supervision in a community-based or state rehabilitation agency. Application of rehabilitation counseling methods, techniques, and vocational knowledge in working with disabled clients. Lecture, two hours; laboratory, 13 hours per week. May be repeated to a maximum of six credits with consent of instructor. Prereq: A minimum of 12 graduate hours in rehabilitation counseling and consent of instructor.

RC 720 INTERNSHIP IN REHABILITATION COUNSELING. (3,6,9)
Advanced learning experiences in a rehabilitation setting or agency. Lecture, two hours; laboratory, 13, 26 or 39 hours per week. May be repeated once for a maximum of nine credits. Prereq: A minimum of successful completion of one year in the Rehabilitation Counseling Program and RC 710 and consent of instructor.

RC 740 ADMINISTRATION AND SUPERVISION IN REHABILITATION COUNSELING. (3)
Administrative and supervisory aspects of rehabilitation service delivery. Administration, clinical and technical supervision, staffing, and organizational structure(s) of the rehabilitation service delivery system (state, local, and federal). Political and ethical aspects of rehabilitation administration and supervision. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

RC 750 REHABILITATION RESEARCH. (1-3)
Application of basic research principles to the field of rehabilitation. Specific focus on client characteristics, constructs of disability, rehabilitation outcomes, counselor-client variables, and rehabilitation service components. Rehabilitation research and utilization projects, research funding and related grant mechanisms. Prereq: A basic research course and RC 520 or consent of instructor.

RC 760 CURRENT ISSUES IN REHABILITATION. (1-3)
Current issues and present and future trends in the field of rehabilitation. Analysis of legislation, value systems, political and economic fluctuations and research. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

RC 782 DIRECTED INDEPENDENT STUDY. (1-3)
Study of an individually selected topic relevant to a student's academic development. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

RELIGIOUS STUDIES

RS 101 INTRODUCTION TO RELIGIOUS STUDIES. (3)
An introductory study of religion with emphasis upon the varieties, differences, and similarities of religious experience and expression. The course will examine, through selected examples, the interaction between religious experience and expression and their particular social and cultural contexts.

RS 130 INTRODUCTION TO COMPARATIVE RELIGION. (3)
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social organization. Eastern and Western religions are considered. (Same as ANT 130.)

RS 301 UNDERSTANDING RELIGION. (3)
A multidisciplinary study of the elements of a theory of religion and the methods of understanding religious phenomena. Sources will be drawn from the fields of history, literature, philosophy, and the social sciences. Prereq: RS 101 or RS 130 or consent of instructor.

RS 351 TOPICS IN RELIGIOUS STUDIES: HISTORICAL AND LITERARY (Subtitle required). (3)
An intensive study, in seminar format, of special topics in historical and/or literary aspects of religious studies. May not be repeated under the same subtitle. May be repeated to a maximum of six credits. Prereq: RS 301 or consent of instructor.

RS 352 TOPICS IN RELIGIOUS STUDIES: COMPARATIVE AND SYSTEMATIC (Subtitle required). (3)
An intensive study, in seminar format, of special topics in comparative and/or systematic aspects of religious studies. May not be repeated under the same subtitle. May be repeated to a maximum of six credits. Prereq: RS 301 or consent of instructor.

RS 395 INDEPENDENT WORK. (3)
Study of special topics in religious studies under the direction of a faculty member in the Religious Studies program. Prereq: Minor in Religious Studies program, RS 301 and standing of 3.0 in the program.

RUSSIAN AND EASTERN STUDIES

RUSSIAN

RAE 101 ELEMENTARY RUSSIAN. (4)
The students are introduced to the language through grammatical explanations, recitation practice, and oral as well as written exercises. The emphasis is on the spoken language of everyday use, reading of graded Russian texts, vocabulary building and accurate pronunciation. Extensive work with tape recordings. Lecture, three hours; supervised recitation, one hour per week.

RAE 102 ELEMENTARY RUSSIAN. (4)
A continuation of RAE 101. Lecture, three hours; supervised recitation, one hour per week. Prereq: RAE 101 or equivalent.

RAE 111 RUSSIAN ORAL PRACTICE. (1)
Supplementary oral work for students of Elementary Russian; can be taken in conjunction with RAE 101 and/or RAE 102. May be repeated to a maximum of two credits.

RAE 201 INTERMEDIATE RUSSIAN. (4)
Systematic study of grammar. Introduction through simplified texts to the life and culture of Tsarist and Soviet Russia. Dictation, composition, conversation, and extensive oral practice. Lecture, three hours; recitation, one hour per week. Prereq: RAE 102 or the equivalent. (Required.)

RAE 202 INTERMEDIATE RUSSIAN. (4)
A continuation of RAE 201. Lecture, three hours; recitation, one hour per week. Prereq: RAE 201 or equivalent. (Required.)

RAE 211 RUSSIAN INTERMEDIATE ORAL PRACTICE. (1)
Supplementary oral work for students of Intermediate Russian; can be taken in conjunction with RAE 201 and/or RAE 202. May be repeated to a maximum of two credits. Prereq: RAE 102.

RAE 260 CLASSICS OF NEAR EASTERN LITERATURE IN TRANSLATION. (3)
A survey of Near Eastern literature, mainly Islamic. Some selections are chosen on the basis of their universal interest, while others demonstrate literary values and ideals with which Western readers are not ordinarily familiar. Occasional recordings and slide-illustrated lectures are included.

RAE 261 SURVEY OF RUSSIAN LITERATURE. (3)
A study of Russian literature from its beginning to the present using selected major works of prose, poetry and drama. No knowledge of Russian is required.

RAE 280 SOVIET CULTURE AND ITS ORIGINS. (3)
A broad survey of Russian civilization as it has developed in the arts, law, and in its socio-religious values. Taught in English.

RAE 301 THIRD YEAR RUSSIAN: INDIVIDUALIZED METHOD. (3)
A course in the reading of Russian using the individualized, self-paced method of instruction for students who want to continue the study of Russian in the individualized program beyond the intermediate level. Not open to students majoring in Russian. Prereq: RAE 202 and consent of instructor.

RAE 302 THIRD YEAR RUSSIAN: INDIVIDUALIZED METHOD. (3)
Continuation of RAE 301. Not open to students majoring in Russian. Prereq: RAE 301 and consent of instructor.

RAE 303 RUSSIAN PRONUNCIATION AND CONVERSATION. (3)
Practical phonetics of Russian and intensive practice in conversational Russian. Prereq: RAE 101, 102, 201, 202.

RAE 304 RUSSIAN PRONUNCIATION AND CONVERSATION. (3)
Practical phonetics of Russian and intensive practice in conversational Russian. Continuation of RAE 303. Prereq: RAE 101, 102, 201, 202.

RAE 380 SURVEY OF 19th CENTURY RUSSIAN LITERATURE (in English). (3)
A survey of Russian literature of the 19th Century. Emphasis is on the development of romanticism, the rise of realism, and end-of-century decadence. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

RAE 390 MODERN RUSSIAN LITERATURE (in English). (3)
Russian literature of the 20th Century, including modernist trends, Socialist Realism, non-conformist trends, Russian literature abroad. Students taking the course for Russian major credit will be assigned outside work in Russian.

RAE 395 INDEPENDENT WORK IN RUSSIAN. (1-3)
Students who have the proper qualifications may undertake a special problem in reading and research. May be repeated to a maximum of six credits. (Recommended.)

RAE 400G SEMINAR ON SPECIAL TOPICS IN RUSSIAN. (3)
Detailed investigation of a given topic, author or theme. Research to be conducted at least in part using Russian materials. Subject will be announced prior to preregistration. May be repeated to a maximum of six credits.

RAE 410 STRUCTURE AND STYLISTICS OF RUSSIAN. (3)
A concise structural study of Russian grammar combined with readings illustrating the relationship between grammar and style in Russian prose and verse. Attention is also given to techniques and elements of formal textual analysis. Prereq: Third year knowledge of Russian.

RAE 411 STRUCTURE AND STYLISTICS OF RUSSIAN. (3)
A continuation of RAE 410. Prereq: RAE 410 or equivalent. (Recommended.)

RAE 450G DOSTOEVSKY (in English). (3)
The study of Dostoevsky, his art and his life. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

RAE 460G TOLSTOY (in English). (3)
The study of Tolstoy, his art and life. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

RAE 462G ADVANCED READING IN THE SCIENCES AND TECHNOLOGY (in Russian). (3)
Technical reading in a broad variety of Russian literature in the natural and social sciences to improve language skills enabling the student to read, write on and discuss technical subjects. Prereq: Third year knowledge of Russian.

RAE 463 RUSSIAN PLAYS (in Russian). (3)
Reading of selected major Russian plays as a basis for perfection of language skills, involving class discussions, compositions and translation practice. Prereq: Third year knowledge of Russian or consent of instructor.

RAE 480 RUSSIAN POETRY (in Russian). (3)
Reading of selected major Russian poems as a basis for perfection of language skills, involving class discussions, compositions and translation practice. Prereq: A third-year knowledge of Russian or consent of instructor.

HEBREW

RAE 130 ELEMENTARY HEBREW. (3)
Coverage of Hebrew grammar designed to prepare students to use Hebrew for their particular needs and programs. Lecture, three hours; laboratory, one hour per week.

RAE 131 ELEMENTARY HEBREW. (3)
Continuation of RAE 130. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 130 or consent of instructor.

RAE 230 INTERMEDIATE HEBREW. (3)
Hebrew grammar and introduction to the reading of specimens of Hebrew prose. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 131 or consent of instructor.

RAE 231 INTERMEDIATE HEBREW. (3)
Readings in selected Hebrew authors. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 230 or consent of instructor.

RAE 324 JUDAISM IN THE MIDDLE AGES. (3)
Special reference to relation to Western civilization. Emphasis on literature, thought, and religion rather than on political history. The student may concentrate his reading in any of these fields. Given in English, no knowledge of Hebrew necessary.

RAE 325 JUDAISM IN THE MODERN WORLD. (3)
The response of Judaism to the problems resulting from "Emancipation," the rise of conservative and reform movements in Germany, emigration to the U.S. and the establishment of Israel. Given in English. No knowledge of Hebrew necessary.

RAE 350 HEBREW READING I. (3)
Readings in Biblical Hebrew texts: Pentateuch. Prereq: RAE 231 or consent of instructor.

RAE 351 HEBREW READING II. (3)
Readings in Biblical Hebrew texts: Judges, Prophets, and other literature. Prereq: RAE 231 or consent of instructor.

ARABIC

RAE 140 ELEMENTARY MODERN STANDARD ARABIC. (3)
An introduction to the standard written language of the Arab World. Initial emphasis upon the phonology and script, followed by gradual coverage of the grammar, with exercises in reading, writing, pronunciation, and vocabulary building. Lecture, three hours; laboratory, one hour per week.

RAE 141 ELEMENTARY MODERN STANDARD ARABIC. (3)
Continuation of RAE 140. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 140.

RAE 240 INTERMEDIATE MODERN STANDARD ARABIC. (3)
A continuation of RAE 141, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 141.

RAE 241 INTERMEDIATE MODERN STANDARD ARABIC. (3)
A continuation of RAE 240, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Lecture, three hours; laboratory, one hour per week. Prereq: RAE 240.

RAE 442 ARABIC READING II, (3)
Readings in selected Arabic authors. Prereq: RAE 241.

RAE 443 ARABIC READING II. (3)
Readings in selected Arabic authors. Prereq: RAE 442.

OTHER DEPARTMENTAL OFFERINGS

RAE 260 CLASSICS OF NEAR EASTERN LITERATURE IN TRANSLATION. (3)
A survey of Near Eastern literature, mainly Islamic. Some selections are chosen on the basis of their universal interest, while others demonstrate literary values and ideals with which Western readers are not ordinarily familiar. Occasional recordings and slide-illustrated lectures are included.

RAE 328 ISLAMIC CIVILIZATION: THE RISE OF ISLAM TO 1798. (3)
The rise of Islam and its classical development.

RAE 330 THE ARAB AWAKENING. (3)
The Arab World's response to westernization and the resultant reassertion of its cultural role in the modern world.

RAE 341 SEMINAR IN MIDDLE EAST STUDIES. (3)
Investigation of a literary or cultural topic concerning the Middle East. Topics will be announced in the schedule of classes. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

RAE 396 INDEPENDENT WORK IN MIDDLE EAST CIVILIZATION. (3)
This course is designed for students who want to do advanced work in Middle East civilization. May be repeated to a maximum of six credits. Prereq: Major in Middle East civilization and consent of instructor.

RAE 401 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES I (Subtitle required). (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the period before 1800. Prereq: Junior standing.

RAE 402 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES II (Subtitle required). (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the 19th Century. Prereq: Junior standing.

RAE 403 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES III (Subtitle required). (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the late 19th Century through the Revolution. Prereq: Junior standing.

RAE 404 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES IV (Subtitle required). (3)
Interdisciplinary seminar on a topic in Russian and East European Studies in the Soviet period. Prereq: Junior standing.

SOCIAL WORK

SW 123 THE AMERICAN WELFARE SYSTEM. (3)
A study of the emergence and growth of the welfare system in its historical-philosophical context, an analysis of public and private welfare programs and services in terms of their coverage, benefits, financing, and administration, and an examination of major problems and future trends.

SW 124 INTRODUCTION TO SOCIAL SERVICES. (3)
Introduction to social welfare concepts and philosophies. Examination of the profession of social work and its philosophy and value commitments within social welfare. Public and private service delivery systems will be studied. Required of social work majors and recommended it be taken the first year. Two class hours and two laboratory hours per week.

SW 222 DEVELOPMENT OF SOCIAL WELFARE. (3)
Study of the cultural traditions, value orientations, and political and economic forces which have contributed to the emergence of present social welfare policies and systems in the United States. Required of social work majors and open to all others.

SW 225 SKILLS IN SOCIAL WORK. (4)
An introduction to social work practice theory, a study of the skills in professional practice of social work, and an examination of the functions of the social worker in the direct delivery of social services. Lecture, three hours; laboratory, four hours in health or welfare settings. Prereq: SW 124, or consent of instructor.

SW 320 GLOBAL POVERTY: RESPONSES ACROSS CULTURES. (3)
An examination of poverty in various non-Western cultures. The course will cover the nature, scope, and distribution of poverty, definitions of poverty, common characteristics of the poor, as well as cultural traditions and folkways which contribute to the problem. Social welfare responses and humanitarian efforts which address the problem are examined.

SW 321 INTERVIEWING: PRINCIPLES AND SKILLS. (3)
The study and practice of the principles and skills needed in communicating orally with others with specific emphasis on the development of skills in interviewing for social work and related professions. Lecture, 2 hours; laboratory, 2 hours per week. Prereq: SW 124 or a basic course in sociology, psychology, family studies, or communications.

SW 322 SOCIAL WORK AND SOCIAL WELFARE. (4)
Designed for transfer students of junior rank. Study of social welfare development, social work philosophy and value commitment and with an examination of social service agencies and programs. Lecture, three hours; laboratory, two hours; options of agency visitation, group experiences, social service. Not open to those having SW 124 and 222. Prereq: For majors only.

SW 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as ANT/FAM/SOC 354.)

SW 395 INDEPENDENT WORK. (1-4)
Organized study research and/or tutorial work focused on special issues or problems. May be repeated to a maximum of four credits. Prereq: Major, standing of 3.0 overall GPA, or consent of dean, and consent of adviser and instructor.

SW 400G INTERVENTIVE METHODS IN SOCIAL WORK. (4)
A study of the integrated social work method and problem-solving skills. Examination of theories underlying social work practice. Discussion and analysis of readings, practice theory and particular strategies used in working with a variety of client systems and social problems. Prereq: SW 225 or graduate standing or consent of instructor. For majors only.

SW 401 PRACTICE WITH CHILDREN AND FAMILIES. (3)
The critical examination of social work practice with children and families with emphasis on social service interventions to strengthen family life. Prereq: SW 354.

SW 420G PERSPECTIVES ON HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT. (3)
This course will deal with the interrelatedness of the biological, social, cultural, environmental and psychological factors in human behavior and their relevance and application to social work practice. Prereq: A minimum of six hours of psychology and sociology or graduate standing or consent of instructor. For majors only.

SW 421 SOCIALIZATION AND RESOCIALIZATION GROUPS IN PRACTICE. (3)
This course develops social work practice skills for conducting socialization and resocialization groups. Leadership activities include member selection, contracting, direct and indirect change techniques, and terminating. Application is made to a variety of settings and member characteristics. Prereq: Social work majors or consent of instructor.

SW 430G SOCIAL WELFARE POLICY: THEORY AND IMPLEMENTATION. (3)
The study and demonstration of different analytic models utilized in analysis of social welfare policy. The course also introduces content in the areas of organizational theory, management tools necessary to the understanding of implementation and evaluation of social welfare policy. Prereq: SW 222 or SW 322 or graduate standing or consent of instructor. For majors only.

SW 444 EDUCATIONAL PRACTICUM I. (6 or 8)
Introduction to social work practicum under faculty direction in a Teaching-Learning Center. Students will begin to apply knowledge from prerequisite courses in experiences which utilize social work practice skills with individuals, groups and social service organizations toward the goals of prevention, restoration, and enhancement of social functioning. Includes 24 hours per week of seminar and experiential learning. (Note: Only students who are following the pre-Fall 1974 curriculum have the option of six credit hours.) Prereq: SW 400G and SW 420G, or consent of dean. For majors only.

SW 445 EDUCATIONAL PRACTICUM II. (8)
Advanced social work practicum under faculty direction in a Teaching-Learning Center. The development of analytical and conceptual skills is emphasized in the application of theory to social work practice experience. Includes 24 hours per week of seminar and experiential learning. Prereq: SW 444 or consent of dean. For majors only.

SW 450 SOCIAL WORK RESEARCH. (3)
Study of various types of research in social work with illustrations drawn from current studies of public and private welfare agencies. Attention will be given to research methods that would be useful for social work program analysis and evaluation. Required of social work majors. Prereq: A basic course in statistics or consent of instructor. For majors only.

SW 470 SENIOR SEMINAR. (3)
An integrative professional seminar for senior majors in social work, usually taken in the last semester of course work. Social work issues of an educational, professional and practice nature are examined. Prereq: SW 445 or concurrently, or consent of instructor. For majors only.

SW 477 FIELD EXPERIENCE FOR NONMAJORS. (3-6)
Observation and participation in a wide variety of agency settings in the delivery of social services and problem solving. Lecture, 1 to 2 hours; laboratory, 9-18 hours per week. Prereq: Consent of instructor.

SW 480 TOPICAL SEMINAR IN SOCIAL WORK. (2-4)
Study of issues of current and special significance for social work practice. Issues selected in accordance with the needs and interest of students enrolled. May be repeated to a maximum of eight credits. Prereq: Open to students of the College of Social Work or consent of instructor.

SW 505 CHILD WELFARE SERVICES. (2-3)
A study of community and national programs for child care and protection, including aid to dependent children and other social security services.

SW 510 MENTAL HEALTH KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (2-3)
An analysis of personality development, behavior patterns, and social structural factors with special reference to mental health, its service delivery system, and implications for practice in the social professions.

SW 512 MEDICAL KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (3)
A description and analysis of physical illnesses and disabilities met in practice by social professionals with consideration of their implications for the delivery of health and welfare services. Prereq: Basic knowledge of biology and psychology is recommended. (Same as RC 512.)

SW 513 INTEGRATED SERVICES FOR THE HANDICAPPED. (3)
This course will focus on interdisciplinary teamwork practices and integrated services for individuals with handicapping conditions. A variety of interdisciplinary models of service delivery will be reviewed and experiential opportunities will be provided.

SW 514 ALCOHOLISM AND PROBLEM DRINKING. (2-3)
This course will examine traditional and emerging concepts of alcoholism and problem drinking with special attention to problems in definition. The contributions of recent research to our understanding of risk factors associated with various populations will be reviewed. Selected strategies for identification of and intervention into alcoholism and problem drinking will be discussed with particular attention to the unique problems and needs of racial minorities, youth, female, and other populations.

SW 523 SOCIAL PERSPECTIVES ON RACISM AND ETHNIC PREJUDICES IN AMERICA. (2-3)
The course is designed to provide the knowledge needed in understanding the dynamics of institutional racism from a broader perspective of five specific ethnic minorities in rural and urban America. Particular emphasis is placed upon planned community change and strategies pertinent to minority group communities. Students who wish to make a special, in-depth study of one of the specified content areas may take this course for one additional credit. Prereq: Consent of instructor.

SW 560 SOCIAL WORK PRACTICE IN JUVENILE JUSTICE. (3)
An examination of the history, organization and processes within the juvenile justice system, including the roles of the police, courts, and helping professionals. The impact on social work practice within the juvenile justice system is the major focus.

SW 561 THE ROLE OF SOCIAL WORK IN CRIMINAL JUSTICE. (3)
This course examines the role of social work in crime prevention through an analysis of the criminal and juvenile justice systems, their goals, processes, programs and supporting rationale.

SW 571 SOCIAL WORK AND THE LAW. (3)
The course examines the lawyer's method and the legal system; the organization and ethics of the practicing bar; the impact of legal decision-making and lawyers on society in such selected situations as civil rights, juvenile and criminal justice and consumer debtor-creditor relationships; and working relationships between social workers and lawyers.

SW 580 TOPICAL SEMINAR IN SOCIAL WORK. (2-4)
Study of issues of current and special significance for social work practice. Issues selected in accordance with the needs and interests of students enrolled. May be repeated to a maximum of eight credits. Prereq: Open to the student of social work or consent of instructor.

SW 600 SOCIAL WORK PRACTICE I. (4)
This course lays the basic foundations for the educational practicum and all advanced practice courses. It deals with the variety of strategies for intervention in problem-solving and helping processes in social work practice.

SW 601 SOCIAL WORK PRACTICE II. (2)
This course strengthens the basic foundations for the educational practicum and all advanced practice courses. It further deals with the variety of strategies for intervention in problem-solving and helping processes in social work practice. Prereq: SW 600 or advanced standing in the Master of Social Work program.

SW 603 SOCIAL WORK PRACTICE WITH CHILDREN AND YOUTH. (2)
Study and analysis of developmental crises and problems of children and youth. Emphasis upon social work strategies of intervention for prevention, amelioration or resolution. Prereq: SW 601 or consent of instructor.

SW 604 SOCIAL WORK PRACTICE WITH THE AGING. (2)
This course will develop the framework of knowledge and skills necessary for effective social work practice in a variety of primary and host settings which deal with problems and issues confronting the aging citizen in contemporary society. Prereq: SW 601 or consent of instructor. SW 620, 630, 690 recommended.

SW 605 SOCIAL WORK PRACTICE IN HEALTH SERVICES. (2)
Examination and analysis of the role of social work in health care delivery systems. Prereq: SW 601 or consent of instructor. SW 620, 630, 690 recommended.

SW 606 SEMINAR IN CRIMINAL JUSTICE PROCESSES. (2)
Criminal justice processes are studied and evaluated emphasizing system aims, theories of criminality and societal reaction, the consequences and costs to offenders and to society of current policies to control and prevent crime. Traditional and innovative community and institutional programs for adult and juvenile offenders will be examined.

SW 607 SOCIAL WORK PRACTICE WITH FAMILIES. (2)
The presentation and critical examination of theory as it relates to the study of contemporary marriage and family life and professional social work practice skills intended to strengthen family life. Seminar, two hours. Prereq: SW 601 or consent of instructor. SW 620, 630, 690 recommended.

SW 609 CLINICAL SOCIAL WORK PRACTICE. (2)
The presentation and critical examination of specific treatment modalities as they relate to individuals, families, marital couples, and groups. Specific emphasis will be placed on the application and evaluation of specific interventive techniques. Prereq: SW 601 or consent of instructor.

SW 610 SOCIAL SERVICES IN BLACK COMMUNITIES. (3)
Study of the diversity of relationships, structures, and processes in Black communities, of particular problems and human service needs of ethnic clients, and of implications of social service practice.

SW 611 SOCIAL WORK PRACTICE IN MENTAL HEALTH. (2-3)
Description, analysis, and examination of social work practice in the mental health service delivery system, with particular emphasis on social work interventions and roles.

SW 612 SEMINAR ON SOCIAL WORK PRACTICE WITH WOMEN. (2-3)
This seminar focuses on the special problems and practice strategies relevant to selected groups of women served by social work.

SW 613 URBAN ECOLOGY AND AGING. (2)
Effects of an urban environment upon the aging population, including community design, city planning, housing, transportation, relocation, and mobility. The impact of technological advances will be examined from the point of view of theory, current research, and the process of man-environmental relationships.

SW 615 SOCIAL WORK IN WORK SETTINGS. (2-3)
The course will provide an overview and introduction of social work practice and policy in work settings. Major issues and concerns will be identified and discussed. Guidelines for practice and skills required for practice will be examined. Direct services, policy, and primary prevention will be studied.

SW 620 HUMAN GROWTH AND THE SOCIAL ENVIRONMENT I. (4)
This course lays the necessary foundation for advanced courses in the biological, social, cultural, environmental and psychological factors that influence human behavior.

SW 621 HUMAN GROWTH AND THE SOCIAL ENVIRONMENT II. (2)
This course strengthens the necessary foundation for advanced courses in the biological, social, cultural, environmental, and psychological factors that influence human behavior. Prereq: SW 620 or advanced standing in the Master of Social Work program.

SW 623 SOCIAL WORK PRACTICE WITH GROUPS. (2-3)
This course critically analyzes approaches to group practice in social work emphasizing socialization and resocialization purposes and leader activities. Research and practice issues are examined. Prereq: SW 601, SW 620, or consent of instructor.

SW 624 PERSPECTIVES ON HUMAN SEXUALITY. (3)
An examination and study of historical and current perspectives of sexuality as it relates to behavioral patterns, cultural attitudes, social policy and practice. Prereq: Knowledge of human behavior and personality theory highly recommended. (Same as FAM 624.)

SW 625 PERSPECTIVES ON DEVIANCE FOR SOCIAL WORKERS. (2-3)
An intensive analysis and study of deviant personality and behavior patterns as they are applicable to the practice of social work. The theoretical basis will be reviewed. Students who wish to make a special, in-depth study of one of the specified content areas may take this course for three credits. Prereq: Knowledge of human behavior and personality theory highly recommended.

SW 626 FORENSIC MENTAL HEALTH: EVALUATION AND TREATMENT. (2-3)
An intensive analysis and study of forensic mental health including court evaluation, courtroom testimony and treatment of the victim. Students who wish to take this course for three credits will be expected to make an in-depth study of a specific content area. Lecture, two hours; laboratory (only for those taking the course for three hours), two hours per week. Prereq: Knowledge of behavior and personality theory is highly recommended.

SW 630 SOCIAL WELFARE POLICIES AND SERVICES I. (4)
This course emphasizes policy analysis and process presented from a systematic planning framework which utilizes the process components of formulation, enactment, implementation, and impact. Course content reflects the interdisciplinary efforts of the social, political, legal, economic, and administrative processes which are vital to the policy processes.

SW 631 SOCIAL WELFARE POLICIES AND SERVICES II. (2)
This course emphasizes that implementation of social policies with particular focus on social program administration, accountability, assessing need, and barriers to utilization. The power and politics in organizations are a constant thread of content. Prereq: SW 630 or advanced standing in the Master of Social Work program.

SW 634 COMPARATIVE SOCIAL WELFARE POLICIES AND PROGRAMS. (2-3)
A comparative study of income maintenance and health care delivery systems in selected foreign countries and the United States. Emphasis will be given to the problems in coverage, financing and administration.

SW 635 HUMAN SERVICE DELIVERY SYSTEMS. (3)
A study of the historical development, philosophy, value bases, sources and funding patterns of human service organizations.

SW 636 MANAGEMENT SKILLS. (3)
Practical application of relevant theories to the day-by-day operation of an organization, i.e., program objectives setting, climate setting, task identification and resource allocation, performance monitoring, decision making, etc.

SW 637 TASK GROUPS IN AN ORGANIZATIONAL CONTEXT. (2)
Theories and selected concepts about task groups are studied to understand the dynamics of task groups and/or to provide guidelines for changing group processes to increase effectiveness. Application of this knowledge is made to task groups such as councils, committees, teams, and boards. Class members will have the opportunity to develop skills appropriate for use as members and leaders of task groups.

SW 640 GRADUATE EDUCATIONAL PRACTICUM I-A. (5)
Learning experiences under faculty direction in a teaching-learning center. Application of the problem-solving method to intervention with individuals, families, groups and communities toward social change. Knowledge from foundation courses is applied and tested in the practice situation. Experiential learning and seminar, 225 hours. Prereq: SW 600, 620, 630 and 650.

SW 641 GRADUATE EDUCATIONAL PRACTICUM I-B. (5)
Learning experiences under faculty direction in a teaching-learning center. Application of the problem-solving method to intervention with individuals, families, groups, and communities toward social change. Knowledge from foundation courses is applied and tested in the practice situation. Experiential learning and seminar, 225 hours. Prereq or concur: SW 640, 601, 621, 631, and 651.

SW 643 BIOMEDICAL ASPECTS OF AGING. (3)
A survey of the normal age-associated changes in biological function, the major disease entities found in the older population, and how the health care delivery system presently addresses these issues. Prereq: Graduate status or permission of the instructor. (Same as GRN 643.)

SW 650 RESEARCH IN SOCIAL WORK. (2)
Study and analysis of scientific methods of building knowledge for practice and of evaluating service delivery in all areas of practice.

SW 651 EVALUATIVE RESEARCH IN SOCIAL WORK. (2)
Study of qualitative and quantitative methods of evaluative research, including designs for the systematic evaluation of student's own practice and evaluation of social work interventions, welfare programs and service delivery systems. Prereq: SW 650 or equivalent, advanced standing in the M.S.W. program or consent of instructor.

SW 652 PUBLIC POLICY AND AGING. (2)
The content of the course will center around the federal/state policy-making and policy implementation process. Among the areas to be considered are the origins of policy, interaction among policy-making bodies, the legal right and access to policy influence, political attitudes and behavior, the impact of the legislative system on the aging population, resource allocation, social insurance, the Older Americans Act, and political advocacy for and by older people and groups. Prereq: SW 630 or equivalent or consent of instructor.

SW 662 INCOME SECURITY AND AGING. (2)
Focus upon the economic condition of the older population: employment and occupational change; retirement, re-engagement; analysis of income and aging poverty; social security and pension plans; issues in income security. Prereq: SW 630 or equivalent or consent of instructor.

SW 680 SPECIAL PROBLEMS IN SOCIAL WORK PRACTICE. (2-6)
Current issues that have special significance for social work practice. Selected problems in accordance with needs and interests of the students registered for the course. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

SW 701 ADVANCED PRACTICE THEORY. (2)
Study and analysis of the application of the problem-solving processes to leadership roles and responsibilities in social work practice. Prereq: SW 640, concurrent with SW 740, or consent of instructor.

SW 711 ADVANCED LEADERSHIP ROLES IN SOCIAL WORK. (3)
Advanced study and analysis of leadership roles in social work practice with emphasis upon administration and supervision. Some attention is given to consultation, staff development and teaching, and review of theories of adult learning. Prereq: SW 701 or consent of instructor.

SW 720 ORGANIZATIONAL AND ADMINISTRATIVE THEORY FOR SOCIAL WORKERS. (2-4)
Emphasis on organizational and administrative theories which aid social workers in understanding factors impinging on the optimum delivery of social services and in implementing planned change. Prereq: Second-year standing and consent of instructor.

SW 721 ORGANIZATION AND MANAGEMENT METHODS FOR THE SOCIAL PROFESSIONS. (2-3)
This course will consider the appropriate skills and methods for effectively organizing and managing agencies, institutions, and organizations which are elements of the various social service delivery systems. Included is the study of the management process as it applies to social service settings, an examination of specific management skills, and consideration of the impact of social service programs and delivery methods on program constituents and consumers. Prereq: SW 720 or taken concurrently with SW 720, or consent of instructor.

SW 730 PUBLIC SOCIAL POLICY AND THE DELIVERY OF SOCIAL SERVICES. (2)
Critical study and analysis of social welfare policy needs, policy development and policy impact as related to citizen functioning and socialization. Prereq: SW 630 or equivalent or consent of instructor.

SW 740 GRADUATE EDUCATIONAL PRACTICUM II-A. (5)
Application of knowledge in advanced methods of intervention under faculty direction in a teaching-learning center. Emphasis is on the development of leadership competencies and advanced skills in interventive strategies. Experiences are provided in decision making and social policy formulation. Experiential learning and seminar, 225 hours. Prereq: SW 641.

SW 741 GRADUATE EDUCATIONAL PRACTICUM II-B. (5)
Application of knowledge in advanced methods of intervention under faculty direction in a teaching-learning center. Emphasis is on the development of leadership competencies and advanced skills in interventive strategies. Experiences are provided in decision making and social policy formulation. Experiential learning and seminar, 225 hours. Prereq or concur: SW 740.

SW 745 ADVANCED SPECIALIZED EDUCATIONAL PRACTICUM. (2-5)
Advanced field placement for second-year graduate students in a specialized area of social work practice in which students will carry major responsibility for independent practice or leadership. Experiential learning and seminar, 90-225 hours. Prereq: SW 741 or equivalent with consent of the dean.

SW 750 RESEARCH IN PRACTICE. (2)
Application of knowledge of research methods through designing and conducting research, under faculty supervision, on problems relevant to social work, including social work practice and program evaluation. Prereq: SW 651 or equivalent or consent of instructor.

SW 770 SEMINAR ON SOCIAL ISSUES AND SOCIAL WORK PRACTICE. (2)
Seminar for second-year students on social issues which are currently vital to legislation, public concern and social action for the purpose of effecting changes in institutions and service delivery systems. Prereq: SW 750 or equivalent or consent of instructor.

SW 780 INDEPENDENT WORK. (2-6)
Organized study, research and/or tutorial focused on special issues or problems. May be repeated to a maximum of six credits. Prereq: Major, graduate standing of 3.0 overall GPA, or consent of dean, and consent of adviser and instructor.

SW 790 METHODS IN SOCIAL WORK RESEARCH. (2-6)
Intensified study of the research process with emphasis on design, sampling process, data collection, and analysis. For students seeking more advanced and specific skill in social work research. Individual projects demonstrating the student's skill and competence in the research process may be used for a maximum of four credits beyond the basic two credits for the course work. Prereq: SW 650 or equivalent or consent of instructor.

SOCIOLOGY

SOC 101 INTRODUCTORY SOCIOLOGY. (3)
Introduction to the concepts and methods of sociology. Investigation of socialization, group processes, social institutions and social change. This course is prerequisite to a significant number of courses in this and related areas of study. Student may not receive credit for both this course and GEN 102.

SOC 151 SOCIAL INTERACTION. (3)
Explores the fundamental sociological and social psychological processes underlying human interaction. Focuses on the dynamics of symbolic exchange, the social context and processes shaping it, and examines its effects in the formation and maintenance of social and personality systems. Prereq: SOC 101 or PSY 100 or PY 110 or equivalent social science background.

SOC 152 MODERN SOCIAL PROBLEMS. (3)
An introductory course involving an examination of selected social problems of the day. Topics may include family, poverty, education, crime, race, housing, population, health care, industrial development, and power. Prereq: SOC 101 or SOC 151 or equivalent social science background.

SOC 220 THE COMMUNITY. (3)
Social organization and process in modern communities; social techniques of community improvement. Prereq: Three hours or equivalent social science background.

SOC 235 INEQUALITY IN SOCIETY. (3)
Analysis of the nature, development, and persistence of inequality in various societies. Diverse dimensions of inequality are viewed as the basis for a number of specific social problems in Western and non-Western societies. Social origins of inequality are emphasized. Policy implications are addressed. Prereq: Three hours of sociology or equivalent social science background.

SOC 249 MASS MEDIA AND MASS CULTURE. (3)
An examination of the interplay between the technology and content of the mass communications media and culture. Prereq: COM 101 or SOC 101 or its equivalent. (Same as COM 249.)

SOC 260 POPULATION, RESOURCES AND CHANGE. (3)
The interrelationships among population variables (size, composition, change), social systems, and environmental conditions will be explored from an issues or problems approach. The tools of population studies will be introduced and used to examine how population influences society and mankind's use of the environment. Prereq: Three hours of sociology or equivalent social science background.

SOC 299 SPECIAL INTRODUCTORY TOPICS IN SOCIOLOGY (Subtitle required). (3)
An introductory study of a selected topic in sociology. Topics may include, but are not limited to, industrial sociology, sociology of aging, sex roles, criminology, stratification and urban sociology. May be repeated to a maximum of six credits under different subtitle. Prereq: Three hours of introductory level sociology or consent of instructor.

SOC 302 SOCIOLOGICAL RESEARCH METHODS I. (3)
Introduction to the research methods as applied to sociological problems. Issues addressed include theory construction, conceptualization, measurements, data presentation, and problems of analysis. Required for majors. Prereq: The introductory level sociology course or GEN 102.

SOC 303 SOCIOLOGICAL RESEARCH METHODS II. (3)
Research methods and designs used in sociology. Sociological problems will be analyzed through readings, discussion, use of measurement and analytical procedures, and projects or field work. Required for majors. Prereq: SOC 302 or consent of instructor.

SOC 335 WOMEN AND MEN IN SOCIETY. (3)
A sociological study of the sexual division of society with special emphasis on social, structural, and cultural influences. Prereq: SOC 101 or WS 200 or permission of instructor.

SOC 342 ORGANIZATIONS IN SOCIETY. (3)
The roles of formal organizations including bureaucratic structures in society are examined with special attention given to linkages to contemporary social conditions. Relationships among such organizations and basic internal organizational processes are also studied. Prereq: Six hours of social science or consent of instructor.

SOC 350 TOPICS IN SOCIOLOGY. (3)
Discussion, readings, and papers focusing on topics in sociology. Directed by a staff member having specific competence in the topics under study. Current research developments in particular sociological subfields will be stressed. May be repeated to a maximum of nine credits. Prereq: Six hours of social science or consent of instructor.

SOC 354 THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. (3)
This course approaches the study of the family from a comparative perspective, emphasizing cross-cultural variability in the structure and function of family. Kinship, household formation, sex roles, and socialization are examined in the context of the family, as well as patterns of interaction, personality formation, and family pathology. Prereq: Introductory social science course. (Same as ANT/FAM/SW 354.)

SOC 395 INDEPENDENT WORK. (1-3)
Study of some special topic by duly authorized students. May be repeated to a maximum of four credits. Prereq: Major or minor, a standing of 3.0 in the department, and learning contract filed with department chair.

SOC 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-15)
A community-based or field-based experience in sociology under the supervision of a faculty member. May be repeated to a maximum of 15 credits. Pass-fail only. Prereq: Consent of instructor and department chairperson; completion of departmental learning agreement.

SOC 409 THE FAMILY. (3)
A study of the institutions of marriage and the family and an analysis of the various factors and forces at work in our time which are affecting the individual marital relationships. Prereq: Six hours of social science or consent of instructor.

SOC 418 SOCIAL CHANGE. (3)
A sociological analysis of the sources, processes and consequences of social change. Prereq: Six hours of social science or consent of instructor.

SOC 420 COMMUNITY ANALYSIS. (3)
A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: Six hours of social science or consent of instructor.

SOC 435 POWER AND POLITICS IN SOCIETY. (3)
Course examines social antecedents and consequences of the distribution of power in society, the institutions in which power is pursued and exercised and the way in which the political arena relates to other institutions. Prereq: Six hours of social science or consent of instructor.

SOC 436 SOCIOLOGY OF DEVIANT BEHAVIOR. (3)
A systematic examination of the various types of social disorganization with particular emphasis upon the sociological explanation of underlying factors. Prereq: Six hours of social science or consent of instructor.

SOC 437 CRIMINOLOGY. (3)
A study of general conditions as to crime and delinquency, of measures of punishment and reform of offenders, of criminal procedure and its possible reform and of measures for the prevention of crime. Prereq: Six hours of social science or consent of instructor.

SOC 438G JUVENILE DELINQUENCY. (3)
Studies of the extent, ecological distribution, and cause of delinquency in contemporary American society, including a critical examination of trends and methods of treatment. Prereq: Six hours of social science or consent of instructor.

SOC 439G SPECIAL TOPICS IN CRIME AND DELINQUENCY (Subtitle required). (3)
An analysis of issues and problems central to the study of crime, deviance, and social control in society. Topics may include the analysis of law and society, organized crime, the professional criminal, corrections, or substance abuse. May be repeated once for credit under different subtitle. Prereq: Introductory level sociology course plus one of the following: SOC 436, SOC 437, SOC 438G or consent of instructor.

SOC 442G TOPICS IN WORK AND SOCIETY (Subtitle required). (3)
An analysis of major occupational categories and their relationships to technological, organizational, and societal conditions. Topics may include studies of worker and societal attitudes toward work, problems in occupational mobility and status attainment, alternatives to work in bureaucratic settings, labor/management relations, or the professionalization of the work force. May be repeated once for credit under a different subtitle. Prereq: Six hours of social science or consent of instructor.

SOC 444G SOCIAL PSYCHOLOGY. (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: The introductory level sociology course or GEN 102. (Same as PSY 444G.)

SOC 451G HISTORY OF SOCIOLOGY. (3)
A survey of the development of scientific and humanistic theories in the study of human social interaction and society from The Enlightenment to the present. Works of theorists such as Durkheim, Marx, Weber and Mead will be considered. Emphasis is on the growth of sociology as a discipline. Required for majors. Prereq: Six hours of social science or consent of instructor.

SOC 452G CONTEMPORARY SOCIAL THEORY. (3)
A survey and analysis of the major schools of contemporary sociological theory. Works of major theorists are included. Emphasis is on the conceptual structure of the different theories and the way in which they are applied in contemporary sociological analysis. Prereq: SOC 451G.

SOC 460 AMERICAN POPULATION PROBLEMS. (4)
The study of fertility, mortality and migration as related to population size, growth and distribution, and how population dynamics are related to social status, the family, family planning, urbanization, environment, and policy issues. Discussion, three hours; laboratory, two hours per week. Prereq: SOC 101 or SOC 260 or consent of instructor.

SOC 493G SOCIAL AND CULTURAL DETERMINANTS OF ECONOMIC GROWTH AND DEVELOPMENT. (3)
The first part of the course deals with economic variables determining growth and development. The second part deals with the social and cultural forces having a predominant impact upon the variables discussed in part one. The purpose is to emphasize that economic development is a long-run concept and depends heavily upon the impact of the social and cultural forces on the economic variables. Prereq: SOC 101 and ECO 261.

SOC 499 TOPICAL SENIOR SEMINAR (Subtitle required). (3)
Course is especially designed for seniors. Readings, discussions and papers will focus on current research dealing with selected issues of significance in American society. May be repeated to a maximum of six credits under different subtitles. Prereq: Consent of instructor, senior standing, and one introductory level sociology course.

SOC 501 POPULATION ANALYSIS. (3)
Distribution and composition, fertility and mortality, migration, ecological relationships and growth of population. Prereq: Six hours of social science or consent of instructor.

SOC 509 THE U.S. FAMILY IN HISTORICAL PERSPECTIVE. (3)
A study of American family experience and values from its preindustrial Anglo-European roots to the present. Using an interdisciplinary focus, the course will examine the shifting boundary between family and community and the interaction between domestic life and demographic, religious, and economic influences in American history. Prereq: FAM 353 or SOC 409 or equivalent, or consent of instructor. (Same as FAM 509, HIS 596.)

SOC 510 SOCIALIZATION IN THE FAMILY. (3)
Socialization and parenting with emphasis on family interaction will be examined through analysis of alternative perspectives on socialization, cross-cultural family patterns and alternative family systems. This course will approach family socialization with a theory-research emphasis. Prereq: One introductory level sociology course plus SOC 409 or consent of instructor. (Same as FAM 510.)

SOC 517 RURAL SOCIOLOGY. (3)
Systematic study of the structure and function of family, informal and locality groups, social strata, religious, educational, political and occupational groups in rural society. Prereq: Six hours of social science or consent of instructor.

SOC 519 SOCIOLOGY OF URBAN LIFE. (3)
This course is a study of the sociology of city life. The major emphasis is upon the ecological and social characteristics of urban life in contrast to rural community life. Prereq: Six hours of social science or consent of instructor.

SOC 525 RELIGION, SOCIETY AND CULTURE. (3)
An analysis of the structure, function, and process of religion in its societal and cultural context. Major emphasis is placed on the interaction between religious organizations and the societies in which they operate. Prereq: Six hours of social science or consent of instructor.

SOC 527 SOCIETY AND HEALTH. (3)
The study of human behavior in illness and of medicine as a complex form of social organization from historical, cross-cultural and contemporary perspectives. Prereq: Consent of instructor. (Same as BSC 527.)

SOC 528 DIMENSIONS OF AGING. (3)
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. Prereq: Upper division or graduate standing. (Same as PSY/ANT 528.)

SOC 532 RACE AND ETHNIC RELATIONS. (3)
Analysis of relationships between racial and ethnic groups and the behavioral products thereof. Sources and consequences of prejudice and discrimination. Situation and prospects of minorities. Strategies of change and tension reduction. Prereq: Six hours of social science or consent of instructor. (Same as EPE 532.)

SOC 533 SOCIAL ANTHROPOLOGY. (3)
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: Six hours of social science or consent of instructor. (Same as ANT 533.)

SOC 534 THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION. (3)
A sociological interpretation of the Southern Appalachians, emphasizing the great diversity—social, cultural, economic—in the various parts of this area by study of the major institutions, value orientations, and social and cultural changes affecting both the whole area and its sections. Prereq: Six hours of social science or consent of instructor. (Same as ANT 534.)

SOC 535 SOCIAL CLASSES. (3)
A systematic treatment of the factors underlying social differentiation and stratification, with particular attention to class and caste; social mobility in American society. Prereq: SOC 101 or consent of instructor.

SOC 542 HUMAN RELATIONS IN ADMINISTRATION OF ORGANIZATIONS. (3)
Sociological and social psychological analysis of social structure and environment, leadership, power, authority, decision making, communication, satisfaction, and stress in organizational and administrative activity. Prereq: Six hours of social science or consent of instructor.

SOC 545 SMALL GROUP BEHAVIOR. (3)
Detailed theoretical and empirical analyses of small groups. The course systematically covers properties of groups and how these properties have been manipulated experimentally. Prereq: PSY/SOC 444G or SOC 151 or equivalent, or consent of instructor. (Same as PSY 545.)

SOC 546 SOCIAL FACTORS IN MENTAL HEALTH. (3)
The significance of social, psychological and cultural factors in the recognition and course of mental health problems; the organization of mental health services in society. Prereq: Consent of instructor. (Same as BSC 546.)

SOC 548 APPLIED SOCIAL PSYCHOLOGY. (3)
Stresses the application of social psychological knowledge, both theoretical and empirical, to relevant contemporary social issues. Coverage will include application to such diverse topics as the environment, education, mental illness, drugs, riots, poverty, and international relations. Prereq: PSY 100, PSY 444G, and introductory sociology. (Same as PSY 548.)

SOC 549 SOCIAL PROCESSES AND EFFECTS OF MASS COMMUNICATION. (3)
The relationship between the organization of modern society and its communication media. Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: SOC/COM 249 or its equivalent. (Same as COM/EDC 549.)

SOC 551 CONCEPTS AND THEORIES IN SOCIOLOGY. (3)
Consideration of central conceptual issues underlying the construction of various sociological theories and their explanatory frameworks. A systematic exploration of the development and application of central conceptual frameworks of the discipline. Prereq: SOC 451G or consent of instructor.

SOC 561 COMPARATIVE SOCIOLOGY. (3)
Two or more societies are analyzed and compared sociologically. The specific societies considered may vary from time to time; for example, Soviet and American society; the Middle Eastern countries; Latin American societies, etc. Prereq: Six hours of social science or consent of instructor.

SOC 565 SPECIAL PROBLEMS IN SOCIOLOGY. (1-3)
Supervised individual study in selected subfields of sociology, population, community, organizations, social attitudes, deviant behavior, and social change are among the fields available for investigation. May be repeated to a maximum of six credits. Prereq: Six hours of social science and learning contract filed with department chair.

SOC 603 CONCEPTS AND METHODS IN TEACHING SOCIOLOGY. (1)
Introduction to basic concepts and issues related to curriculum and course development in sociology. Lectures and discussion introduce teaching techniques, available resources, and ways of coping with problems in working with students. Class exercises are designed to sharpen teaching skills. Prereq: Graduate standing in sociology, or consent of instructor.

SOC 604 PRACTICUM IN TEACHING SOCIOLOGY. (1)
Supervised work with faculty in planning, teaching, and evaluation of an ongoing course. Departmental learning contract is required. Prereq: SOC 603, graduate standing in sociology, or consent of instructor.

SOC 605 VALUES, RESEARCH, AND PUBLIC POLICY. (1)
Discussion-oriented course focusing on the following issues: the role of knowledge in policy-making; conflicts between the production of "expert" knowledge and democratic participation in the public sphere; ethical and professional value commitments; implicit "knowledge interest" of methodological styles. Lecture, three hours per week for five weeks. Prereq: SOC 551, SOC 581, and graduate standing.

SOC 606 APPLIED SOCIAL RESEARCH: AN OVERVIEW OF TYPES, USES AND DESIGNS. (1)
An introduction to the requirements and major types and methods of applied social research. Lecture, three hours per week for five weeks. Prereq: SOC 551, SOC 581, and graduate standing.

SOC 607 ADMINISTERING APPLIED SOCIAL RESEARCH PROGRAMS. (1)
A case study approach to examining administrative and management issues and skills confronted in the conduct of applied social research, including proposal development, client-researcher relationships, budgeting, staffing, ethical and legal issues. Lecture, three hours per week for five weeks. Prereq: SOC 551, SOC 581, and graduate standing.

SOC 608 INTERPRETING APPLIED SOCIAL RESEARCH. (1)
Overview of principles and techniques for communication of sociological research findings to nonacademic audiences. Experts in various fields will present short lectures and multi-media displays. Time will be provided for student exercises. Lecture, three hours per week for five weeks. Prereq: SOC 551, SOC 581, and graduate standing.

SOC 610 PROSEMINAR IN COMPLEX ORGANIZATION. (3)
A systematic examination of the sociological concepts, literature and current developments in the field of complex organization. Prereq: SOC 551 or equivalent or consent of instructor.

SOC 620 SOCIOLOGY OF COMMUNITY DEVELOPMENT. (3)
Application of sociological concepts and social change theories to community development organizations and processes. A review of development models, change agent roles, and development cases. Prereq: SOC 551.

SOC 622 TOPICS AND METHODS OF EVALUATION. (3)
An examination of a subset of evaluation methods, topics, and problems. An introductory course in the area with minimal emphasis on quantitative methods. The course is designed to: provide a perspective from which evaluation studies may be viewed; and, to provide experiences for those who will learn from or conduct evaluations. Prereq: Consent of instructor, and a basic course in statistics or research. (Same as ANT/EDP/EPE 620.)

SOC 630 PROSEMINAR IN DEVIANT BEHAVIOR. (3)
A systematic examination of the sociological concepts, literature, and current developments in the field of deviant behavior. Prereq: Graduate standing; SOC 436 or equivalent.

SOC 635 PROSEMINAR IN WORK, GENDER, AND INEQUALITY. (3)
A systematic examination of the sociological concepts, literature and current developments in the sociology of work, gender, and inequality. Prereq: SOC 535 or equivalent or consent of instructor.

SOC 637 SOCIOCULTURAL DIMENSIONS OF ECONOMIC DEVELOPMENT. (3)
Examination of social, cultural and economic conditions in lesser developed countries. Discussion of the various socioeconomic and cultural theories of change and developments, and of alternative policies for the world of the future. Considers the possible roles for social scientists in policy formulation and application. Prereq: Six graduate credits in social sciences or consent of instructor. (Same as ANT 637.)

SOC 640 SCIENCE, AGRICULTURE, AND DEVELOPMENT. (3)
An in-depth examination of the interrelations between science, agriculture, and development. Both domestic and international issues are explored. Prereq: Graduate standing in the social or agricultural sciences. (Same as ANT 640.)

SOC 641 GENDER ISSUES IN DEVELOPMENT. (3)
An examination of gender issues in domestic and international development. Prereq: Graduate standing in the social or agricultural sciences or permission of the instructor. (Same as ANT 641.)

SOC 651 SOCIOLOGICAL THEORY IN TRANSITION. (3)
Intensive examination of the ideas and continuing significance of leading nineteenth century sociological theorists. The work of Marx, Weber, Durkheim, and Simmel is given particular attention. Discussion concerns the contents of their writings, the sociohistorical context in which they were developed, and their applicability to contemporary society. Prereq: SOC 551 or consent of instructor.

SOC 653 FAMILY THEORY AND DYNAMICS. (3)
A survey and critical evaluation of family theory in the areas of mate selection, marital satisfaction, spousal relations and the process of parenthood and child rearing in addition to evaluations of current research in these areas. Prereq: An advanced undergraduate course in the family or consent of instructor. (Same as FAM 653.)

SOC 660 PROSEMINAR IN SOCIAL DEMOGRAPHY. (3)
A systematic examination of the sociological concepts, literature, and current developments in the field of demography. Prereq: SOC 501 or equivalent or consent of instructor.

SOC 661 SOCIOLOGY OF EDUCATION. (3)
A study of schooling and education using basic analytic paradigms of sociology. Emphasis on schools as formal organizations and education in a changing, technologically oriented and stratified society. Prereq: SOC 101 or equivalent. (Same as EPE 661.)

SOC 670 SEMINAR ON ROLE THEORY. (3)
An exploration of sociocultural and psychological concepts as used in the study of roles. Special attention is paid to professional and client roles in health care and other organizational contexts. Prereq: Consent of instructor. (Same as BSC/ANT 670.)

SOC 680 METHODS OF SOCIAL INVESTIGATION. (3)
An overview of the various methods and techniques, both quantitative and qualitative, used by sociologists, including experience in the use of various methods. Lecture, two hours; laboratory, two hours. Prereq: An introductory course in statistics such as STA 570 or its equivalent.

SOC 681 RESEARCH DESIGN AND ANALYSIS. (3)
Problem definition and delimitation, design appropriate to problem and data, and selection of appropriate analysis techniques; critical examination of representative research studies. Prereq: Elementary statistics and SOC 581 or equivalent.

SOC 682 SPECIAL TOPICS IN ADVANCED SOCIOLOGICAL METHODS. (1-3)
A focused treatment of one or more issues, topics, or problems in sociological methods such as time-series analysis, causal analysis, participant observation, conduct of experiments, sociohistorical methods, scale construction, etc. May be repeated to a maximum of nine credits. Prereq: SOC 681 or equivalent.

SOC 684 FARMING SYSTEMS RESEARCH METHODS. (3)
A critical analysis of the concepts, methods, and practices of farming systems research. Design and carry out an FSR project. Prereq: Graduate standing in the social or agricultural sciences. (Same as ANT 684.)

SOC 686 DESIGN OF APPLIED RESEARCH: PROGNOSTIC STUDIES AND SOCIAL FORECASTING. (2)
An introduction to current uses and methods of social forecasting for planning and decision making. Lecture, six hours per week for five weeks. Prereq: Elementary statistics, SOC 551, and SOC 581 or equivalent, and graduate standing.

SOC 687 SOCIAL MONITORING. (2)
A review of social indicators research involving quantitative descriptions and analyses of social conditions and trends, designed to inform public decision making and advance understanding of society. Recent models will be examined. Exercises in data-collection and index-construction will be included. Lecture, six hours per week for five weeks. Prereq: Elementary statistics, SOC 551, SOC 581 and graduate standing.

SOC 710 SPECIAL TOPICS IN SOCIAL ORGANIZATION. (1-3)
A focused treatment of one or more issues, topics, or problems in the field of social organization such as selected aspects of political organization, inequality, opportunity structures, complex organization or social movements. May be repeated to a maximum of nine credits. Prereq: SOC 610 or equivalent or consent of instructor.

SOC 730 SPECIAL TOPICS IN DEVIANT BEHAVIOR. (1-3)
A focused treatment of one or more issues, topics, or problems in the field of deviant behavior such as delinquency, sociology of law, criminal justice and corrections, radical criminology, or methodological issues in deviance research. May be repeated to a maximum of nine credits. Prereq: SOC 630 or equivalent or consent of instructor.

SOC 735 TOPICAL SEMINAR IN WORK, GENDER, AND INEQUALITY (Subtitle required). (3)
Advanced study of topics of current importance in the sociology of work, gender, and inequality, such as labor force participation, work organization and process structure of labor markets, gender and work, social classes, race and ethnic stratification, and theories of work, gender, and inequality. May be repeated under different subtitle to a maximum of nine credits. Prereq: SOC 635 or consent of instructor.

SOC 738 SEMINAR: DRUG USE AS DEVIANT BEHAVIOR. (3)
A seminar for advanced students. Data on drug abuse and its control used to exemplify and test sociological theories of deviant behavior. Covers characteristics of users, treatment approaches, relations to control measures, changes over time and drug policies. Prereq: SOC 636.

SOC 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

SOC 750 SPECIAL TOPICS IN SOCIAL CHANGE AND DEVELOPMENT. (1-3)
A focused treatment of one or more issues, topics, or problems in the field of social change and development, such as modernization, dependency, the role of science and technology in development, or alternative futures. May be repeated to a maximum of nine credits. Prereq: SOC 650 or equivalent or consent of instructor.

SOC 751 SEMINAR IN SOCIOLOGICAL THEORY. (3)
A survey of major theoretical perspectives in modern sociology, focusing on 20th century developments in European and American sociological theory. The principal contributions of selected theorists are considered and their role in the establishment of contemporary sociology is assessed. Prereq: SOC 551 or consent of instructor.

SOC 760 SPECIAL TOPICS IN SOCIAL DEMOGRAPHY AND ECOLOGY. (1-3)
A focused treatment of one or more issues, topics, or problems in the field of demography and/or ecology, such as fertility, mortality, migration, the growth of nonmetropolitan areas, or patterns of urbanization. May be repeated to a maximum of nine credits. Prereq: SOC 660 or equivalent or consent of instructor.

SOC 766 CONCEPTS IN MEDICAL SOCIOLOGY. (3)
A review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory and to concepts and research on health-related problems of society. Prereq: Consent of instructor. (Same as BSC 766.)

SOC 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours. Prereq: SOC 101.

SOC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely. Prereq: SOC 101.

SOC 772 TOPICAL SEMINAR IN SOCIOLOGY. (3)
Advanced study of topics of current importance in sociology, such as structural strain and social change, game theory, decision processes, communication and power structure. May be repeated to a maximum of six credits. Prereq: At least nine hours in the social sciences, preferably in sociology; SOC 101.

SOC 773 TOPICAL SEMINAR. (3)
Analysis of topics of scientific interest in rural sociology, selected from such fields as the following: criticism of research; sociological factors in land use; migration; rural social ecology of the South; highland societies. May be repeated to a maximum of six credits. Prereq: SOC 101.

SOC 776 SEMINAR IN DEPENDENCY BEHAVIOR. (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; dependency in work settings; and poverty and welfare. Prereq: Consent of instructor. (Same as BSC 776.)

SOC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY. (3)
Advanced study of contemporary concepts of mental health and mental illness, and their historical development; major forms of response to mental illness. Prereq: Consent of instructor. (Same as BSC 777.)

SOC 779 TOPICAL SEMINAR IN SOCIAL PSYCHOLOGY. (3)
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: SOC 101, PSY 544. (Same as PSY 779.)

SOC 780 SPECIAL PROBLEMS IN SOCIOLOGY. (1-6)
May be repeated to a maximum of 10 credits. Prereq: SOC 101.

SOC 790 RESEARCH IN RURAL SOCIOLOGY. (1-3)
Individual graduate research with correlated study of rural social research types and methods. May be repeated for a maximum of six credits. Prereq: SOC 101.

SOC 792 RESEARCH IN SOCIOLOGY. (1-6)
Individual research and reading in particular fields of sociology, under staff supervision. Open to advanced students who are prepared for intensive study beyond that offered in regular classes in each field. May be repeated to a maximum of 10 hours. Prereq: SOC 101.

SOC 797 COMMUNITY DEVELOPMENT PRACTICUM. (1-9)
Supervised experiences in the application of sociological concepts and techniques to problems of program development in a community or state agency, organization, or department. Learning contract required. May be repeated to a maximum of nine credits. Prereq: Approval of the Director of the Community Development Program.

SOC 798 INTERNSHIP IN APPLIED SOCIAL RESEARCH. (1-9)
Supervised experiences in a public or private agency, organization, department, or other setting where applied research is being conducted and where the student can become involved in a variety of aspects of the research process. Learning contract required. May be repeated to a maximum of nine credits. Prereq: Approval of the coordinator of the program in applied social research.

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

SPANISH

SPI 011 SPANISH READING FOR GRADUATE STUDENTS. (0)
Designed for those graduate students who wish to acquire a rapid reading knowledge of Spanish. Emphasis on rapid vocabulary building, the Spanish idiom, and the verb systems. Lecture, three hours.

SPI 101 ELEMENTARY SPANISH I (spoken approach). (4)
This course is designed to introduce basic modes of communication in Spanish. The emphasis is on everyday language which the students will learn by applying essential grammatical structures to vocabulary. Both listening and reading comprehension are stressed. The textbook provides instructional assignments and self-correctional exercises. Not open to students who have credit for SPI 141. Concur: SPI 111.

SPI 102 ELEMENTARY SPANISH II (spoken approach). (4)
A continuation of SPI 101. Not open to students who have credit for SPI 142. Prereq: SPI 101 or consent of the department and placement test. Concur: SPI 112.

SPI 111 ORAL/AURAL PRACTICE PERIOD TO ACCOMPANY SPI 101. (0)
Oral and aural exercises which reinforce the grammar and readings and are coordinated with regular class assignments in SPI 101. Students taking SPI 101 must take SPI 111 concurrently. Laboratory, one hour per week. Prereq: Concurrent enrollment in SPI 101.

SPI 112 ORAL/AURAL PRACTICE PERIOD TO ACCOMPANY SPI 102. (0)
Oral and aural exercises which reinforce the grammar and readings and are coordinated with regular class assignments in SPI 102. Students taking SPI 102 must take SPI 112 concurrently. Laboratory, one hour per week. Prereq: Concurrent enrollment in SPI 102.

SPI 115 CULTURE OF MEXICO FOR NON-SPANISH SPEAKERS. (3)
A course designed to introduce students to the basic cultural patterns of Mexico through readings and travel. To be offered only during the intersession or summer session in Mexico. Appropriate faculty leadership is provided.

SPI 141 ELEMENTARY SPANISH I (reading approach). (3)
The study of the basic principles of the language through grammar, with emphasis on rapid development of reading and comprehension skills. Not open to students who have credit for SPI 101.

SPI 142 ELEMENTARY SPANISH II (reading approach). (3)
A continuation of SPI 141. Selected readings. Not open to students who have credit for SPI 102. Prereq: SPI 141 or consent of department and placement test.

SPI 143 ELEMENTARY AURAL—ORAL PRACTICE IN SPANISH. (1)
A course to improve pronunciation and comprehension of spoken Spanish. Aural-oral drills, dictation and recordings.

SPI 201 INTERMEDIATE SPANISH III (spoken approach). (3)
Review and reinforcement of grammatical and phonological patterns. Emphasis will be given to developing reading, listening and speaking skills based on contemporary texts. Not open to students who have credit for SPI 241. Prereq: SPI 102 or consent of department and placement test.

SPI 202 INTERMEDIATE SPANISH IV (spoken approach). (3)
Continuation of SPI 201. Not open to students who have credit for SPI 242. Prereq: SPI 201 or consent of department and placement test.

SPI 210 SPANISH COMPOSITION. (3)
This course is designed for Spanish majors and minors and for those students who wish to perfect their knowledge of Spanish grammar. Concentration on more sophisticated structures of Spanish syntax, and further vocabulary expansion. Prereq: SPI 202 or equivalent or consent of chair.

SPI 211 SPANISH CONVERSATION. (3)
Sections limited to no more than 15 students each. Oral-aural practice in the spoken language. Special emphasis placed on the acquisition of idioms and fundamental conversational vocabulary. Prereq: SPI 202 or equivalent or consent of chair.

SPI 215 CULTURE OF MEXICO. (3)
A course designed to introduce students to the basic cultural patterns of Mexico and to improve their oral proficiency in Spanish. To be offered only during the intersession or summer session in Mexico. Appropriate faculty leadership is provided. Prereq: SPI 201 or equivalent or consent of chair. With permission of the chair, SPI 102 may also be considered a prerequisite.

SPI 241 INTERMEDIATE SPANISH III (reading approach). (3)
Readings of selected Spanish and Spanish American works and rapid review of principles of grammar. Emphasis on reading comprehension. Not open to students who have credit for SPI 201. Prereq: SPI 142 or consent of department and placement test.

SPI 242 INTERMEDIATE SPANISH IV (reading approach). (3)
A continuation of SPI 241. Several options will be offered, including culture, literature and contemporary problems. Topics for each section to be announced in the *Schedule of Classes*. Not open to students who have credit for SPI 202. Prereq: SPI 241 or consent of department and placement test.

SPI 261 MASTERPIECES OF HISPANIC LITERATURE IN TRANSLATION. (3)
A study of selected writers of Spain and Latin America from the Middle Ages to the present.

SPI 302 BUSINESS AND TECHNICAL SPANISH. (3)
A course designed to acquaint the student with the Spanish language in prospective fields of interest, including business, the social sciences, and technical fields such as agriculture, engineering, medicine, and nursing. Prereq: SPI 210 or equivalent.

SPI 310 STYLISTIC STUDIES IN SPANISH. (3)
Practice in translation of English prose into Spanish, including treatment of advanced grammar and style. Prereq: SPI 210, 211 or equivalent.

SPI 311 ADVANCED SPANISH CONVERSATION. (1)
Intensive practice in oral Spanish, emphasizing refinement of intonation, and idiomatic expression. Designed to increase and maintain oral fluency in Spanish. May be repeated to a maximum of three credits. Not open to native speakers of Spanish. Lecture, one hour; laboratory, two hours. Prereq: SPI 211 or equivalent.

SPI 312 CIVILIZATION OF SPAIN. (3)
This course is designed to give students a basic understanding of Spain's contribution to Western civilization. Emphasis on Spanish thought, art, and Spain's role in the development of Western Europe and the New World. Conducted in Spanish. Prereq: SPI 211.

SPI 314 CIVILIZATION OF SPANISH AMERICA. (3)
This course is designed to introduce the student to the basic cultural patterns of Spanish America. Emphasis on thought, art and the other major contributions of Spanish America to Western civilization. Conducted in Spanish. Prereq: SPI 211.

SPI 320 LITERATURE, LIFE AND THOUGHT OF SPAIN. (3)
A study of the literature that reflects the life and thought of Spain from the Middle Ages to the present. Lecture and discussion in Spanish. Prereq: SPI 210 and SPI 211, or equivalent.

SPI 322 LITERATURE, LIFE AND THOUGHT OF SPANISH AMERICA. (3)
A study of the literature that reflects the life and thought of Spanish America from the Colonial period to the present. Lecture and discussion in Spanish. Prereq: SPI 210 and SPI 211, or equivalent.

SPI 324 THE THEATRE IN SPAIN AND SPANISH AMERICA. (3)
A study of the theatre in Spain and Spanish America, stressing developments in the dramatic arts as seen in the works of major dramatists of the Golden Age, Modern Period, and 20th century Spanish America. Prereq: SPI 210 and 211.

SPI 326 HISPANIC POETRY. (3)
Introduction to Spanish metrics and versification, and the forms and techniques of Hispanic poetry with analysis, explication, and interpretation of poetic texts by major poets from Spain and Spanish America. Prereq: SPI 210 and 211.

SPI 328 THE HISPANIC NOVEL. (3)
A study of the novel in Spain and Spanish America stressing works of major novelists in the modern period such as Galdós, Blasco Ibáñez, Unamuno, Sender, Cortázar, García Márquez, Fuentes, Vargas Llosa. Prereq: SPI 320 or SPI 322.

SPI 397 INDEPENDENT WORK IN SPANISH. (3)
May be repeated once. Prereq: Major and standing of 3.0 in the department.

SPI 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-15)
A community- or field-based experience in Spanish under the supervision of a faculty member. Approval of the Arts and Sciences dean required for credits above six per semester. May be repeated to a maximum of 15 credits. Pass-fail only. Prereq: Permission of the instructor and departmental chairperson; completion of departmental learning agreement.

SPI 400 SENIOR SEMINAR. (3)
Detailed investigation of a given topic, author, or theme with emphasis on both content and methods of research. Topics, which are selected jointly by students and faculty in advance, are announced the preceding semester. Prereq: Twelve hours of course work in Spanish on the 300 level or above.

SPI 411 ADVANCED SPANISH LANGUAGE. (3)
A course designed to practice language skills at an advanced level. Preparation of oral and written presentations in Spanish. Selected readings will be treated for their language content. (Taught in Spanish.) Prereq: SPI 210, 211, or consent of instructor.

SPI 430 THE WORKS OF CERVANTES. (3)
Study and analysis of Miguel de Cervantes' *Don Quijote*, the Novelas Ejemplares, and selected dramatic works. Prereq: One 300-level Spanish literature course.

SPI 434 SPANISH LITERATURE OF THE 20TH CENTURY. (3)
A study of the works of the Generation of 1898 and representative works of recent writers. Prereq: One 300-level Spanish literature course.

SPI 438G LITERATURE OF SOCIAL PROTEST IN SPANISH AMERICA. (3)
Analysis and study of the thematic use of sociopolitical elements in works by Spanish American poets and prose writers. Attention is focused on the novel of the Mexican Revolution, the Indigenista novel, Criollista writers. Afro-Hispanic authors, and other major groups. Prereq: One 300-level Spanish literature course.

SPI 460G CERVANTES IN TRANSLATION. (3)
Readings from Cervantes' novels, short stories, comedies, and farces, with special emphasis on *Don Quixote*, and including selections from the chivalresque, pastoral, and picaresque works that Cervantes imitates or parodies. Will not satisfy Spanish major requirements.

SPI 468G TWENTIETH CENTURY SPANISH AMERICAN LITERATURE IN TRANSLATION. (3)
A study of major literary currents in 20th century Spanish America. Readings of selected prose and poetic works by Mistral, Vallejo, Neruda, Paz, Borges Fuentes, Vargas Llosa, Guillén, Palés Matos, and others. No knowledge of Spanish required. Not open to Spanish majors.

SPI 501 SPANISH PHONETICS, PRONUNCIATION AND PHONEMICS. (3)
Introduction to Spanish descriptive linguistics with intensive study of variant speech sounds and established norms in the major cultural areas of the Hispanic world with discussions of the theory and isolation of phonemes. Prereq: SPI 211 or consent of instructor.

SPI 502 SURVEY OF THE SPANISH LANGUAGE. (3)
The development of the Spanish language from the Vulgar Latin stages to the modern period. Special emphasis is placed on the Spanish of the 12th through the 14th centuries. Representative texts are analyzed.

SPI 503 STRUCTURE OF THE SPANISH LANGUAGE. (3)
A linguistic approach to Spanish grammar with attention to its transformational aspects and comparative structure.

SPI 504, 505 ADVANCED SPANISH GRAMMAR AND COMPOSITION. (3 ea.)
A study of the finer points of Spanish grammar. Prereq: SPI 210.

SPI 506 INTRODUCTION TO COMPARATIVE SPANISH, PORTUGUESE, AND ITALIAN LINGUISTICS. (3)
An introduction to the historical development of Spanish, Portuguese and Italian from a common source, with an emphasis on the comparison of related lexical, phonological and morphological items. Prereq: Reading knowledge of Spanish or Italian (fourth semester of course work).

SPI 508 THE TEACHING OF SPANISH. (3)
A course for teachers and prospective teachers.

SPI 512 SPANISH CULTURE THROUGH THE 17TH CENTURY. (3)
A study of the major historical, social, cultural, and intellectual movements in Spain from the Middle Ages through the Golden Age. Prereq: Three credits of Spanish on the 300 level, or equivalent.

SPI 513 MODERN SPANISH CULTURE. (3)
A study of the historical, social, cultural, and intellectual trends in Spain from 1700 to the present. Prereq: Three credits of Spanish on the 300 level or equivalent.

SPI 514 STUDIES IN SPANISH AMERICAN CULTURE. (3)
A study of the major historical, social, cultural, and intellectual movements in Spanish America from pre-Columbian times to the present. Prereq: Three credits of Spanish on 300 level, or equivalent.

SPI 522 SURVEY OF THE COMEDIA I. (3)
A survey of the masterworks of Lope de Vega and his contemporaries. Prereq: One 300-level Spanish literature course.

SPI 523 SURVEY OF THE COMEDIA II. (3)
A survey of the masterworks of Calderón de la Barca and his contemporaries. Prereq: One 300-level Spanish literature course.

SPI 532 THE GENERATION OF 1898. (3)
Studies in intellectual thought, literary work and special contributions of the writers of the generation of 1898. Prereq: One 300-level Spanish literature course.

SPI 541 SPANISH AMERICAN SHORT STORY. (3)
A study of the Spanish American short story from Echeverría to the present with particular emphasis on Darío, Quiroga, Lillo and Borges. Prereq: One 300-level Spanish literature course.

SPI 551 TUTORIAL SEMINAR FOR MAJORS IN SPANISH. (1)
Research in special topics of Spanish and Spanish American literature for majors during the senior year. May be repeated to a maximum of two credits.

SPI 601 OLD SPANISH: PHONOLOGY AND PALEOGRAPHY. (3)
An intensive study of the phonology of Spanish with emphasis on the various linguistic backgrounds that developed it. Examination and study of medieval texts with exercises in paleographical transcription of medieval manuscripts. Prereq: SPI 501 or consent of instructor.

SPI 602 OLD SPANISH: MORPHOLOGY AND SYNTAX. (3)
An intensive study of the morphology and syntax of Spanish, with emphasis on the Latin and Vulgar Latin grammatical systems which were the background of Spanish. Further examination of medieval texts with exercises in paleographical transcription of medieval manuscripts. Prereq: SPI 601.

SPI 611 MEDIEVAL SPANISH LITERATURE I. (3)
A survey of Medieval Spanish literature from the beginning to the end of the 13th century. (SPI 612 is intended to cover the 14th and 15th centuries.)

SPI 612 MEDIEVAL SPANISH LITERATURE II. (3)
A survey of Medieval Spanish literature of the 14th and 15th centuries.

SPI 613 SPANISH EPIC AND LONG NARRATIVE POETRY. (3)
Study of the foundations of Spanish oral epic tradition with references to its parallels in other national literatures and its influences on other genres. Analysis of the *Poema de Mío Cid*, with readings in the important cycles of Spanish epicry and long narrative poetry through the 16th century.

SPI 614 THE SPANISH AND SPANISH AMERICAN BALLAD. (3)
A study of the rise and development of the Spanish and Spanish American ballad from its origins to the present. Special emphasis on both the folkloristic and literary phases of the ballad, with comparison with the English ballad, since Spain and Great Britain produced the greatest score of ballads.

SPI 615 SPANISH POETRY OF THE 13th, 14th and 15th CENTURIES. (3)
Development of lyric poetry from the earliest beginnings to the 15th Century. The *harchas*, Galician-Portuguese, lyric, sacred lyric and the poets of the *concioneros*, exclusive of the ballad.

SPI 616 EARLY BRIEF NARRATIVE— 13th, 14th, 15th CENTURIES. (3)
The rise and development of the brief narrative in prose and rise of the oriental apologue, hagiographical tales and Greco-Roman fables.

SPI 617 SPANISH MEDIEVAL AND RENAISSANCE DRAMA. (3)
Readings, lectures and discussions on the origin of the Spanish vernacular drama and its growth through the 16th century.

SPI 621 THE SPANISH NOVEL TO CERVANTES. (3)
The development of the novel from *El caballero Cifar* to *Guzmán de Alfarache*, including masterpieces of chivalresque, sentimental, pastoral and picaresque prose.

SPI 622 CERVANTES I. (3)
A study of *Don Quixote*: collateral readings in Cervantine scholarship and criticism.

SPI 623 CERVANTES II. (3)
A study of the dramatic works and other novels of Cervantes: collateral readings in Cervantine scholarship and criticism.

SPI 624 THE SPANISH NOVEL FROM CERVANTES TO ROMANTICISM. (3)
The post-Cervantine novel, including works by Lope, Tirso, Quevedo, Gracián, Isla and lesser novelists and novella-writers of 17th and 18th centuries.

SPI 625 MYSTIC AND ASCETIC WRITERS OF THE 16th AND 17th CENTURIES. (3)
A survey of ascetic and mystic writers including among others: Juan de Avila, Luis de León, Luis de Granada, Santa Teresa, San Juan de la Cruz.

SPI 626 LOPE DE VEGA AND TIRSO DE MOLINA. (3)
Selected dramatic and nondramatic works of Lope de Vega and Tirso de Molina.

SPI 628 THE THEATRE OF CALDERÓN DE LA BARCA. (3)
The dramatic works and techniques of Calderón de la Barca.

SPI 629 SPANISH POETRY OF THE 16th AND 17th CENTURIES. (3)
An examination of several schools and forms of poetry, both lyric and narrative, in this period.

SPI 631 THE ROMANTIC MOVEMENT IN SPAIN. (3)
An examination of the meaning of the term "romanticism," with a study of representative Spanish works of the Romantic period. Prereq: Graduate standing.

SPI 632 SPANISH DRAMA FROM THE GENERATION OF 1898 TO THE PRESENT. (3)
Representative works of the major dramatists and dramatic trends from Benavente and his contemporaries through García Lorca, Casona and Buero Vallejo.

SPI 633 THE SPANISH NOVEL OF THE 19th CENTURY. (3)
A study of the major Spanish novelists of the 19th century; particular attention to the aims and techniques of literary realism and naturalism.

SPI 634 PROSE FICTION FROM THE GENERATION OF 1898 TO THE PRESENT. (3)
Studies in most important novels and short stories of the later part of the modern period, produced from 1930 to the present.

SPI 635 THE SPANISH ESSAY FROM THE 18th CENTURY TO THE PRESENT. (3)
An examination of the intellectual preoccupations of Modern Spain as expressed in the essay from the 18th century to the present.

SPI 636 SPANISH POETRY FROM THE 18th CENTURY THROUGH THE GENERATION OF 1898. (3)
A study of the major poets, trends and approaches to Spanish poetry from the Neoclassic period through Unamuno and Antonio Machado. Prereq: Graduate standing.

SPI 637 SPANISH POETRY FROM THE GENERATION OF 1927 TO THE PRESENT. (3)
Studies of the poetry of the later part of the modern period, from Jiménez, Salinas and Guillén to current poets. Prereq: Graduate standing.

SPI 641 SPANISH AMERICAN DRAMA. (3)
A study of dramatic production in Spanish America from the missionary theater to the present, accentuating the work of later authors beginning with Florencio Sánchez.

SPI 642 SPANISH AMERICAN POETRY: COLONIAL PERIOD TO INDEPENDENCE. (3)
Representative works of the principal poets from the Colonial Period through the Neo-Classical.

SPI 644 SPANISH AMERICAN POETRY: 1910 TO PRESENT. (3)
Post-Modernism, the Vanguardia, and contemporary poets.

SPI 645 SPANISH AMERICAN NOVEL: 1800-1910. (3)
The major writers from Romanticism through Modernism.

SPI 646 SPANISH AMERICAN NOVEL: 1910-1940. (3)
The novel of the Mexican Revolution, the *criollistas, indigenistas, novela gauchesca*, and the psychological novel.

SPI 647 SPANISH AMERICAN NOVEL: 1940 TO PRESENT. (3)
The new novel in Spanish America; Asturias, Fuentes, Carpentier, Cortázar, García Márquez and others.

SPI 648 LITERARY CURRENTS IN CONTEMPORARY SPANISH AMERICAN FICTION. (3)
An examination of the outstanding works of Spanish American authors during the past 10 years, with emphasis on literary innovations and new currents in the novel, short story, poetry and drama.

SPI 649 SPANISH AMERICAN ESSAY. (3)
A comprehensive study of the principal currents of thought in the Spanish American essay, with special attention to the *americanistas*.

SPI 651 BIBLIOGRAPHY AND METHODS OF RESEARCH. (3)
Investigation of Spanish bibliography and modern methods of research designed to provide guidance to the graduate student leading to an understanding of research methods and publication. Taught by various members of the staff, with each member dealing with his own specialty.

SPI 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

SPI 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

SPI 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

SPI 770 SEMINAR IN SPANISH STUDIES. (3)
A seminar designed to provide intensive study of a literary, scholarly, or intellectual problem of Spanish letters not covered as such in any of the above listed offerings. May be repeated to a maximum of six credits. Prereq: 21 semester hours of college Spanish.

SPI 772 SEMINAR IN MEDIEVAL SPANISH LITERATURE. (3)
Special and intensive study of a single problem in medieval Spanish literature. May be repeated to a maximum of six credits. Prereq: SPI 601-602 or equivalent.

SPI 774 SEMINAR IN GOLDEN AGE THEATER. (3)
Special and intensive study of a specific area of the Golden Age theater. May be repeated to a maximum of six credits.

SPI 775 SEMINAR IN MODERN SPANISH LITERATURE. (3)
Special and intensive study of a specific problem or area in modern Spanish literature.

SPI 776 SEMINAR IN SPANISH AMERICAN LITERATURE. (3)
Special and intensive study of particular areas of Spanish American literature. May be repeated to a maximum of six credits.

SPI 782 SPECIAL STUDIES IN SPANISH. (3)
Selected studies and investigations in the Spanish language and literature, permitting the student to work in areas of special interest and providing opportunity for original endeavor. May be repeated to a maximum of six credits.

ITALIAN

SPI 191 ELEMENTARY ITALIAN. (3)
A study of the grammar and composition of Italian.

SPI 192 ELEMENTARY ITALIAN. (3)
A continuation of SPI 191. Prereq: SPI 191.

SPI 263 MASTERPIECES OF ITALIAN LITERATURE IN TRANSLATION. (3)
A study of representative Italian writers and their works in a European context, using anthologies and complete texts where necessary.

SPI 291 INTERMEDIATE ITALIAN. (3)
Review of grammatical principles and readings of selected Italian works. Prereq: SPI 192.

SPI 292 INTERMEDIATE ITALIAN. (3)
A continuation of SPI 291. Prereq: SPI 291.

SPI 295 ITALIAN CONVERSATION AND COMPOSITION. (3)
Italian conversation and composition. Prereq: SPI 292 or equivalent.

SPI 296 ITALIAN CIVILIZATION. (3)
A study of Italian civilization, with emphasis on historical and cultural developments. Prereq: SPI 292 or equivalent.

SPI 395 INDEPENDENT STUDIES IN ITALIAN. (3)
Directed study in Italian literature, culture, and linguistics. May be repeated once. Prereq: 3.0 standing in the department and consent of instructor.

SPI 417 ADVANCED ITALIAN LANGUAGE. (3)
A course designed to practice language skills at an advanced level. Both oral and written presentations are required. Readings of contemporary Italian prose will be selected to illustrate grammatical and stylistic concerns and to stimulate discussion. Prereq: SPI 295 or SPI 296.

SPI 443G SURVEY OF ITALIAN LITERATURE I. (3)
A survey of Italian literature from its beginnings to the 17th century. Prereq: SPI 292.

SPI 444G SURVEY OF ITALIAN LITERATURE II. (3)
A survey of Italian literature from the 17th century to the present. Prereq: SPI 292.

SPI 563 STUDIES IN DANTE. (3)
Either the *Vita Nuova* and the *Divina Commedia*, *Inferno* or the *Divina Commedia*, *Purgatorio* and *Paradiso*. Prereq: SPI 443G.

SPI 566 LITERATURE OF THE ITALIAN RENAISSANCE. (3)
A study of the major literary trends and figures of the Italian Renaissance, from the literary and humanistic successors of Petrarch and Boccaccio to the writers of the Cinquecento. Prereq: SPI 543 or 544 or consent of instructor.

SPI 569 TOPICS IN ITALIAN LANGUAGE, LITERATURE, OR CULTURE (Subtitle required). (3)
Intensive study of an author, genre, period or movement of Italian literature or an aspect of Italian language or culture. May be repeated once under a different subtitle. Prereq: Variable; given when topic identified.

SPI 593 MODERN ITALIAN LITERATURE IN TRANSLATION. (3)
A study of the major trends and figures of 19th and 20th century Italian literature.

STATISTICS

STA 200 STATISTICS: A FORCE IN HUMAN JUDGMENT. (3)
This course is concerned with the interaction of the science and art of statistics with our everyday lives emphasizing examples from the social and behavioral sciences. The student will not be required to learn mathematical formulas. Topics include the nature of statistics, uses and misuses of statistics, the scope and limitations of statistics, criteria by which published statistics may be judged, interpretation of probability and the art of decision making. Prereq: Completion of the mathematics basic skills requirement.

STA 281 PROBABILITY AND STATISTICS USING INTERACTIVE COMPUTER TECHNIQUES. (3)
The role of chance in experimental outcomes. Simple discrete and continuous probability distributions; combinatorics; moments and expectations; normal and binomial distributions; computer simulation and simple Monte Carlo methods. Descriptive statistics, charts, and graphs, and elements of statistical inference using interactive statistical packages (e.g., SCSS and/or MINITAB). Prereq: CS 150, CS 102, or CS 221; Coreq: MA 114, MA 132, or MA 118.

STA 291 STATISTICAL METHOD. (3)
Introduction to principles of statistics. Statistical description of sample data including frequency distributions, measures of central tendency, and measures of dispersion. Theoretical distributions, statistical estimation, and hypothesis testing. Introduction to simple linear regression and correlation. Prereq: MA 113, MA 123, or MA 131 or equivalent.

STA 292 DESCRIPTIVE STATISTICS. (1)
Graphical and tabular description of data; measures of central tendency and variation, scattergrams, correlation and best-fitting lines; index numbers. Prereq: MA 113, MA 123, or MA 131, or consent of instructor.

STA 293 PROBABILITY. (1)
Experiments and sample spaces; elementary and conditional probability; counting principles; random variables; distribution and expectation; normal and binomial distributions. Prereq: STA 292.

STA 294 SAMPLING AND INFERENCE. (1)
Sampling; sampling behavior of X and S^2; confidence intervals and tests of hypotheses about the mean and variance of a normal population: the X^2 and t- distributions. Prereq: STA 292 and 293.

STA 320 INTRODUCTORY PROBABILITY. (3)
Set theory; fundamental concepts of probability, including conditional and marginal probability; random variables and probability distributions (discrete and continuous); expected values and moments; moment-generating and characteristic functions; random experiments; distributions of random variables and functions of random variables; limit theorems. Prereq: MA 213 or MA 217 or equivalent. (Same as MA 320.)

STA 321 BASIC STATISTICAL THEORY I. (3)
Simple random sampling; point and interval estimation; hypothesis testing. Prereq: STA/MA 320.

STA 370 INTRODUCTION TO STATISTICS. (4)
Basic principles and applications of statistics; elementary probability; populations, theoretical distributions and descriptive statistics; sampling, derived distributions and estimation; hypothesis testing; introduction to inference from categorical and metric data. Three class hours; two laboratory hours per week. Prereq: MA 113, 123, or 131 or equivalent.

STA 381 INTRODUCTION TO ENGINEERING STATISTICS. (3)
Probability; population and sample distributions; sampling; hypothesis testing; regression on one variable; quality control. Prereq: MA 213.

STA 417G PRINCIPLES OF OPERATIONS RESEARCH II. (3)
A continuation of MA 416G with topics selected from stochastic models, decision making under uncertainty, inventory models with random demand, waiting time models and decision problems. Prereq: CS/MA 416G and MA/STA 320, or consent of instructor. (Same as MA 417G.)

STA 422G BASIC STATISTICAL THEORY II. (3)
Theory of least squares; regression; analysis of variance and covariance; experimental design models; factorial experiments; variance component models. Prereq: STA 321.

STA 424G BASIC PROBABILITY AND DISTRIBUTION THEORY. (3)
Basic set theory and probability; random variables; discrete and continuous probability distributions; expected values, moments and moment-generating functions; distributions of functions of random variables; limiting distributions. Prereq: MA 114.

STA 503 INTRODUCTION TO STATISTICAL METHODS. (3)
Basic concepts of statistics, principles of sampling and experimentation, simple parametric and nonparametric procedures, linear and multiple regression, analysis of variance, introduction to statistical computing library. Prereq: MA 322.

STA 515 MATHEMATICAL PROGRAMMING AND EXTENSIONS. (3)
Mathematical and computational aspects of linear programming, large scale structures, quadratic programming, complementary pivoting, introduction to nonlinear programming. Applications to engineering and economics. Additional topics selected in geometric programming, stochastic programming. Prereq: A course in linear algebra or consent of instructor. (Same as MA/OR 515.)

STA 524 PROBABILITY. (3)
Sample space, random variables, distribution functions, conditional probability and independence, expectation, combinatorial analysis, generating functions, convergence of random variables, characteristic functions, laws of large numbers, central limit theorem and its applications. Prereq: MA 432G or 471G or consent of instructor. (Same as OR 524.)

STA 525 INTRODUCTORY STATISTICAL INFERENCE. (3)
Simple random sampling, statistics and their sampling distributions, sampling distributions for normal populations; concepts of loss and risk functions; Bayes and minimax inference procedures; point and interval estimation; hypothesis testing; introduction to nonparametric tests; regression and correlation. Prereq: STA 320 or STA 524 or STA 424G. (Same as OR 525.)

STA 531 THEORY OF STATISTICAL INFERENCE I. (4)
Sample space, concept of probability, conditional probability, random variables, density and distribution functions, mathematical expectation; moment generating functions; functions of random variables; limit laws, usual distributions, certain derived distributions, introduction to estimation and hypothesis testing. Prereq: MA 432G or MA 471G or consent of instructor.

STA 570 BASIC STATISTICAL ANALYSIS. (4)
Primarily in biological, behavioral and social sciences. Introduction to methods of analyzing data from experiments and surveys; the role of statistics in research, statistical concepts and models; probability and distribution functions; estimation; hypothesis testing; regression and correlation; analysis of single and multiple classification models; analysis of categorical data. Lecture, three hours; laboratory, two hours. Prereq: MA 109 or equivalent. For graduate students; undergraduates must have consent of instructor.

STA 601 THEORY OF STATISTICAL INFERENCE II. (3)
Elements of decision theory; properties of estimators; point and interval estimation; hypothesis-testing; sequential testing; inference from categorical data; linear regression as conditional expectation; multivariate normal distribution. Prereq: STA 531.

STA 603 INTRODUCTION TO LINEAR MODELS AND EXPERIMENTAL DESIGN. (4)
Review of topics from matrix and vector algebra; multivariate normal distribution and its properties; distribution of quadratic forms. The noncentral x^2, F and T distributions; the general linear model and related inference; elementary computational methods; applications of the theory-experimental design and covariance analysis; a. One-Way Layout, CRD, b. Two-Way Layout, RCB, c. Latin Squares—(1) Crossover designs, (2) Reversal, Double-reversal designs, (3) Other related designs, d. Factorials. Prereq: STA 503, STA 531; coreq: STA 601.

STA 612 SEQUENTIAL ANALYSIS. (3)
Survey and application of sequential sampling. Sufficiency and estimation. Two Stage sampling. The SPRT and its properties, both exact and approximate. Truncated and grouped SPRT's. Decision Theoretic approach. Sequential Estimation. Fixed width confidence intervals. Composite hypotheses and nuisance parameters. Generalized SPRT's. K hypothesis problems. Optimal Stopping. Prereq: STA 601.

STA 616 DESIGN AND ANALYSIS OF SAMPLE SURVEYS. (3)
Sampling from finite populations; estimation of sample size; stratification; ratio and regression estimators; systematic sampling; cluster sampling; multistage sampling (selection of sampling units with probability proportional to size); double sampling; response errors. Prereq: STA 531 or consent of instructor.

STA 619 PROBLEMS SEMINAR IN OPERATIONS RESEARCH. (3)
In this course the student is exposed to the art of applying the tools of operations research to real world problems. The seminar is generally conducted by a group of faculty members from the various disciplines to which operations research is applicable. Prereq: MA 617 and STA 525 or consent of instructor. (Same as BA/EE/OR 619 and MA 613.)

STA 621 NONPARAMETRIC INFERENCE. (3)
Estimation and testing when the functional form of the population distribution is unknown; rank and sign tests; tests based on permutations of observations; power of nonparametric tests; optimum nonparametric tests and estimators. Prereq: STA 601.

STA 624 APPLIED STOCHASTIC PROCESSES. (3)
Definition and classification of stochastic processes, renewal theory and applications, Markov chains, continuous time Markov chains, queueing theory, epidemic processes, Gaussian processes. Prereq: STA 524 or consent of instructor. (Same as OR 624.)

STA 626 TIME SERIES ANALYSIS. (3)
Time series and stochastic processes, auto-correlation functions and spectral properties of stationary processes; linear models for stationary processes, moving average, auto-regressive and mixed autoregressive-moving average processes; linear nonstationary models, minimum mean square error forecasts and their properties; model identification, estimation and diagnostic checking. Prereq: STA 422G or equivalent. (Same as ECO 626.)

STA 630 BAYESIAN INFERENCE. (3)
Subjective probability, likelihood principle, sufficiency, natural conjugate priors, principle of stable estimation, choice of a utility function, parametric estimation and hypothesis testing applications. Prereq: STA 601.

STA 635 SURVIVABILITY AND LIFE TESTING. (3)
Life Table Analysis. Estimation of survival rates with censored data. Competing Risk Theory. Parameter estimation for commonly encountered reliability distribution with complete censored and truncated data. Maximum likelihood and order statistics techniques. Survivability growth models, comparison of survival distribution, and sample size determination in clinical trials. Extreme value theory. Prereq: STA 525 or STA 601.

STA 641 DESIGN AND ANALYSIS FOR VARIANCE COMPONENT MODELS. (3)
Expected values, variances and covariances; balanced and nonbalanced designs; comparison of estimators; reduction of product variability; compositing; sequential designs; Bayesian estimation; confidence limits; negative estimates; finite populations. Prereq: STA 603.

STA 643 ADVANCED EXPERIMENTAL DESIGN. (3)
Advanced topics in analyses of incomplete block designs; confounding and change-over designs; data collected at several places and times; principles of design construction. Prereq: STA 603.

STA 644 ADVANCED LINEAR AND NONLINEAR MODELS. (3)
Review of the general linear model. Regression methodology using Ridge, Bayes, and Stein estimaters. The use of PRESS, C_p, and R^2 statistics as selection criteria. Modern computational methods. Nonlinear models and their methodology. Robust Regression. Prereq: STA 603.

STA 661 MULTIVARIATE ANALYSIS I. (3)
Characterization and properties of the multivariate normal distribution, random samples from this distribution; multivariate analysis of variance, related distribution theory; factor analysis. Prereq: STA 603.

STA 665 ANALYSIS OF CATEGORICAL DATA. (3)
Multinomial and product-multinomial models; large-sample theory of estimation and testing, Pearson chi-square and modified chi-square statistics, Pearson-Fisher Theorem, Wald Statistics and generalized least squares technique; applications to problems of symmetry, association and hypotheses of no interaction in multi-dimensional contingency tables. Prereq: STA 603.

STA 671 REGRESSION AND CORRELATION. (2)
Simple linear regression, elementary matrix algebra and its application to simple linear regression; general linear model, multiple regression, analysis of variance tables, testing of subhypotheses, nonlinear regression, step-wise regression; partial and multiple correlation. Emphasis upon use of computer library routines; other special topics according to the interests of the class. Lecture, three hours per week; laboratory, two hours per week for seven and one half weeks. Offered the first or second half of each semester. Prereq: STA 570 or EDP 557.

STA 672 DESIGN AND ANALYSIS OF EXPERIMENTS. (2)
Review of one-way analysis of variance; planned and unplanned individual comparisons, including contrasts and orthogonal polynomials; factorial experiments; completely randomized, randomized block, Latin square, and split-plot designs: relative efficiency, expected mean squares; multiple regression analysis for balanced and unbalanced experiments, analysis of covariance. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 671.

STA 673 DISTRIBUTION-FREE STATISTICAL INFERENCE AND ANALYSIS OF CATEGORICAL DATA. (2)
Inference for population quantiles, sign tests, Wilcoxon tests, Kruskal-Wallis and Friedman tests, Kendall and Spearman rank correlation. Goodness-of-fit tests for completely and partially specified distributions, rxc contingency tables, McNemar and Cochran's Q tests for matched proportions; three dimensional tables and tests of partial and multiple associations. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 570 or EDP 557.

STA 675 SURVEY SAMPLING. (2)
Simple random sampling and stratified random sampling, ratio and regression estimators, cluster sampling, systemic sampling, and multi-stage sampling. Specific problems associated with running a survey: nonresponse, call-backs, questionnaire construction, mail questionnaires, and area sampling. Lecture, three hours per week; laboratory, two hours per week for seven and a half weeks. Offered the first or second half of each semester. Prereq: STA 570 or EDP 557.

STA 676 QUANTITATIVE INHERITANCE IN PLANT POPULATIONS. (3)
After a brief review of population genetics theory, the course is divided into two sections which cover methods of estimating genetic variances and selection methods in population improvement. The course will focus on handling and interpretation of actual data sets through data analysis and discussion of current literature. Prereq: STA 570, STA 671, STA 672, and ASC 662. (Same as AGR 676.)

STA 677 APPLIED MULTIVARIATE METHODS. (3)
Survey of multivariate statistical techniques. The multivariate normal distribution; the general linear model; general procedures for parameter estimation and hypothesis testing in the multivariate case; Hotelling's T^2, multivariate analysis of variance and covariance; structural models for the covariance matrix; utilization of existing computer programs. Prereq: STA 671 and 672, and a knowledge of linear algebra equivalent to MA 262.

STA 678 STATISTICAL GENETICS. (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; random-mating and inbred populations; testing and planning in genetic experiments. Prereq: STA 672 and ASC 662 or consent of instructor. (Same as AGR 678.)

STA 679 DESIGN AND ANALYSIS OF EXPERIMENTS II. (3)
A continuation of STA 672. Multiplicative models in two-factor experiments: Partial factorials. Extensions and modifications of split plots and Latin squares. Confounding in factorial experiments. Response surface methods. Estimation of variance components. One restrictional and two restrictional lattice and incomplete block designs. Combining analyses of similar experiments. Prereq: STA 671 and 672 or equivalent.

STA 690 SEMINAR IN STATISTICS. (1)
May be repeated to a maximum of three credits.

STA 691 SPECIAL TOPICS IN THE PLANNING AND ANALYSIS OF EXPERIMENTS (Subtitle required). (1-3)
Place of statistics in experimentation; topics in experimental design; response surfaces; departures from usual assumptions in analysis of variance; other selected topics. May be repeated to a maximum of nine credits. Prereq: STA 603 or consent of instructor.

STA 692 STATISTICAL CONSULTING. (3)
Basic principles of statistical consulting including how to manage a consulting session, how to formulate and solve problems and how to express results both orally and in writing. Students will be expected to analyze data from a current consulting project. Lecture, two hours; laboratory, two hours per week. Coreq: STA 643 or 644 or consent of instructor.

STA 695 SPECIAL TOPICS IN STATISTICAL THEORY (Subtitle required). (1-3)
To be selected by staff. May be repeated to a maximum of nine credits. Prereq: STA 601.

STA 701 ADVANCED STATISTICAL INFERENCE I. (3)
Basic concepts of decision theory, sufficiency and completeness; completeness of multiparametric exponential family; unbiasedness and invariance of decision rules; Bayes, minimax and invariant estimators; Testing of hypotheses and optimality properties. Prereq: MA 571 and STA 601.

STA 702 ADVANCED STATISTICAL INFERENCE II. (3)
UMP and UMP unbiased tests for multiparametric exponential families; locally best tests; invariance and permutation tests, UMP invariant tests for linear hypotheses; asymptotic aspects of classical statistics, ML estimation and concepts of efficiency; sequential probability ratio test; confidence set, UMA unbiased and invariance confidence sets. Prereq: STA 701.

STA 703 ADVANCED PROBABILITY. (3)
Probability spaces, extension theorem, random variables; independence, conditional probability, conditional expectation; laws of large numbers, law of the iterated logarithm; convergence in distribution; characteristics functions; central limit theorems; martingales. Prereq: MA 571 and STA 524 or consent of instructor.

STA 704 ADVANCED PROBABILITY—STOCHASTIC PROCESSES. (3)
Random functions; jump Markov processes; processes with independent increments; stationary stochastic processes; diffusion processes; limit theorems; applications of stochastic processes. Prereq: STA 703.

STA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

STA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

STA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

TELECOMMUNICATIONS

TEL 101 TELECOMMUNICATIONS TODAY. (3)
An introductory survey of telecommunications emphasizing human behavior connected with communications systems characterized by high order economies of scale in distribution patterns. Includes present telecommunication industries, their histories, constraints, operations, content, revenue and cost patterns, evolving technologies. Open to seniors with consent of instructor.

TEL 201 TELECOMMUNICATIONS: PROCESS AND EFFECTS. (3)
This course will provide basic knowledge of the principal research findings concerning the role of telecommunications in contemporary U.S. society. The course will familiarize the student with the history, fundamental theories, and current issues before telecommunications industry. Prereq: TEL 101.

TEL 300 TELECOMMUNICATIONS RESEARCH METHODS. (3)
An introduction to behavioral research relating to telecommunications basic survey and experimental methodology including reliability of simple measurements. Prereq: TEL 101, TEL 201.

TEL 301 TELECOMMUNICATIONS REGULATIONS. (3)
A study of the governmental regulations of telecommunications by the FCC, and other federal, state and local agencies, including licensing, libel and slander, copyrights, illegal practices, self regulation. Prereq: TEL 101, TEL 201.

TEL 304 TELECOMMUNICATIONS TECHNOLOGY, HISTORY, AND POLICY. (3)
Overview of information distribution media, with consideration of the interrelationships between technology, economics, and policy in determining utilization patterns of communications media. Prereq: TEL 101, TEL 201.

TEL 305 TELECOMMUNICATIONS PROGRAM ANALYSIS. (3)
Course designed to assist students in developing criteria for analyzing structure and content of program material and for analyzing the relationships of audiences, programs, and American telecommunications systems. Lecture, two hours; laboratory, two hours. Prereq: TEL 101, TEL 201.

TEL 312 TELEVISION PRODUCTION I. (3)
An introduction to the fundamentals of video production, from conception to completed product. Practical training with essential production equipment will be offered. Lecture, two hours; laboratory, two hours per week. Prereq: TEL 101 and consent of department chair.

TEL 319 WORLD MEDIA SYSTEMS. (3)
A comparison of the communications media in different countries of the world and the theories used to justify them. How various political and social systems affect the media and how the media affect the societies in which they exist. Prereq: COM 101, TEL 101 or consent of instructor. (Same as COM 319.)

TEL 395 INDEPENDENT STUDY. (1-3)
Designed for advanced students with research or special study problems. Regular consultation with the instructor. May be repeated to a maximum of six credits. Enrollment normally limited to juniors and seniors with a 3.0 standing in telecommunications. These requirements may be waived by the department in exceptional circumstances. Prereq: Consent of instructor.

TEL 399 INTERNSHIP IN TELECOMMUNICATIONS. (1-3)
Provides field experiences in telecommunications through work in industry, government, education, radio, TV, research agencies, etc. Normally limited to juniors and seniors. Offered on a pass/fail basis only. May be repeated to a maximum of six credits. (Three hours can be counted toward Telecommunications major requirements.) Prereq: Consent of department and all required courses.

TEL 412 TELEVISION PRODUCTION II. (3)
A follow-up to TEL 312, this course is an advanced television production course and will feature instruction in directing, camera work, editing and lighting. Lecture, three hours; laboratory, one hour per week. Prereq: TEL 312.

TEL 413 AUDIO PRODUCTION. (3)
Elements of audio production, including basic machines, microphones, patch panels, the production mixing. Different audio products are discussed. Lecture, two hours; laboratory, two hours per week. Prereq: TEL 305.

TEL 414 TELECOMMUNICATIONS PERFORMANCE. (3)
Offers the students the unique opportunity to develop essential skills for professional on-air performance. Development of on-camera presence, pleasing and articulate vocal presentation and a thorough understanding of the performer's radio and television performance are covered. Lecture, two hours; laboratory, two hours per week. Prereq: TEL 312.

TEL 420 TELECOMMUNICATIONS PROGRAM CRITICISM. (3)
Examination of each of several critical theories and approaches to the criticism of telecommunications program content. Practical experience in evaluating critical writing and in the writing of critical pieces. Prereq: TEL 305.

TEL 464G ECONOMICS OF REGULATED INDUSTRIES. (3)
A study of economic principles and regulatory procedures related to regulated industries. The study includes an analysis of particular regulated industries, such as electric, gas, communications, and transportation. Prereq: ECO 202 or equivalent. (Same as ECO 464G.)

TEL 504 TELECOMMUNICATIONS MANAGEMENT. (3)
To introduce students to the principles of modern telesystems management as applied to telecommunications properties. Prereq: TEL 304.

TEL 505 ADVANCED TOPICS IN TELECOMMUNICATIONS POLICY. (3)
Examination of the purposes and processes of formation of public and private policy toward radio, television, and other information industries. Prereq: TEL 301.

TEL 508 ADVANCED RESEARCH METHODS. (3)
Provides advanced training for research design, sampling, analysis and evaluation procedures in telecommunications. Telecommunications problem areas will be analyzed through readings, discussion and use of analytic techniques. Prereq: TEL 300 and a statistics course.

TEL 510 ADVERTISING AND ELECTRONIC MEDIA. (3)
The data and techniques of radio and television advertising, including problems of coverage and circulation, spot campaigns, testing, time buying, the agency, measuring broadcast effectiveness, merchandising radio and television advertising and time selling. Prereq: TEL 300.

TEL 511 TELECOMMUNICATIONS INSTRUCTIONAL SYSTEMS. (3)
The course is designed to assist telecommunications professionals and students to design, operate and evaluate telecommunications tools and materials in support of organized instruction. Lecture, three hours; laboratory, two hours. Prereq: TEL 304.

TEL 513 SOCIAL EFFECTS OF TELECOMMUNICATIONS. (3)
An examination of the economic, political, social and behavioral effects of telecommunications systems in American society. Focus on theory and empirical research generated since 1940. Prereq: TEL 300.

TEL 520 ECONOMICS OF INFORMATION. (3)
Exploration of the economics of information industries, with particular attention to the special characteristics of information, the economic behavior of communications channels, and the role of information in decision making, the economy, organizational behavior, and other domains. Prereq: TEL 304.

TEL 530 PROSEMINAR IN TELECOMMUNICATIONS. (3)
Discussion and reports on current trends in telecommunications industries and the behavioral, political and regulatory implications attending such trends. Prereq: By departmental invitation only.

TEL 545 ENTERTAINMENT FUNCTIONS OF THE MASS MEDIA. (3)
This course provides an understanding of telecommunications content designed primarily for entertainment. It looks at why audiences seek such content, at the immediate and long-term probable consequences and at the role telecommunications entertainment content plays in society from the vantage both of classic and contemporary theory and research. Prereq: TEL 300.

TEL 599 TELECOMMUNICATIONS TOPICAL SEMINAR. (3)
In-depth seminar approach to a single topical issue in telecommunications. Different topical issues each offering. Course will be offered on demand. May be repeated to a maximum of six credits. Prereq: Consent of department.

THEATRE

TA 101 INTRODUCTION TO THEATRE: PRINCIPLES AND PRACTICE. (3)
The cultivation of judgment, perception and creative response to theatre, with emphasis on what and how theatre communicates through examination of both the processes and product of theatre.

TA 126 ACTING ENSEMBLE. (3)
A broad spectrum of skills will be explored in the creative process of acting ensemble. These skills include improvisation, movement disciplines (including theatre games, modern dance, and characterization), emotional and sensory awareness, and the process of integrating these into a clearly defined stage technique. Lecture, three hours; laboratory, two hours per week.

TA 127 ACTING TECHNIQUES. (3)
Movement exercises, sensory work, and theatre games are used to heighten awareness, release personal blocks, and discover the experience of being truthful with fellow actors. From there, students will move on to individual work to establish techniques they will use when working on a play. Students will explore physical and emotional awareness and develop a more creative use of their imaginations. Lecture, three hours; laboratory, two hour hours per week. Prereq: TA 126.

TA 150 FUNDAMENTALS OF PRODUCTION. (3)
A comprehensive study of the basic organizational structure, processes and techniques involved in theatre design, technology and management with particular reference to the UK Theatre. Prereq: Major or minor.

TA 190 PRODUCTION PRACTICUM. (1)
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of two credits. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

TA 191 PERFORMANCE PRACTICUM. (1)
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of two credits. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

TA 196 SUMMER THEATRE WORKSHOP. (3)
Open to apprentice students in the Summer Theatre. Classes in the theory and application of acting, directing and production principles supplemented by assignments in the University's Summer Theatre. Admission by permission of staff. Lecture, three hours; laboratory, to be scheduled. Prereq: Acceptance as an apprentice student in the Summer Theatre.

TA 225 VOCAL PRODUCTION FOR THE STAGE I. (3)
The theory and practice of stage diction. Mastery of these vocal techniques will lead the student to the eradication of regional speech patterns, an appreciation of vocal craft and discipline and an awareness of the diversity of vocal expression.

TA 226 METHODS IN ACTING. (3)
A lecture/laboratory course concentrating on several components of the acting process: preliminary study in modern acting theories, Stanislavski to the present; textual analysis, character study and scene work; studio exercises aimed at refining rehearsal skills for the actor. Lecture, two hours; laboratory, four hours per week. Prereq: TA 126 or equivalent.

TA 227 INTRODUCTION TO ACTING STYLES. (3)
A continuation of TA 226, with continued emphasis on developing the actor's skills in analysis and rehearsal. This course will introduce the actor to a performance style other than realism. Lecture, two hours; laboratory, four hours per week. Prereq: TA 226 or equivalent.

TA 260 STAGECRAFT. (3)
Study of theory, principles and techniques of stage construction. Assignments in laboratory and backstage during rehearsals and performances. Lecture, two hours; laboratory, five hours. Prereq: TA 150 or consent of instructor.

TA 264 MAKEUP FOR THE THEATRE. (3)
Theory and practice in the principles, materials and application of makeup. Lecture, two hours; laboratory, two hours. Prereq: TA 150 or consent of instructor.

TA 272 PRINCIPLES OF STAGE DRAFTING. (3)
Principles of stage drafting: tools and symbols, dimensioning, cabinet drawings, lettering, floor plans, elevations, sections, details, isometrics, obliques, orthographic projections, metrics, and conversion and perspective. Two hours lecture; two hours laboratory. Prereq: TA 150 or consent of instructor.

TA 300 READINGS IN THEATRE (Subtitle required). (3)
A program of supervised readings to provide undergraduate students with an in-depth comprehension of a selected area of theatre. May be repeated once under a different subtitle.

TA 320 THEATRE MOVEMENT I. (3)
The study and practice of principles, techniques, and exercises employed in one or more of the following areas of theatre movement: mime, mask, stage fencing, combat, clowning and circus techniques, and period movement. Laboratory, six hours per week. Prereq: Major and consent of instructor.

TA 321 THEATRE MOVEMENT II. (3)
A continuation of TA 320. Laboratory, six hours per week. Prereq: TA 320 and consent of instructor.

TA 322 CIRCUS TECHNIQUES AND COMMEDIA. (3)
Performance class in the techniques of circus performing (clowning, juggling, equilibristics, vaulting) and the *Commedia dell'Arte* (character studies, mask performance, improvisatory-comedic techniques). Studio, six hours per week. Prereq: TA 320 and consent of instructor.

TA 323 STAGE COMBAT. (3)
Using the techniques prescribed by the Society of British Stage Fight Directors, the class will cover skills in both unarmed and armed combat. Armed combat (broad swords, rapier and daggar, rapier and shield, quarterstaves) will also be covered. Studio, six hours per week. Prereq: TA 320 and consent of instructor.

TA 326 INTERMEDIATE ACTING. (3)
Concentrated training in styles of language, movement and manners from various historical periods in theatre. Representative scenes will be chosen from among the following periods: Classical Greek, Commedia Dell'Arte, Elizabethan, French Neo-Classic, Restoration, Eighteenth and Nineteenth Centuries. Laboratory, six hours per week. Prereq: B.F.A. candidate or consent of instructor.

TA 327 ADVANCED ACTING. (3)
A continuation of TA 326. Intensified study of acting styles and techniques from selective major acting periods stressing their relationships to the present. Intensive and individual coaching sessions. Laboratory, six hours per week. Prereq: TA 326, B.F.A. candidate or consent of instructor.

TA 330 PRINCIPLES OF DIRECTING. (3)
Discussion and practice of the director's basic techniques, methods and responsibilities. Lecture, two hours; laboratory, two hours. Prereq: Major or consent of instructor.

TA 350-353 TOPICS IN THEATRE. (3)
Reading, research, lecture and/or discussion in various areas of theatre history, technology and practice. May be repeated three times for a maximum of 12 hours when identified by different course subtitles. Prereq: Major or consent of instructor.

TA 360 STAGECRAFT II. (3)
Study of theory, principles and practices of advanced problems in stage construction. Three hours lecture per week. Four hours laboratory per week. Prereq: TA 260 or consent of instructor.

TA 365 COSTUME DESIGN I. (3)
A lecture-laboratory course to teach basic history, theory and practical construction of costume for the stage. Lecture, three hours; laboratory, five hours.

TA 366 SOUND FOR THE STAGE. (3)
A comprehensive study of both theory and practice for the medium of sound. Emphasis on practical recording techniques, editing, overdubbing and mix-down. Lecture, three hours; laboratory, two hours. Prereq: Theatre majors or consent of instructor.

TA 367 STAGE LIGHTING. (3)
Theory, practice, and design of lighting for the theatre: historic background, electricity, instrumentation, control, and aesthetics. Three hours lecture per week; three hours laboratory per week. Prereq: TA 150 or consent of instructor.

TA 374 SCENE DESIGN. (3)
Process of evolving a scenic design through play analysis, research, metaphysical association and the assimilation of theatrical art forms against practical prescribed limitations. Practice in developing floor plans, elevations and simple sketching techniques. Lecture, two hours; laboratory, two hours. Prereq: TA 150 or consent of instructor.

TA 380 HISTORY OF THE THEATRE I. (3)
A study of the theatre from primitive times through the Elizabethan period. Theatre and stage architecture, scene design, costuming and acting styles are discussed and their relation to dramatic literature analyzed.

TA 381 HISTORY OF THE THEATRE II. (3)
A continuation of TA 380; a study of the theatre from the Jacobean period to the present.

TA 387 SEMINAR IN THEATRE. (3)
Advanced reading and discussion in theatre theory and criticism. May be repeated to a maximum of 12 credits when identified by different course subtitles. Prereq: Major or consent of instructor.

TA 390 PRODUCTION PRACTICUM. (1)
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of four credits. At least two hours production related activities per week. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

TA 391 PERFORMANCE PRACTICUM. (1)
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of four credits. At least two hours performance related activities per week. Pass/fail only. Prereq: Consent of instructor and filing of prospectus.

TA 395 INDEPENDENT WORK. (1-3)
For undergraduate majors in theatre arts. Pursue independent work under the guidance of a staff member. Write a paper embodying the results of his research study and take an examination. May be repeated to a maximum of 12 credits. Prereq: Major, filing of prospectus at time of registration, and consent of chairperson.

TA 396 SUMMER THEATRE. (3)
Concentrated practical experience in the UK Summer Theatre program. May be repeated to a maximum of six credits. Eight hours laboratory per week. Prereq: Consent of department by audition or interview.

TA 397 SUMMER THEATRE. (3)
Concentrated practical experience in the UK Summer Theatre program. May be repeated to a maximum of six credits. Eight hours laboratory per week. Prereq: Consent of department by audition or interview.

TA 398 SUMMER THEATRE. (3)
Concentrated practical experience in the UK Summer Theatre program. May be repeated to a maximum of six credits. Eight hours laboratory per week. Prereq: Consent of department by audition or interview.

TA 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-15)
A community-based or field-based experience in theatre, under the supervision of a faculty member. May be repeated to a maximum of 15 credits. Prereq: Consent of instructor and department chairperson; completion of departmental learning agreement. (Approval of Dean of Fine Arts required for more than six credits per semester.)

TA 411 TEACHING OF THEATRE ARTS. (3)
A course designed to introduce teachers and community theatre workers to the problems of staging under circumscribed conditions; minimum essentials of play production and the means of supplying these needs. Required of all certification students.

TA 422 IMPROVISATION. (3)
Study and practice of improvisational acting techniques, using methods based primarily on those developed by Chaikin, Grotowski, Molina, Beck, and other "poor theatre" practitioners. Laboratory, six hours per week. Prereq: Major, audition, and consent of instructor.

TA 426 INTERMEDIATE ACTING STYLES. (3)
An in-depth investigation of role analysis and character development culminating in material for audition and performance. Intensive, individual coaching sessions. Laboratory, six hours per week. Prereq: B.F.A. candidate or consent of instructor.

TA 427 ADVANCED ACTING STYLES. (3)
A continuation of TA 426. Intensified study and coaching sessions culminating in a public performance. Laboratory, six hours per week. Prereq: TA 426, B.F.A. candidate or consent of instructor.

TA 430 THEATRE DIRECTING I. (3)
Study of movement, interpretation of lines, creation of atmosphere, use of stage areas, use of levels, methods of achieving a climax, handling of groups, planning of mob scenes. Prereq: TA 330 or consent of instructor.

TA 495 SENIOR PROJECT. (3)
An independent study project required of all senior majors. Designed to enable the student to demonstrate knowledge, skill and creativity in a particular area of theatre. Specific nature of project to be developed in collaboration with a faculty project adviser. Final product may be either a written or performed presentation. Prereq: Major/senior standing/filing of prospectus at time of registration.

TA 516 PLAYWRITING. (3)
A course designed for students interested in creative drama. The completion of at least one play is required. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

TA 524 DIALECTS FOR THE STAGE. (3)
The theory and practice of stage dialects for the American actor as it pertains to interpreting the role. Prereq: TA 225 or consent of instructor.

TA 525 VOCAL PRODUCTION FOR THE STAGE II. (3)
A continuation of TA 225. Intensified work to develop, release and expand the dynamics of the voice in relationship to the actor's needs. Individual coaching in specific roles and dialects and remedial help for individual problems. Prereq: TA 225 or consent of instructor.

TA 530 THEATRE DIRECTING II. (3)
Analyses and direction of the characteristics of tragedy, comedy, melodrama, farce and their variants. Intensive application of techniques studied in TA 430. Prereq: TA 430 or consent of instructor.

TA 590 PRODUCTION PRACTICUM. (1)
The study and practice of production techniques through rehearsal and performance. May be repeated to a maximum of two credits. Prereq: Consent of instructor and filing of prospectus.

TA 591 PERFORMANCE PRACTICUM. (1)
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of two credits. Prereq: Consent of instructor and filing of prospectus.

TA 596 SUMMER THEATRE. (1-6)
Concentrated experiential education in the UK Summer Theatre program. May be repeated to a maximum of 12 credits. Prereq: Consent of Department by audition or interview.

TA 600 READINGS IN THEATRE. (3)
A program of supervised readings to provide graduate students with an in-depth comprehension of selective areas of theatre. May be repeated to a maximum of six credits. Prereq: Graduate standing.

TA 625 ADVANCED STYLES OF ACTING. (3)
The rehearsal and performance of scenes and class exercises in improvisation to develop creative imagination as a basis for acting. Lecture, three hours; laboratory, two hours. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

TA 660 STUDIES IN TECHNICAL THEATRE: PRODUCTION. (3)
Problems in advanced sceno-graphic techniques including drafting for the theatre, period composition and design, translation of the design into actuality, planning and laying out the technical schedule. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

TA 661 STUDIES IN TECHNICAL THEATRE: LIGHTING. (3)
Investigation and critical evaluation of lighting practice and artistry in the contemporary theatre. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

TA 692 STUDIES IN DIRECTING. (1-3)
Experience in directing a full-length production for the Department of Theatre including the submission of a prompt book and production log. May be repeated to a maximum of six credits. Prereq: Consent of chairperson.

TA 770 SEMINAR IN THEATRE. (3)
Intensive study in a designated area of theatre. May be repeated to a maximum of nine credits.

TA 780 INDEPENDENT STUDY IN THEATRE. (1-3)
Study and research on specific topics and problems according to the interests and needs of individual students. Normally offered as an independent work course. May be repeated to a maximum of six credits.

TOXICOLOGY

TOX 606 INSECTICIDE CHEMISTRY AND TOXICOLOGY. (3)
Discussion of toxic action of insecticides; preparation, use, and analysis of insecticides; residues; analytical methods in insect toxicology. Prereq: CHE 230, 232, or consent of instructor. (Same as ENT 606.)

TOX 622 CONCEPTS OF TOXICOLOGY. (3)
Presentation of basic and advanced concepts to provide an integrated description of toxicology, its scope, the unique application of principles that characterize it as a science, and its professional practice. Emphases will include the influence of federal regulations on the practice of toxicology. Prereq: BCH 501 and PHA 522 or equivalents or consent of instructor.

TOX 640 DETOXIFICATION MECHANISMS. (3)
Lectures, seminars, and laboratory exercises dealing with the metabolic processes by which humans and animals alter and subsequently eliminate toxic substances from the body. Lecture, two hours; laboratory, two hours. Prereq: PHA 521 or consent of Director of Graduate Studies.

TOX 650 CELLULAR AND HISTOTOXICOLOGY. (2)
A systematic review of morphological responses to body trauma with special reference to toxic agents. The course is planned to consist of formal presentations and of discussion sessions (primarily interpretation of microscopic preparations). Prereq: Consent of instructor. (Same as VS 650.)

TOX 660 CLINICAL TOXICOLOGY AND DRUG MONITORING. (3)
A lecture and demonstration course designed to acquaint the student with the two main areas of clinical toxicology. The first part of the course will cover the scope of the drug abuse problem in the U.S.A. and detail the emerging role of the clinical toxicologist in dealing with a wide variety of analytical and medicolegal problems associated with illicit drug detection. The second part of the course will cover the rapidly expanding area of clinical toxicology which deals with the monitoring of therapeutic drugs as they relate to the appropriate clinical management of patients. Prereq: BCH 501 and 502, PHA 521 and 522 or equivalent with consent of instructor. (Same as PAT 660.)

TOX 672 BEHAVIORAL PHARMACOLOGY AND TOXICOLOGY. (2)
Principles and research relating to the quantitative behavioral effects of drugs and toxic chemicals in animals. Topics include effects of drugs on operant and respondent behavior, stimulus properties of drugs, drugs as reinforcers, and behavioral toxicology. Prereq: Consent of instructor. (Same as PHA 672.)

TOX 680 ADVANCED TOXICOLOGY. (4)
An intensive examination of the chemistry and action of substances which adversely affect living systems, and consideration of means of lessening their impact on man and the environment. Prereq: TOX 622 or consent of the Director of Graduate Studies.

TOX 690 PRACTICAL ANALYTICAL TOXICOLOGY. (3)
An evaluation of techniques for the isolation, identification, and quantitation of drugs, pesticides and other toxicants in biological samples. Concepts and theory will be presented in the lecture portion, while the laboratory will be devoted to actual sample analysis by the students. Lecture, one hour; laboratory, six hours. Prereq: Consent of the instructor and graduate standing in Toxicology. (Same as VS 690.)

TOX 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

TOX 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

TOX 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

TOX 770 PROSEMINAR IN TOXICOLOGY. (0)
A specialized seminar focusing on current topics of toxicological significance. Registration each fall and spring semester required of all toxicology majors until residency requirements for the degree have been completed.

TOX 780 SPECIAL PROBLEMS IN TOXICOLOGY. (2)
Exposure to and actual research experience in an area of toxicology other than that encountered by students in their thesis and dissertation research. May be repeated to a maximum of six credits. Prereq: Consent of graduate adviser.

TOX 790 RESEARCH IN TOXICOLOGY. (1-12)

UNIVERSITY WIDE

UK 100 UNIVERSITY COURSE (Title to be assigned). (1-3)
This course permits the offering at the introductory level of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Vice Chancellor for Academic Affairs. A particular title may be offered at most twice under the UK 100 number. Students may not repeat under the same title. Prereq: Will be set by instructor.

UK 300 UNIVERSITY COURSE (Title to be assigned). (1-3)
This course permits the offering of special courses of an interdisciplinary, topical, or experimental nature. Each proposal must be approved by the Vice Chancellor for Academic Affairs. A particular title may be offered at most twice under the UK 300 number. Students may not repeat under the same title. Prereq: Will be set by instructor.

VETERINARY SCIENCE

VS 350 INTRODUCTORY ANATOMY, PHYSIOLOGY, AND ANIMAL HYGIENE. (3)
A study of anatomy and physiology as related to courses in livestock production, judging, nutrition, meats and diseases, and introduction to the basic mechanism of animal disease and the relationship of animal hygiene.

VS 351 PRINCIPLES OF ANIMAL HYGIENE AND DISEASE CONTROL. (3)
A study of animal sanitation and disease control management. The course will acquaint students with the more important infectious, toxic, metabolic and parasitic diseases of domestic animals and will emphasize preventive concepts.

VS 395 SPECIAL PROBLEMS IN VETERINARY SCIENCE. (3)
Prereq: VS 350, 351, and consent of instructor. May be repeated to a maximum of six credits.

VS 650 CELLULAR AND HISTOTOXICOLOGY. (2)
A systematic review of morphological responses to body trauma with special reference to toxic agents. The course is planned to consist of formal presentations and of discussion sessions (primarily interpretation of microscopic preparations). Prereq: Consent of instructor. (Same as TOX 650.)

VS 690 PRACTICAL ANALYTICAL TOXICOLOGY. (3)
An evaluation of techniques for the isolation, identification, and quantitation of drugs, pesticides and other toxicants in biological samples. Concepts and theory will be presented in the lecture portion, while the laboratory will be devoted to actual sample analysis by the students. Lecture: 1 hour; laboratory: six hours. Prereq: Consent of the instructor and graduate standing in Toxicology. (Same as TOX 690.)

VS 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

VS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
Residence credit while completing research and writing thesis. Prereq: Completion of course requirements for the MS. May be repeated to a maximum of 12 hours.

VS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

VS 770 VETERINARY SCIENCE SEMINAR. (1)
Required of graduate students in veterinary science. May be repeated to a maximum of six credits. Prereq: Consent of staff.

VS 781 CORRELATIVE PATHOLOGY. (1-3)
Supervised experience in the use of clinical, gross and histopathological technics in the differential and definitive diagnosis of diseases. May be repeated to a maximum of nine credits. Prereq: Pathology in D.V.M. curriculum or equivalent and consent of staff.

VS 786 ADVANCED VETERINARY PATHOLOGY. (3)
Specialized instruction in techniques and interpretations of pathology and pathologic anatomy. Emphasis will be upon evaluation of lesions for understanding the pathogenesis of disease processes in the living animal. Prereq: Pathology in D.V.M. curriculum or equivalent and approval of staff.

VS 791 TECHNIQUES IN VETERINARY MICROBIOLOGY. (1-9)
Independent research in veterinary microbiology. May be repeated to a maximum of 24 credits. Prereq: Consent of staff.

VS 792 TECHNIQUES IN GENERAL VETERINARY PATHOLOGY. (1-9)
Independent research in veterinary pathology. May be repeated to a maximum of 24 credits. Prereq: Consent of staff.

WOMEN'S STUDIES

WS 200 INTRODUCTION TO WOMEN'S STUDIES IN THE SOCIAL SCIENCES. (3)
An introduction to women's studies from a social science perspective, using a cross-cultural and interdisciplinary approach. Introduces students to social science explanations for sex-typed behavior, to social perceptions of women and men, and to the roles of women in social and cultural life.

WS 201 INTRODUCTION TO WOMEN'S STUDIES IN THE ARTS AND HUMANITIES. (3)
An introduction to women's history in work, family and creative production. This course presents a set of organizing ideas for examining issues and problems of women in contemporary society, and gives students opportunities for writing, interviewing and discussing issues of gender, class and race from an interdisciplinary point of view. It introduces students to the basic methods of humanistic inquiry in general and humanistic women's studies in particular.

WS 300 TOPICS IN WOMEN'S STUDIES (Subtitle required). (3)
Selected topics in women's studies with special attention to those of contemporary relevance. May be repeated to a maximum of nine credits under different subtitles. Prereq: WS 200 or WS 201 or permission of instructor.

WS 399 INTERNSHIP IN WOMEN'S STUDIES. (1-6)
Provides field experiences in women's studies through work in education, industry, government, or community organizations. Offered on a pass/fail basis only. Maximum six credit hours per placement to maximum of twelve credit hours total. (Three hours can be counted toward the undergraduate Women's Studies minor requirements.) Prereq: WS 200 or WS 201 and declared minor in Women's Studies and consent of director of Women's Studies and faculty supervisor and learning contract filed with Experiential Education and Women's Studies.

WS 400 RESEARCH IN WOMEN'S STUDIES. (3)
The purpose of this course is to provide students the opportunity to engage in independent faculty-directed library or field research focused upon significant issues and problems confronting women in contemporary society. Prereq: WS 200.

WS 600 TOPICS IN WOMEN'S STUDIES (Subtitle required). (3)
Selected topics of theoretical or substantive interest in women's studies with special attention to topics of contemporary relevance. May be repeated to a maximum of nine credits under a different subtitle. Prereq: Graduate standing or permission of instructor.

LAW

LAW 804 LEGAL RESEARCH AND WRITING SKILLS. (3)
Instruction in the use of research materials, in legal writing, in the fundamentals of legal analysis and in the solution of selected legal problems.

LAW 805 TORTS. (4)
Intentional torts and defenses, negligence, causation, duties of occupants of land and manufacturers and vendors of chattels, contributory negligence, strict liability, deceit, defamation, malicious prosecution, interference with advantageous relations.

LAW 807 PROPERTY. (4)
Basic course in property: possession, gifts, bona fide purchasers of personalty. Estates, uses, easements, and rights incident to ownership.

LAW 809 FEDERAL CRIMINAL LAW. (2)
This course will cover federal white collar criminal issues, including RICO, mail and wire fraud, political corruption, bank secrecy laws, and false statement laws.

LAW 810 CRIMINAL LAW. (3)
Jurisdiction; the criminal act, complete and incomplete; criminal intent, actual and constructive; duress and mistake of fact, of law; justification; parties in crime; crimes against the person and crimes against property.

LAW 811 CRIMINAL PROCEDURE I. (3)
This course will cover search and seizure, the privilege against self-incrimination, confessions and identification procedures—in general, the constitutional cases arising out of the conflict between police practices and the Bill of Rights.

LAW 812 CONTRACTS. (4)
Formation of contracts, offer, acceptance, consideration. Statute of Frauds, parol evidence rule, contracts for benefit of third persons, assignments, performance of contracts, express and implied conditions, impossibility of performance, discharge and illegal contracts.

LAW 813 CRIMINAL PROCEDURE II. (2)
This course will cover the grand jury, pretrial motions, discovery, trial, pleas, sentencing, appeals, double jeopardy and habeas corpus. Criminal Procedure II will cover both constitutional cases and the rules of criminal procedure.

LAW 814 CRIMINAL TRIAL PROCESS. (3)
This course will cover in-depth the criminal trial process from the initial court appearance: grand jury proceedings, pretrial motions, discovery, trial, pleas, sentencing, appeals, double jeopardy and habeas corpus. Students who have taken LAW 813, Criminal Procedure II, may not take this course.

LAW 815 CIVIL PROCEDURE I. (3)
Introduction to the civil action; personal and in rem jurisdiction; service or process and notice; subject matter jurisdiction; venue; choice of law; pleading.

LAW 817 CIVIL PROCEDURE II. (2-3)
Joinder of claims and parties; discovery; summary judgment; right to jury trial; trials and posttrial motions; res judicata and collateral estoppel.

LAW 818 REMEDIES. (3)
Nature of damages; nature of specific relief; personal interests; contractual interests; property interests; specific relief and the government.

LAW 819 THE FEDERAL COURTS AND THE FEDERAL SYSTEM. (3)
The nature of the federal judicial function and its development, distribution of power among federal and state courts, Supreme Court review of state court decisions, the law applied in federal district courts, federal question and diversity jurisdiction, federal habeas corpus, removal jurisdiction and procedure.

LAW 820 CONSTITUTIONAL LAW I. (3)
Judicial interpretation of the Constitution; the federal system; powers of the national government; limitations on the exercise of state powers.

LAW 821 LITIGATION SKILLS. (4)
The skills of litigation, including trial advocacy, interviewing and counseling, negotiation and pleading. Lecture, one hour; laboratory, five hours. Prereq or concur: Law 890.

LAW 822 CONSTITUTIONAL LAW II. (3)
Protection of individuals and organizations by the Bill of Rights, the fourteenth amendment, and other provisions of the Constitution.

LAW 824 LEGAL RESEARCH TUTORIAL. (2)
A conference course for tutorial instruction in legal research and writing, in fundamentals of legal analysis, and in the solution of selected legal problems.

LAW 835 PROFESSIONAL RESPONSIBILITY. (2-3)
An examination of the varying roles played by lawyers in society and the conflicting pressures created to each role. Special attention is paid to the Code of Professional Responsibility as a guide and control in the lawyer-client relationship. Also considered at length is the role of law in society and the place of the legal profession in society. Guest speakers are used to bring into focus employment options for lawyers and the viewpoints of varying types of practicing lawyers to the pervasive problems of the legal profession.

LAW 837 PHILOSOPHY OF LAW. (3)
Concept of law; relations between law and morals; nature of legal reasoning; analysis of legal concepts; justification of punishment. (Same as PHI 537.)

LAW 839 WOMEN AND THE LAW. (3)
Constitutional aspects of sex discrimination, employment discrimination. A criminal law unit covering women as victims and as offenders.

LAW 840 LANDLORD AND TENANT. (2)
A study of the nature and creation of leasehold estates; landlord's rights and remedies; tenants' rights and remedies; use of the lease as a financing device; treatment of leases in bankruptcy proceedings; public rental housing.

LAW 851 BUSINESS ASSOCIATIONS. (4)
Legal introduction to business organization; emphasis on nature and structure under modern American business corporation law. Areas: partnership planning (formation, property rights, dissolution and liquidation rights); steps for corporate organizing (including legal consequences of defective incorporation); nature of corporate entity concept; corporate control and management (including problems of close corporation); fiduciary duties of directors and controlling shareholders under state law; nature and characteristics of shareholders' derivative suit. Prereq: Completion of first year of law study generally is expected.

LAW 853 FEDERAL CORPORATION LAW. (2 or 3)
Treats body of substantive federal corporation law newly generated by federal securities acts, its impact on directors and controlling shareholders in management of corporate affairs, proxy control (under Section 14, 1934 Securities Exchange Act), federal regulation of insider trading; tender offers; and effect of newly developed federal laws on state directors' and officers' indemnification statutes. Prereq: Completion of first year of law study generally is expected.

LAW 855 CORPORATION FINANCE LAW. (3)
A study of selected problems in advanced corporation law, including corporate promotion and capitalization (with special emphasis on senior securities and their characteristics); corporate distributions (dividends); recapitalizations (elimination of accrued dividends); public regulation of security issues (Securities Act of 1933 and state Blue Sky laws).

LAW 856 BUSINESS PLANNING. (3)
This course involves the planning of business transactions and combines the applicable corporate, tax, and securities considerations of such transactions in a single course. Emphasis will be on some of the more important types of corporate transactions, such as the organization of a private corporation and a public corporation, conflicts between stockholders of a close corporation, and corporate combinations. Course is limited to third-year students who have had a background in corporations and income tax. Knowledge of securities regulation and corporate tax is desired.

LAW 860 TAXATION I. (3-4)
Problems in federal and state income taxation.

LAW 862 PARTNERSHIP TAXATION. (2)
Federal income taxation of partnerships, focusing on the organization of partnerships, the allocation of partnership income among partners; current and liquidating distributions by partnerships to partners and the sale of interests in partnerships. Special attention will be given to real estate, tax shelter limited partnerships. Prereq: LAW 860.

LAW 865 ESTATE AND GIFT TAXATION. (3)
Donative transfers of property, including *inter vivos* transfers and wills; income, estate, and gift tax consequences of the various methods of disposition; administration of estates.

LAW 867 TAX PRACTICE AND PROCEDURE. (3)
An advanced tax elective dealing with administrative practice before the IRS; court procedures governing judicial resolution of tax controversies; civil and criminal tax penalties; and the ethical standards governing tax practice. Prereq: LAW 860.

LAW 868 CORPORATE TAXATION. (3)
Federal income taxation of corporations, focusing on the treatment of both shareholders and the corporation upon the organization of new corporations, distribution of dividends, redemption of shares, liquidation of the corporation, reorganization or merger of the corporation and other methods of selling a corporate business.

LAW 869 FEDERAL TAXATION OF NATURAL RESOURCES. (3)
Federal income taxation of mining and oil and gas extraction. Among the areas covered are entitlement to and computation of the depletion allowance, the treatment of exploration and development expenses, sales and leases of mineral interests and oil and gas in the ground, and the organization of business enterprises to extract minerals, oil and gas. Prereq: LAW 860.

LAW 870 MINERAL LAW. (3)
An examination of legal problems connected with coal, oil, and gas. The course will cover: ownership and conveyances of mineral interests, the laws affecting mine and marketing of extracted minerals, and legal issues affecting the use of minerals.

LAW 871 COAL MINING LAW. (3)
Administrative legal system implementing the federal and state surface mining acts.

LAW 872 LAND USE PLANNING. (2-3)
A comprehensive survey of the basic legal devices to control the use of land, theories of land use planning, nuisance, private agreements, zoning and zoning procedure, the role of the federal government in land planning, exercise of eminent domain, and selected Kentucky problems, such as rural zoning and proposed New Towns for Appalachia.

LAW 873 LAND TRANSFER LAW. (3)
An elective course for second-year law students. A basic study of the body of land development law, including: land transfers, land sales contracts; deed covenants; recording acts; title insurance; contemporary landlord and tenant law; and public utility, subdivision and zoning regulations. The indicated problem areas are treated together to illuminate the lawyer's role in the land development process.

LAW 874 BANKING LAW. (2)
History of banking; overview of agencies which regulate bank activities; formation and regulation of bank holding companies; bank mergers and acquisitions; branch banking; antitrust considerations; trust operations conducted by banks; impact of securities legislation on bank loans and bank financing; the FDIC and its impact on a failing bank.

LAW 875 SECURITIES REGULATION. (2-3)
The body of law relating to the issuance, distribution and trading of corporate securities with primary emphasis on federal regulation of the securities business.

LAW 876 TRUSTS AND ESTATES. (4)
An elective course for second-year law students. Examination of rules governing interstate distribution of property; formal requirements governing execution, alteration and revocation of wills; requisite elements of express trusts and requirements for their creation, special rules relating to charitable trusts and spendthrift trusts; rules concerning construction of wills and trusts and general rules governing administration of descendents' estates and trusts.

LAW 877 FUTURE INTERESTS. (2)
An advanced elective course for third-year law students treating in-depth future interests of ownership in property, including the kind of future interests, rules as to class gifts, the rule against perpetuities, and powers of appointment with emphasis on the lawyer's use of future interests in estate planning and the pitfalls relating thereto.

LAW 879 COMMERCIAL LAW I. (3)
A study of problems involved in the sale of goods as governed by the Uniform Commercial Code. Attention is given to statutory methodology.

LAW 880 COMMERCIAL LAW II. (4)
A study of problems involved in secured transactions and the exchange of commercial paper as governed by the Uniform Commercial Code. Prereq: LAW 879.

LAW 883 BUSINESS BANKRUPTCY. (2)
A study of the issues relative to business bankruptcies, including defining the estate; claims against the estate; trustee's power to enhance the estate; preservation of the estate; priorities; and reorganization under Chapter Eleven.

LAW 885 COMMERCIAL DEBTOR-CREDITOR RELATIONS. (2-3)
Minimizing risk of loss through bankruptcy by business creditors and debtors; Uniform Commercial Code versus the federal Bankruptcy Act; nonbankruptcy creditors' and debtors' remedies in commercial context, including assignments and arrangements under state law; commercial bankruptcy; rehabilitation under Bankruptcy Act.

LAW 887 INSURANCE. (2-3)
Nature of contract, insurable interest, making the contract, concealment, representations, warranties, implied conditions of forfeiture, waiver and estoppel, rights under the contract, and construction of the policy.

LAW 890 EVIDENCE. (4)
Rules of admissibility, real, circumstantial, testimonial and documentary evidence, witnesses, hearsay rule and its exceptions, procedure of admissibility, law and fact, judge and jury, burden of proof and presumption, judicial notice, and parole evidence rule.

LAW 898 ENVIRONMENTAL LAW. (3)
The role of the legal system in regulating the interrelated subsystems within the physical environment, including water and air pollution, solid waste disposal, and strip mining. Emphasis on: constitutional limitations on the public's power to implement planning proposals; relationships between federal, state and local governments; structure of agencies regulating environmental quality; standards for administrative discretion; the openness of administrative hearing procedures; and the scope of judicial review of administrative decisions. Prereq: None directly, although completion of first-year law courses is expected for second- and third-year elective courses.

LAW 905 CONFLICT OF LAWS. (3)
Nature of the subject, penal laws, procedure, judgments, domicile, capacity, form, particular subjects, litigation, family law, inheritance, foreign administrators.

LAW 910 LABOR LAW. (3)
History, organization, and structure of American labor unions; obligations and prerogatives of employers; questions of representation; privileges and obligations of unions; collective bargaining and dispute settlement.

LAW 912 EMPLOYMENT LAW. (3)
This course surveys and examines that multitude of important legal doctrines, statutes and rules that regulate those rights and responsibilities of employers and workers which are not controlled by collectively bargained agreements. The structures for administering the more important areas of such regulation are also studied. The subject matter of this course affects most dimensions of the manner in which over three quarters of our Gross National Income is distributed. Course coverage includes: the law of individual employment contracts, special employment relations such as civil service, the employer's right to various forms of work products, the employer's responsibility for job health and safety, protection of the worker's property, worker responsibility for wrong-doing, wage-hour laws, vacation benefits, bonuses, retirement benefits, health insurance benefits, and unemployment compensation.

LAW 914 TORTS II. (2-3)
Torts II provides an in-depth study of important areas of tort law merely surveyed in the basic course. The course provides a contemporary view of the torts process, particularly the areas of defamation, privacy, products liability and no-fault insurance. In addition, the course covers tort immunities, unjustifiable litigation, misrepresentation, and recent developments in tort theory and practice.

LAW 915 FAMILY LAW. (2-3)
Contracts to marry; the marriage status; annulment, divorce and separation; parent and child; infants and incompetent persons.

LAW 920 ADMINISTRATIVE LAW. (3)
Establishment of administrative tribunals, limits on discretion. Notice and hearing, orders, methods of judicial relief, scope of judicial review.

LAW 925 INTERNATIONAL LAW. (3)
Introduction to the legal process by which interests are adjusted and decisions reached on the international scene. Treaties, the law of international organizations, the "common law" of nations and national laws with significant international ramifications are examined to determine their effect on international cooperation and coercion.

LAW 930 ANTITRUST LAW. (2-3)
The body of law structuring economic organization and activities in a free enterprise national system. Major matters considered in the course are government creation and regulation of the legal monopolies, controls over collaborative conduct of competing economic entities, and legal controls over the vertical distributive relationship of suppliers, dealers, and customers.

LAW 935 UNFAIR TRADE. (2-3)
Analysis of the various common law unfair competition areas; examination of statutory relief in areas of trademarks, copyright, and misleading advertising; survey and analysis of various portions of Federal Trade Commission Act and Robinson-Patman Act.

LAW 950 SEMINAR. (1-3)
Seminar in selected legal problems. Normally, each seminar is centered upon a particular field of legal learning, such as office practice, current constitutional litigation, etc. May be repeated to a maximum of 10 credits.

LAW 960 TRIAL COMPETITION. (1)
This course provides an opportunity for students to participate in the American Trial Lawyers Association trial competition and receive credit for successful completion of the experience. Pass/Fail only. Prereq: LAW 890.

LAW 961 MOOT COURT. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court, and legal writing. May be repeated to a maximum of six credits.

LAW 962 KENTUCKY LAW JOURNAL. (1-3)
This course, required of all members of the Law Journal staff, offers experience in legal writing, editing, and the process of publication of a scholarly periodical. May be repeated to a maximum of three credits.

LAW 963 MINERAL LAW JOURNAL. (1-3)
This course, required of all members of the Journal of Mineral Law and Policy, offers experience in legal writing, editing, and the process of publication of a scholarly journal. May be repeated to a maximum of three credits.

LAW 964 LAW CLERKSHIP. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated to a maximum of six credits.

LAW 965 LEGAL INTERNSHIP. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated to a maximum of six credits.

LAW 967 PRISON INTERNSHIP. (3)
Supervised handling of cases for prisoners at the Federal Correctional Institution; instruction and practice in interviewing, counseling, negotiation, and study of applicable substantive law. Offered on a pass/fail basis only. Prereq: Completion of all first-year courses.

LAW 968 RESEARCH PROBLEMS. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated to a maximum of six credits.

LAW 969 SENIOR RESEARCH PROBLEMS. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court and legal writing. May be repeated to a maximum of six credits.

COLLEGE OF DENTISTRY

COMMUNITY DENTISTRY

CDE 655 HEALTH CARE ORGANIZATION. (1)
This course is an introduction to health care organization and presents an overview of current trends in the health care system. Topics presented are health needs, health manpower, health financing, health care facilities, health care planning and regulation, and the quality of health care. Prereq: D.M.D. or D.D.S. degree, and/or enrollment in a postdoctoral program or consent of instructor.

CDE 810 INTRODUCTION TO GERIATRIC/GERONTOLOGIC HEALTH CARE. (1)
This introductory course in gerontology for first-year dental students addresses the cognitive and affective domains of the course objectives. It includes information concerning various theories of aging; demographic trends in the aged population; the major social, psychological and biological changes that occur with age; and the more commonly occurring diseases of the aged. Emphasis is also placed on fostering positive attitudes toward the aged. Lecture, 16 hours. Prereq: Consent of course director. (Same as PER 610.)

CDE 830 DENTAL PRACTICE MANAGEMENT I. (2)
This course is designed to assist the third-year student in examining and formulating attitudes and values regarding current issues in the dental profession and the health care system. A clinical experience introducing students to use of a dental assistant is also included. Students are provided an opportunity to begin a process of career planning by examining how current issues may affect career options and selections in the future prior to a summer dental practice field experience. Lecture, 36 hours; clinic, 15 hours. Prereq: Third-year standing in the College of Dentistry.

CDE 841 DENTAL PRACTICE FIELD EXPERIENCE. (6-10)
Students are provided a full-time, off-campus assignment to a dental practice environment for a period of 6-10 weeks. Students spend an average of 32 hours each week participating in practice management and patient treatment activities under the supervision of a dentist. Approximately eight hours a week are spent in career plan development and in study of the community or region, particularly its health care delivery system and the role of dentistry in that system. Prereq: CDE 830.

CDE 844 DENTAL PRACTICE MANAGEMENT II. (7)
This course will provide fourth-year dental students with information needed to establish, manage and maintain a vital dental practice. Recognizing that the career goals of students vary, the course material will encompass a broad range of management principles. This course also includes a seven-week clinical rotation in dental auxiliary utilization. Lecture, 69 hours; clinic, 147 hours. Prereq: CDE 830 or consent of course director.

CDE 850 COMMUNITY DENTISTRY ELECTIVE. (1-10)
Elective courses offered by the Department of Community Dentistry provide opportunities for further study of or experience in various aspects of community dentistry. Topics may include analysis and evaluation of scientific literature, principles of scientific communication, dental practice field experiences during the summer and academic year, and principles of health care organization. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

CONJOINT DENTAL SCIENCE

CDS 550 RESEARCH METHODOLOGY AND INSTRUMENTATION. (2)
Seminars and laboratory work involving methods of several modern research fields. Lecture, one hour; laboratory, two hours. Prereq: D.D.S. or D.M.D. degree; admission to graduate dental program; or consent of instructor.

CDS 611 CHILD GROWTH AND DEVELOPMENT PART I. (2)
A seminar course on nature and physiologic control of physical growth, for graduate students in dentistry. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

CDS 612 CHILD GROWTH AND DEVELOPMENT PART II. (2)
A seminar course for graduate students in dentistry covering emotional and intellectual growth of children, and diseases and congenital anomalies of children. Prereq: Admission to graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

CDS 631 PRINCIPLES OF DENTAL OCCLUSION. (2)
This course is designed to give the student as broad as possible a view of the complex subject of dental occlusion. Prereq: Admission to dental graduate program; D.D.S. or D.M.D. degree.

CDS 810 NEW DEVELOPMENTS IN DENTISTRY I. (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. Methods of instruction will vary, depending on topics. When offered, this course will be required of first-year dental students. May be repeated to a maximum of four credits. Prereq: First-year standing in the College of Dentistry; any course prerequisite will be announced.

CDS 811 INTRODUCTION TO CLINICAL DENTISTRY. (3)
A conjoint course which presents the basic concepts of disinfection and sterilization, communication, history taking, physical evaluation, soft and hard tissue examination, oral radiology, treatment planning, and case presentation. Lecture, 34 hours; laboratory, 54 hours. Prereq: Admission to the College of Dentistry or consent of course director.

CDS 813 MANAGEMENT I: INTRODUCTION TO MANAGEMENT FOR THE DENTIST. (2)
In this introductory course in management for the dentist, basic concepts will be presented which can be applied in the management of time, people, facilities and money. Instruction leading to certification in cardiopulmonary resuscitation is included. Lecture, 45 hours. Prereq: Admission to the College of Dentistry.

CDS 814 INTRODUCTION TO PREVENTIVE DENTISTRY. (1)
This introductory course is required of first-year dental students. It presents the basic concepts of the control of dental disease and the maintenance of oral health. Lecture/discussion, 19 hours; clinic, five hours. Prereq: Admission to the College of Dentistry or consent of course director.

CDS 820 NEW DEVELOPMENTS IN DENTISTRY II. (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. Methods of instruction will vary, depending on topics. When offered, this course will be required of second-year dental students. May be repeated to a maximum of four credits. Prereq: Second-year standing in the College of Dentistry; any course prerequisites will be announced.

CDS 821 LOCAL ANESTHESIA. (1)
The action and dosage of local anesthetic agents used in dentistry are taught as are the proper injection techniques. The technique of venipuncture and administration of intravenous drugs are also included. Patient evaluation and emergency techniques for cardiac and respiratory resuscitation are reviewed. Lecture, six hours; self-instruction, 10 hours; clinic, five hours. Prereq: ANA 534; corequisite: OBI 822.

CDS 823 MANAGEMENT II: PATIENT COMMUNICATION. (1)
The primary purpose of this course is to improve students' ability to interact with patients in an empathetic and professional manner. Proper management of all assigned patients is required. Instruction leading to recertification in cardiopulmonary resuscitation is provided. Lecture, 26 hours. Prereq: CDS 813.

CDS 824 PRINCIPLES OF PATIENT MANAGEMENT I. (1)
This course presents the rationale for the development of the University of Kentucky College of Dentistry Preliminary, Phase I and Phase II treatment plans and a method of critically evaluating treatment results. Basic UKCD clinical protocol is presented and discussed. Lecture, 25 hours. Prereq: CDS 811 or consent of course director.

CDS 830 NEW DEVELOPMENTS IN DENTISTRY III. (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. When offered, this course will be required of third-year dental students. May be repeated to a maximum of four credits. Prereq: Third-year standing in the College of Dentistry; any course prerequisites will be announced.

CDS 831 CONSCIOUS SEDATION. (1)
This course is designed to teach the principles of nitrous oxide-oxygen inhalation sedation and intravenous sedation in dentistry. The management of emergencies associated with these techniques and an introduction to the principles of general anesthesia are also included. Lecture, 21 hours; clinic, four hours. Prereq: CDS 821, OBI 824.

CDS 832 DIAGNOSIS AND MANAGEMENT OF URGENT DENTAL PROBLEMS. (1)
This course is the didactic component of the third-year required rotation through the Dental Emergency Clinic. It provides a rational, organized approach to dealing with urgent dental problems, such as dental pain, orofacial infections, and traumatic injuries to the teeth and soft tissues. Lecture, 18 hours per week. Prereq: ODM 821; Coreq: ODM 831.

CDS 833 MANAGEMENT III: SPECIAL PATIENT MANAGEMENT. (1)
This course introduces the dental student to various handicapping conditions and teaches the proper methods of physical management of handicapped patients needed to provide dental care. Proper management of all assigned dental patients is required. Instruction leading to recertification in cardiopulmonary resuscitation is also included. Lecture, 26 hours; laboratory, 3 hours; clinic, 3 hours per term. Prereq: CDS 823.

CDS 834 PRINCIPLES OF PATIENT MANAGEMENT II. (1)
This course introduces the student to the basic process of treatment planning. This includes understanding the purpose of treatment planning and the data required. The student will learn how to devise a plan with a rationale and how to present it. Factors which may influence changes in the plan are also considered. Lecture/seminar, 20 hours. Prereq: Third-year standing in the College of Dentistry.

CDS 836 DIAGNOSIS AND MANAGEMENT OF FACIAL PAIN. (2)
An interdisciplinary approach will be used to teach current concepts of the diagnosis and management of facial pain. The course content will be presented in both lecture and clinical laboratory format. Information and physical examination skills presented in the classroom will be reinforced by attendance and active participation in the Facial Pain Clinic. Lecture, 29 hours; laboratory, 2 hours; clinic, 6 hours. Prereq: ANA 538, OBI 824, OSG 820, RSD 822.

CDS 840 NEW DEVELOPMENTS IN DENTISTRY IV. (1-2)
This course will cover selected new developments in dentistry or treat with added emphasis established dental skills and knowledge. The topics will be in such areas as the basic sciences, behavioral science, clinical dentistry, dental practice management, and community dentistry. Methods of instruction will vary, depending on topics. When offered, this course will be required of fourth-year dental students. May be repeated to a maximum of four credits. Prereq: Fourth-year standing in the College of Dentistry; any course prerequisites will be announced.

CDS 843 MANAGEMENT IV: GERIATRIC DENTISTRY. (2)
Emphasis in this course is placed on developing abilities to make individual treatment decisions for elderly dental patients and acquiring positive attitudes towards the provision of oral health care to the aged. Students will make site visits to residential centers for the elderly. Proper management of all assigned dental patients and instruction leading to recertification in cardiopulmonary resuscitation are also included. Lecture, 23 hours; laboratory, 12 hours. Prereq: CDE 810 and CDS 833 or consent of course director.

ENDODONTICS

END 820 ENDODONTICS I. (2)
This is a lecture-laboratory course introducing the student to the techniques of treating root canals of teeth. Emphasis is placed on the diagnosis and treatment of pulpal and periapical pathosis. Lecture, 15 hours; laboratory, 45 hours. Prereq: RSD 810, 812, and RSD 814, or consent of course director.

END 821 BASIC CLINICAL ENDODONTICS. (1)
In this course, students will treat two clinical endodontic cases, one of which shall be a molar. Thirty hours clinic, total. Prereq: END 820.

END 830 ENDODONTICS II. (1)
This course concerns the diagnosis and treatment of endodontically related problems. Traumatic injuries, controversies in instrumentation and filling procedures, periodontic-endodontic consideration, surgical endodontics and other selected topics are discussed in depth. Lecture, 20 hours. Prereq: END 821.

END 831 INTERMEDIATE CLINICAL ENDODONTICS. (1)
In this course students will treat routine endodontic cases. Clinic, 54 hours. Prereq: END 821.

END 841 ADVANCED CLINICAL ENDODONTICS. (1)
This course offers dental students further experience in providing endodontic treatment. Clinic, 40 hours. Prereq: END 831 or consent of instructor.

END 850 ENDODONTICS ELECTIVE. (1-10)
Elective courses offered by the Department of Endodontics provide opportunities for further study of or experience in various aspects of endodontics. Topics may include diagnosis, case selection, treatment planning, emergency treatment, intracanal medications, obturation materials, periapical surgery, root amputations, and endodontic-periodontic relationships. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of ten credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

ORAL AND MAXILLOFACIAL SURGERY

OSG 651 ANATOMICAL RELATIONSHIPS IN SURGERY. (1)
A seminar course for dental graduate students in areas other than surgery, emphasizing anatomical and surgical principles applicable to all dental specialties. Prereq: Admission to graduate or post-doctoral programs of College of Dentistry; D.D.S. or D.M.D. degree.

OSG 820 ORAL SURGERY I. (1)
The general objectives of this course are to teach the student the significance of a history and physical examination, how to identify and use basic oral surgery instruments, how to perform basic oral surgical techniques including the removal of teeth and preparation of the mouth for dentures. Lecture, 20 hours. Prereq: CDS 811 or consent of course director.

OSG 830 ORAL SURGERY II. (1)
This course is an overview of the specialty of oral surgery. The student is introduced to the surgical management of congenital and acquired abnormalities of the oral structures and associated parts. Management of odontogenic infection, cysts and tumors is presented, as well as the role of the dentist in the care of head and neck cancer patients. The diagnosis and management of facial fractures also are presented, particularly as they relate to the general practitioner. Lecture, 25 hours. Prereq: OSG 820 or consent of course director.

OSG 831 ORAL SURGERY ROTATION I. (1)
This course teaches the management of the ambulatory oral surgical patient. It includes patient evaluation, control of pain and anxiety, performance of minor oral surgical procedures, treatment of acute and chronic oral infections and of complications associated with oral surgery, and the use of the problem-oriented record. Slide-text programs and reading assignments supplement the outpatient clinical experience. Clinic, 48 hours. Prereq: CDS 821 and OSG 820 or consent of course director.

OSG 841 ORAL SURGERY ROTATION II. (2)
In this course students learn the management of oral surgical patients in a hospital. It consists of a full-time rotation on the oral surgery hospital service, including standing in-hospital night call with the oral surgery house staff. Students assist in patient care and perform procedures such as exodontia and biopsy. Oral surgical management of comprehensive care patients in the outpatient clinic is also included. Clinic, two weeks. Prereq: OSG 830 and OSG 831.

OSG 850 ORAL SURGERY ELECTIVE. (1-10)
Elective courses offered by the Department of Oral Surgery provide opportunities for further study of or experience in various aspects of oral surgery. Topics may include hospitalized and ambulatory patient management, emergency care, operating room experience, pain and anxiety control, and surgical technique. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

ORAL BIOLOGY

OBI 650 ORAL BIOLOGY FOR POSTDOCTORAL DENTAL STUDENTS. (4)
This seminar course provides a review of selected topics in the biological sciences. Emphasis is placed on the use of current literature for an in-depth study of those aspects of the subject particularly relevant to the practice of dentistry. Prereq: Admission to an advanced education program of the College of Dentistry or consent of instructor.

OBI 720 MICROBIAL STRUCTURE AND FUNCTION. (3)
Molecular basis of structure and function in unicellular microbes. Molecular genetic and structural approaches to the analysis of bacterial architecture growth, division, and differentiation. Prereq: Consent of instructor, BCH 501, BCH 502, and BIO 476G or equivalent. (Same as MI 720 and BIO 720.)

OBI 812 INTRODUCTION TO BIOCHEMISTRY AND NUTRITION. (3)
This is an introductory course in biochemistry and nutrition. Topics include the descriptive chemistry of carbohydrates, lipids, proteins, and nucleic acids; the nature of enzyme action, acid-base balance, caloric value of nutrients and water- and fat-soluble vitamins. Special emphasis is given to the topics of connective tissue, fluoride, dental caries and the biochemical principles of drug action. Lecture, 54 hours. Prereq: Admission to the College of Dentistry or consent of course director.

OBI 814 CELL FUNCTION. (3)
The intermediary metabolism of procaryotic and eucaryotic cells, relationships between anabolic and catabolic pathways, and cellular regulatory mechanisms operative within and between metabolic processes. Study includes nucleic acid and protein synthesis; metabolic control mechanisms; carbohydrate, lipid and amino acid metabolism; and bioenergetics. Information is related to current concepts of oral disease and its prevention. Lecture, 56 hours. Prereq: OBI 812 or consent of course director.

OBI 816 PRINCIPLES OF MICROBIOLOGY AND IMMUNOLOGY. (3)
This course is a two-part introduction to microbiology and immunology. Part I, Principles of Microbiology, contains basic microbial structure, function, taxonomy and genetics; principles of chemotherapy and drug resistance; and methods of disinfection and sterilization. Part II, Principles of Immunology, is an overview of mammmalian host defenses followed by a detailed description of the molecular basis of the immune response. Lecture, 47 hours. Prereq: OBI 814 or consent of course director.

OBI 820 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS I. (2)
This course presents the basic principles of drug action with respect to absorption, distribution, metabolism, and excretion. As an introduction to the organ systems, the physiological aspects of conducting and contracting tissues, connective tissues, lining and secretory tissues, and other special tissues are discussed. The pharmacology of antimicrobial drugs also is presented. Lecture and self-instruction, 38 hours. Prereq: OBI 814 or consent of course director.

OBI 822 INFECTIOUS DISEASES. (3)
This course presents the biologic and clinical basis of infectious disease using an organ system approach. Infections of all major organ systems, including the oral cavity, are examined. Emphasis is placed on the role of the host in controlling the initiation and progression of infectious disease. Lecture, 56 hours. Prereq: OBI 816 or consent of course director.

OBI 824 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS II. (4)
This course presents the physiology and pharmacology of mammalian nervous and respiratory systems, as relevant to the practice of dentistry. Special emphasis is placed on classes of therapeutic agents which act on these systems, including local anesthetics, analgesics, sedatives and hypnotics, and drugs used to treat respiratory disorders. Interaction of basic physiology and pharmacology with clinical science is stressed. Lecture/self-instruction, 70 hours. Prereq: OBI 820 or consent of course director.

OBI 826 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS III. (4)
This course presents the physiology and pharmacology of the dental hard tissues and the cardiovascular, endocrine, reproductive, renal and gastrointestinal systems. Emphasis is on aspects particularly relevant to dentistry, e.g., dentin sensitivity, cardiovascular and endocrine diseases, calcium homeostasis, temperature regulation, metabolism, and effects of stress on physiological processes. Therapeutic agents which act on these systems are presented. The interaction of physiology and pharmacology with clinical science is stressed. Lecture/self instruction, 64 hours. Prereq: OBI 824 or consent of course director.

OBI 832 CLINICAL ORAL BIOLOGY. (2)
This is the final course in the predoctoral basic science curriculum. The objective of the course is to teach students to correlate and apply clinical and biological principles that they have already learned in the context of assessing patient needs and designing treatment plans. Teams of clinical and basic scientists will lead discussions of selected topics using lectures, case presentations, and/or clinicopathologic conferences. Lecture, 41 hours. Prereq: OBI 826.

OBI 850 ORAL BIOLOGY ELECTIVE. (1-10)
Elective courses offered by the Department of Oral Biology provide opportunities for further study of or experience in various aspects of oral biology. Topics may include seminars in new developments in the basic sciences, basic research in the laboratory, and the development of a particular biological topic of mutual interest to the student and faculty member. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks of laboratory research. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

ORAL DIAGNOSIS AND ORAL MEDICINE

ODM 820 ORAL RADIOLOGY. (1)
This course is designed to achieve proficiency in the interpretation of intraoral and extraoral dental radiographs. Also pedodontic, panoramic and occlusal techniques and interpretations are reviewed. Principles of image formation, radiation biology, and special radiographic procedures for the dentist are included. Lecture/seminar, 29 hours. Prereq: CDS 811 or consent of course director.

ODM 821 CLINICAL ORAL DIAGNOSIS I. (1)
This course consists of two components: 1) examination, diagnosis, and treatment planning for patients assigned to dental students in general clinics; and 2) an emergency clinic assignment in which the students will diagnose and treat patients with acute oral problems. Clinic, 30 hours. Prereq: CDS 811; Coreq: CDS 824.

ODM 830 MANAGEMENT OF THE MEDICALLY COMPROMISED DENTAL PATIENT. (1)
This course covers a variety of common medical disorders which may be encountered in dental patients. General descriptions, pathophysiology, signs and symptoms, and current medical treatment for each disorder are included as well as detailed management guidelines for dental care. Lecture/self instruction, 25 hours. Prereq: OPT 820 or consent of course director.

ODM 831 CLINICAL ORAL DIAGNOSIS II. (1)
This course is a continuation of ODM 821 and also consists of two components: 1) examination, diagnosis and treatment planning for patients assigned to dental students in general clinics; and 2) emergency clinic assignments in which the students will diagnose and treat patients with acute oral problems. Clinic, 40 hours. Prereq: ODM 821; coreq: CDS 832.

ODM 841 CLINICAL ORAL DIAGNOSIS III. (1)
This course is a continuation of ODM 831 and also consists of two components: (1) examination, diagnosis and treatment planning for patients assigned to dental students in general clinics; and (2) emergency clinic assignments in which the students will diagnose and treat patients with acute oral problems. Clinic, 40 hours. Prereq: ODM 830 and ODM 831.

ODM 850 ORAL DIAGNOSIS ELECTIVE. (1-10)
Elective courses offered by the Department of Oral Diagnosis and Oral Medicine provide opportunities for further study of or experience in various aspects of oral diagnosis and medicine. Topics may include extraoral radiology, advanced X-ray technique, oral medicine, and clinical laboratory experience. Hours variable ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

ORAL PATHOLOGY

OPT 651 GRADUATE ORAL PATHOLOGY. (3)
Seminar course in advanced oral pathology. Prereq: Dental degree and enrollment in a graduate program of the College of Dentistry, or consent of instructor.

OPT 820 GENERAL PATHOLOGY FOR DENTAL STUDENTS. (2)
This is a basic course covering the principles of general pathology and the common disorders affecting the major organ systems. Emphasis is placed on cell damage, inflammation, neoplasia, immunology and systemic diseases that affect dental patient management. Lecture, 43 hours. Prereq: Enrollment in the College of Dentistry, ANA 530 and ANA 532; or consent of course director.

OPT 830 ORAL PATHOLOGY I. (2)
This is a comprehensive lecture course on oral and paraoral diseases. The course deals mainly with the clinical aspects of oral disease, with emphasis on clinical and/or radiographic appearance, etiology, management and prognosis. Lecture, 41 hours. Prereq: OPT 820 or consent of course director.

OPT 832 ORAL PATHOLOGY II. (1)
This course teaches the dental student an effective approach to patients with oral lesions. It will stress the following: development of a reasonable differential diagnosis list, procedures to be used in obtaining a definitive diagnosis, management of the patient after a diagnosis has been made, and treatment if indicated. Attendance at one lecture and one session of Head and Neck Oncology Clinic is included in the course. Seminar, 22 hours; clinic, three hours. Prereq: OPT 830.

OPT 840 ORAL PATHOLOGY III. (1)
This is an advanced course in oral pathology in which various diseases and abnormal conditions of the head, neck, and oral cavity are presented. The pertinent information on several selected cases will be on display for a week each and then followed by a lecture/discussion period for the development of a differential diagnosis, establishment of a definitive diagnosis, and discussion of treatment and prognosis. Attendance at one lecture and one session of Head and Neck Oncology Clinic is included in the course. Lecture, 17 hours; clinic, three hours. Prereq: OPT 832.

OPT 850 ORAL PATHOLOGY ELECTIVE. (1-10)
Elective courses offered by the Department of Oral Pathology provide opportunities for further study of or experience in various aspects of oral pathology. Topics may include principles of clinical and histologic diagnosis, the management of patients with oral disease, and discussions of specific oral diseases. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

ORTHODONTICS

ORT 610 CRANIO-FACIAL FORM. (3)
Applied radiographic anatomy for graduate students in dentistry. Prereq: Admission to graduate dental programs; D.D.S. or D.M.D. degree.

ORT 620 ORAL-PHARYNGEAL FUNCTION, PART I. (2)
Basic and applied physiology for graduate students in dentistry. Class, two and one-half hours. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

ORT 621 ORAL-PHARYNGEAL FUNCTION, PART II. (2)
A continuation of ORT 620, emphasizing speech physiology and language development. Lecture, two and one-half hours. Prereq: Admission to a graduate program of the College of Dentistry; D.D.S. or D.M.D. degree.

ORT 660 ORTHODONTIC DIAGNOSIS. (1)
This course emphasizes the principles of data collection and diagnosis for planning comprehensive orthodontic treatment. Lecture, 24 hours. Prereq: Admission to a postdoctoral program of the College of Dentistry.

ORT 661 ORTHODONTIC SEMINAR-CLINIC. (3)
Seminar, laboratory and clinical instruction in orthodontic theory and practice. Lecture, three hours; laboratory, 15 hours. Prereq: ORT 660.

ORT 662 ORTHODONTIC TECHNIQUE. (3)
In this technique course, management of orthodontic apparatuses, sequence of treatment, and mechanics in comprehensive orthodontic therapy are covered. Laboratory, 100 hours. Prereq: Admission to a postdoctoral program of the College of Dentistry.

ORT 664 BIOMECHANICS. (1)
Biological reactions of the periodontal and craniofacial structures during orthodontic treatment as well as theoretical mechanical principles of tooth movement are taught in this course. Lecture, 22 hours. Prereq: Admission to a postdoctoral program in the College of Dentistry.

ORT 700 ORTHODONTIC SEMINAR. (1)
Seminar in orthodontic theory and practice for advanced graduate and postdoctoral students in orthodontics. May be repeated to a maximum of five credits. Lecture, three hours. Prereq: Admission to the Orthodontics Graduate Program and consent of course director.

ORT 710 MANAGEMENT OF COMPLEX OROFACIAL DEFORMITIES. (1)
Seminar discussions of techniques in orthodontic problem solving and planning treatment for patients with orofacial deformities refractory to either orthodontic therapy or oral surgery but which are resolvable by utilizing combinations of orthodontic and oral surgical therapies. Lecture, one hour per week; laboratory, one hour per week. Prereq: ORT 660 or permission of instructor.

ORT 750 RESEARCH IN ORTHODONTICS. (1-5)
Research in orthodontics. May be repeated to a maximum of five credits. Prereq: Admission to the orthodontic graduate program of the College of Dentistry; special permission.

ORT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
Maximum of nine weeks residence credit. Prereq: Admission to the orthodontic graduate program of the College of Dentistry or consent of instructor.

ORT 820 ORTHODONTICS. (3)
This course introduces the student to the concepts of craniofacial growth and development and their implications for orthodontic treatment. Basic principles of orthodontic diagnostic data collection and analyses are also covered. Planning and integration of limited orthodontic treatment in primary and comprehensive dental care delivery systems are emphasized. Laboratory exercises simulate appliance fabrications that are used in treating selected occlusal irregularities in children and adults. Lecture, 38 hours; laboratory, 44 hours. Prereq: Second-year standing in College of Dentistry.

ORT 841 CLINICAL ORTHODONTICS. (1)
This clinical course requires the students to analyze and diagnose the present and developing occlusal disharmonies in their assigned patients and to provide therapy for those patients who need tooth movements judged to be within the scope of the general practice of dentistry. Clinic, 50 hours. Prereq: ORT 820 and consent of course director.

ORT 850 ORTHODONTIC ELECTIVE. (1-10)
Elective courses offered by the Department of Orthodontics provide opportunities for further study of or experience in various aspects of orthodontics. Topics may include principles of comprehensive orthodontic treatment, types of orthodontic appliances, and methods of correcting facial skeletal problems. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

PEDIATRIC DENTISTRY

PDO 820 BASIC CHILDREN'S DENTISTRY. (2)
This course is designed to introduce basic modern concepts in dentistry for children. Emphasis is placed on physical and emotional development, principles of child behavior management, and basic restorative dentistry techniques. Lecture, 43 hours; laboratory, six hours. Prereq: Second-year standing in the College of Dentistry.

PDO 830 INTERMEDIATE CHILDREN'S DENTISTRY. (1)
In this course in dentistry for children, emphasis will be placed on the development of the dentition, principles of oral surgical procedures, advanced restorative techniques, and the diagnosis and treatment of traumatic injuries to children's teeth. Lecture, 26 hours. Prereq: PDO 820.

PDO 831 INTERMEDIATE CLINICAL CHILDREN'S DENTISTRY. (2)
An intermediate clinical course designed to teach comprehensive dental treatment for the child patient. Clinic, 75 hours. Coreq: PDO 830.

PDO 841 ADVANCED CLINICAL CHILDREN'S DENTISTRY. (4)
An advanced clinical course designed to provide the student with an opportunity to practice methods of good parent and patient management. Additionally, the student will become more proficient in technical skills. Prereq: PDO 831 or consent of instructor.

PDO 850 PEDIATRIC DENTISTRY ELECTIVE. (1-10)
Elective courses offered by the Department of Pediatric Dentistry provide opportunities for further study of or experience in various aspects of pediatric dentistry. Topics may include management of children with developmental/medical conditions in a hospital, dental treatment of handicapped children and of normal children and adolescents, and further discussion of treatment techniques. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

PERIODONTICS

PER 626 ADVANCED CONCEPTS IN GENERAL DENTISTRY. (1)
This course presents, by seminar, lecture or continuing education courses, advanced concepts in general dentistry that are essential to the clinical practice of periodontics. It includes advanced instruction in orthodontics, periodontal prosthesis, prosthodontics and oral surgery. May be repeated to a maximum of four credits. Prereq: Admission to a postdoctoral program of the College of Dentistry or consent of course director.

PER 661 MODERN CONCEPTS IN PERIODONTICS. (2)
A seminar course designed to present the present understanding of the etiology of periodontal disease and current techniques for treatment of periodontal problems. Prereq: Admission to graduate program of College of Dentistry; D.D.S. or D.M.D. degree.

PER 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated for a total of 12 hours. Prereq: Admission to the Periodontics postdoctoral program and consent of director of graduate studies.

PER 770 TREATMENT PLANNING SEMINAR. (2)
In this seminar course, graduate students present and discuss diagnosis, prognosis, ideal treatment plans and alternative treatment plans for patients with periodontal disease. Each student gives at least eight case presentations. May be repeated to a maximum of eight credits. Lecture, 40 hours. Prereq: Admission to the Periodontics postdoctoral program or consent of course director.

PER 772 PERIODONTAL BIOLOGY AND PATHOLOGY. (2)
Seminar discussions, review and evaluation of the literature covering periodontal anatomy, periodontal biology, the pathology of periodontal diseases and etiological factors in periodontal disease. The subject area will be covered in four semesters. May be repeated four times for a maximum of eight credits. Lecture, 40 hours. Prereq: Admission to the Periodontics postdoctoral program or consent of course director.

PER 774 PERIODONTICS SURGICAL SEMINAR. (1)
In this seminar course participants present, discuss and critique surgical procedures that have been accomplished in the clinic. Reading assignments from the literature augment the clinical discussions and students are encouraged to use the literature to justify their procedures. Cases are presented on a rotating basis. May be repeated to a maximum of four credits. Prereq: Admission to Periodontics postdoctoral program or consent of course director.

PER 776 PERIODONTAL THERAPY SEMINAR. (1)
This is an advanced series of seminars on the clinical aspects of periodontal therapy. During the course, the students will learn about various modalities of periodontal therapy as presented in the periodontal literature, e.g., mucogingival treatment, implants and curettage. May be repeated to a maximum of two credits. Prereq: Admission to the Periodontics postdoctoral program or consent of course director.

PER 790 RESEARCH IN PERIODONTICS. (1-3)
This course involves direct student participation in a research project. Projects and thesis are approved by the course director and may be clinical, laboratory experimental or related to dental education. Projects may include original or ongoing research within the Department of Periodontics or other departments of the Medical Center. May be repeated to a maximum of six credits. Prereq: Admission to the Periodontics postdoctoral program and consent of the department involved.

PER 610 INTRODUCTION TO GERIATRIC/GERONTOLOGIC HEALTH CARE. (1)
This introductory course in gerontology for first-year dental students addresses the cognitive and affective domains of the course objectives. It includes information concerning various theories of aging; demographic trends in the aged population; the major social, psychological and biological changes that occur with age; and the more commonly occurring diseases of the aged. Emphasis is also placed on fostering positive attitudes toward the aged. Lecture, 16 hours. Prereq: Admission to the College of Dentistry or consent of course director. (Same as CDE 810.)

PER 810 PERIODONTICS I. (2)
This is a beginning course in periodontics designed to introduce the student to concepts that are basic to the understanding, prevention, and treatment of periodontal disease. Students will perform preclinical services including examination, instrumentation and instruction in oral hygiene. Throughout this course the development of a philosophy of prevention is emphasized. Lecture, 19 hours; self-instruction, 10 hours; laboratory, 24 hours. Prereq: Consent of course director.

PER 811 CLINICAL PERIODONTICS I. (1)
This is a clinical course designed to introduce the student to clinical periodontics. Oral examination, oral hygiene instruction, evaluation and instrumentation are performed on assigned patients. Clinic, 30 hours. Prereq: PER 810 or consent of instructor.

PER 820 PERIODONTICS II. (1)
This course presents the components of the first stages of periodontal therapy. Emphasis is on diagnosis, prognosis, treatment planning and treatment of the periodontally involved patient. The student is also introduced to the principles of periodontal surgery. Lecture, 25 hours; laboratory, two hours. Prereq: PER 810 or consent of course director.

PER 821 CLINICAL PERIODONTICS II. (2)
This is a course designed to provide the student with clinical experience so that he can obtain a minimal competence in the applications of periodontal procedures. Therapeutic procedures involving initial periodontal therapy will be performed by each student. Clinic, 50 hours. Prereq: PER 811, or consent of instructor.

PER 830 PERIODONTICS III. (1)
This is a surgically oriented course which presents information necessary for the diagnosis, treatment planning and treatment of surgical cases. The information gained is applied to planning treatment for actual surgical cases. Lecture, 24 hours; laboratory, six hours. Prereq: PER 820 or consent of course director.

PER 831 CLINICAL PERIODONTICS III. (2)
This is a clinical course which offers the student the opportunity to treat patients with more advanced periodontal disease. Therapeutic procedures will be performed by each student as his patients' needs dictate. Clinic, 50 hours. Prereq: PER 821; corequisite: PER 830; or consent of instructor.

PER 841 CLINICAL PERIODONTICS IV. (4)
This clinical course is a continuation of PER 831. The student receives further instruction and experience in diagnosing, planning treatment and treating patients with periodontitis and mucogingival problems. Prereq: PER 830 and PER 831, or consent of instructor.

PER 850 PERIODONTICS ELECTIVE. (1-10)
Elective courses offered by the Department of Periodontics provide opportunities for further study of or experience in various aspects of periodontics. Topics may include treatment planning, diagnosis, treatment and prognosis in periodontal disease; periodontal surgery, including suturing; splinting; referrals, maintenance and prevention. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

PROSTHODONTICS

PRO 820 INTRODUCTION TO COMPLETE DENTURE PROSTHODONTICS. (4)
A preclinical lecture and laboratory introduction to basic concepts of diagnosis and treatment planning, fabrication, placement and maintenance of complete dentures. This course presents the related biological and mechanical factors that must be incorporated for living tissue to be compatible with complete dentures. The methods and materials for constructing complete dentures are presented, and certain laboratory phases of construction are performed by the student in simulated situations. Lecture, 30 hours; laboratory, 68 hours. Prereq: ANA 530, ANA 534 and RSD 814.

PRO 821 CLINICAL COMPLETE DENTURE PROSTHODONTICS. (1)
The treatment of a patient with complete maxillary and mandibular denture needs is performed in the clinic by the student. The student will assist an upper level student in the examination of a complete denture and a removable partial denture recall patient. Clinic, 52 hours. Coreq: PRO 820.

PRO 824 REMOVABLE PARTIAL DENTURES. (2)
This course is designed to teach the student the basic principles and the practical procedures in providing a therapeutic and functional removable restoration. The course also presents the laws and effects of leverages as related to removable partial dentures as well as the considerations for support, occlusion, and health of all oral structures. Lecture, 33 hours per week. Prereq: PRO 820.

PRO 831 CLINICAL REMOVABLE PROSTHODONTICS. (2)
A patient with complete denture needs is treated by the student clinically in the course. The student may opt to treat a patient with immediate, intermediate or overdenture needs. He may initiate and/or complete the treatment of two patients with removable partial denture needs. The student may also treat an optional, additional patient in need of a complete or removable partial denture. The student will recall a minimum of two removable prosthodontic patients and perform any treatment necessary for these patients. Clinic, 110 hours. Prereq: PRO 821; coreq: PRO 830.

PRO 832 ADVANCED REMOVABLE PROSTHODONTICS. (2)
This course is a continuation of PRO 820 and PRO 824. It presents more advanced techniques and treatment planning for complex prosthodontic needs. Subjects included are removable partial dentures of various designs, immediate dentures, overdentures and dental implants. Lecture, 33 hours; laboratory, 6 hours. Prereq: PRO 820 and PRO 824.

PRO 841 ADVANCED CLINICAL REMOVABLE PROSTHODONTICS. (2)
This course covers basically the same area as PRO 831 with the exception that the student is to treat the patient with complete denture needs with less supervision from the instructors. If not done previously, the student must initiate and complete the treatment of two patients with removable partial denture needs. The student will recall three removable prosthodontic patients and will perform any treatment necessary for these patients. Clinic, 114 hours. Prereq: PRO 831.

PRO 850 PROSTHODONTICS ELECTIVE. (1-10)
Elective courses offered by the Department of Prosthodontics provide opportunities for further study of or experience in various aspects of prosthodontics. Topics may include treatment of patients who require complete dentures, removable partial dentures and overdentures; maxillofacial prosthodontics; and other prosthodontic treatment procedures. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

RESTORATIVE DENTISTRY

RSD 812 PRINCIPLES OF OCCLUSION AND TOOTH MORPHOLOGY. (6)
This course includes a detailed study of the teeth, individually and collectively. The significance of tooth form and function is emphasized as is the relationship of this knowledge to preventive clinical dentistry. Those principles of occlusion and mandibular physiology which are common to all disciplines of clinical dentistry are coordinated to provide the student with a basic understanding of the fundamentals involved. Lecture, 24 hours; laboratory, 118 hours; self-instruction, 25 hours. Prereq: Admission to College of Dentistry or consent of course director.

RSD 814 PRECLINICAL RESTORATIVE DENTISTRY I. (5)
This course is a preclinical introduction to the etiology, pathology, prevention, and treatment of dental caries. Fundamentals of dental hard tissue surgery and the restoration of these tissues with silver amalgam, intermediate restorative materials, composite restorative material, and acrylic resin are presented. The materials science and correct manipulation of these materials are emphasized. Procedures are done on manikins and extracted teeth in a laboratory setting. Lecture, 36 hours; laboratory, 87 hours. Prereq: Admission to the College of Dentistry or consent of course director.

RSD 821 CLINICAL RESTORATIVE DENTISTRY I. (3)
This course emphasizes clinical application of the principles taught in preclinical courses. Concepts of diagnostic and therapeutic procedures as well as preventive measures are applied in the clinic with emphasis on the demonstration of competency in rendering primary care type treatment procedures. Prereq: RSD 814; coreq: RSD 824.

RSD 822 DIAGNOSIS AND TREATMENT OF TEMPOROMANDIBULAR DISORDERS. (3)
This course is directed toward the examination, diagnosis, treatment planning and treatment of functional disturbances of the masticatory system. Primary emphasis will be placed on acute muscle disorders and disc-interference disorders. The course emphasizes both theory and practice and includes clinical experience in the examination and treatment of functional disturbances in the masticatory system. The student will gain experience in using articulators, fabrication of occlusal splints and preclinical experiences in selective grinding. Lecture, 31 hours; clinic, 29 hours; laboratory, 27 hours. Prereq: CDS 811, RSD 812.

RSD 824 PRECLINICAL RESTORATIVE DENTISTRY II. (6)
This course is a preclinical continuation of RSD 814, placing emphasis on dental hard tissue surgery for extensively damaged teeth and on their restoration to meet the biological needs of the patient. Tooth preparation and restoration using dental casting alloys are performed on manikins and extracted teeth. The materials science and correct manipulation of investments, alloys and cements used to make cast restorations are emphasized. Knowledge gained in dental morphology and occlusion is applied in this course. Lecture, 42 hours; laboratory, 114 hours. Prereq: RSD 814 or consent of course director.

RSD 830 PRINCIPLES OF FIXED PROSTHODONTICS. (2)
This course is a lecture series concerning diagnosis and treatment planning for fixed prosthodontics care and the principles of providing that care. The relationship of tooth restoration and replacement to occlusion, periodontics, orthodontics and removable prosthodontics in both treatment planning and treatment is emphasized. Lecture, 33 hours; self-instruction, 11 hours. Prereq: RSD 821 and RSD 824.

RSD 831 CLINICAL RESTORATIVE DENTISTRY II. (4)
A continuation of RSD 821 as well as some clinical application of principles taught in RSD 824. The emphasis continues to be on the delivery of primary care type treatment with increasing competency and proficiency. Some emphasis is directed toward elementary experiences in rehabilitative type treatment procedures and occlusal dysfunctions. Clinic, 120 hours. Prereq: RSD 821 and RSD 824; coreq: RSD 830 and RSD 834.

RSD 832 DENTAL BIOMATERIALS. (2)
In this course, the materials science, proper manipulation and biocompatibility of a wide variety of dental biomaterials are examined. The durability and biocompatibility of similarly utilized materials are compared. Diagnosis of the causes of clinical materials-related failures is emphasized. Lecture, 40 hours. Prereq: PRO 820 and RSD 824 or consent of course director.

RSD 834 PRECLINICAL RESTORATIVE DENTISTRY III. (3)
This is a preclinical course with emphasis on dental hard tissue surgery and restorative procedures for anterior and posterior fixed prosthodontics. A preventive orientation is stressed as theory is applied in practice using manikins. Knowledge gained in RSD 822 and RSD 824 is applied to more extensive restorations. Lecture, 10 hours; laboratory, 78 hours. Prereq: RSD 821 and RSD 824.

RSD 841 CLINICAL RESTORATIVE DENTISTRY III. (5)
As the final phase in the undergraduate clinical continuum, this course continues to emphasize primary care concepts and proficiency. In addition, more complicated rehabilitative type care and occlusal dysfunction problems are encountered by the student under faculty supervision. Clinic, 165 hours. Prereq: RSD 830, RSD 831 and RSD 834.

RSD 850 RESTORATIVE DENTISTRY ELECTIVE. (1-10)
Elective courses offered by the Department of Restorative Dentistry provide opportunities for further study of or experience in various aspects of restorative dentistry. Topics may include occlusion in oral reconstruction, philosophies of occlusion, complex restorative dentistry, dental ceramics and esthetics, and dental physical sciences. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.

COLLEGE OF MEDICINE

MD 500 SPECIAL TOPICS COURSE. (1-3)
Interdisciplinary, topical or experimental course, approved by the Dean of the College of Medicine; content variable, depending upon instructor(s). A particular topic can be offered no more than twice under the course number MD 500. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

ANATOMY AND NEUROBIOLOGY

ANA 104 ANATOMY AND PHYSIOLOGY. (4)
This course will cover the general features of the anatomy of the human body and the general aspects of physiology. Early in the semester emphasis will be on anatomy and on physiology in the latter part, with form and function related throughout. Information is presented at the college freshman level. Prereq: Consent of instructor. (Offered in Community College System only.)

ANA 206 ELEMENTARY ANATOMY. (3)
The objectives of the course include: a familiarization with the terminology applying to the major parts of the body; the organs, systems and regions, and the terminology applying to motion in the various parts of the body. Information is given on the constituents of cells, the ways in which cells are united with each other and with intercellular substances to form tissues, organs and regions of the body. Students will be informed about the structure of the body in such a way that the functions of the body can be better understood. Lectures, three hours with occasional optional demonstrations. Prereq: Introductory course in biology, zoology, or botany.

ANA 503 INDEPENDENT WORK IN ANATOMY. (3)
Reading and laboratory work in a defined area of anatomy are carried out under the direct supervision of one staff member. Hours of discussion and laboratory work by individual arrangement. May be repeated to a maximum of 12 credits. Prereq: An introductory course in biology, zoology, or botany and consent of instructor.

ANA 511 INTRODUCTION TO ANATOMY. (5)
The principles of organization of the human body are presented. Gross anatomy lectures initially follow a systemic plan. This is succeeded by a regional presentation. Several methods of studying anatomy are utilized. These include radiology, palpation of living structures, and the demonstration of prosected fresh and fixed materials. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, comparative anatomy or embryology, and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

ANA 512 MICROSCOPY AND ULTRASTRUCTURE. (4)
The organization of cells, tissues and organs are presented through lectures and in the laboratory, through the microscopic study of histological sections and illustrations. Prereq: Some background in biology, including one or more such courses as biology, zoology, botany, histological techniques, comparative anatomy or embryology and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

ANA 513 DEVELOPMENTAL ANATOMY. (2)
Human development is presented through lectures, visual aids, and occasional laboratory demonstrations in conjunction with laboratory exercises in ANA 511. The course deals entirely with intrauterine development, and includes some discussion of common abnormalities. Prereq: ANA 511, which may be taken concurrently, and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

ANA 516 ANATOMY OF THE NERVOUS SYSTEM. (3)
The gross and microscopic structure of the central and peripheral nervous systems and their blood supply will be studied. The course will include the functional interpretation of anatomical structures and clinical correlations. Lecture, two hours; laboratory, two hours. Prereq: ANA 511, 512, 513; PGY 511; and enrollment in the College of Medicine or a graduate program in the biomedical sciences. In addition, students from graduate programs outside of anatomy must obtain the consent of the course director before registration.

ANA 529 CONCEPTS OF MORPHOLOGY. (2)
The objective of this course is to present concepts of morphology as they concern cells, tissues, or organs, systems and/or regions of the human body. Necessarily, the history of the development of ideas about the selected topic will be surveyed. Inherent also in the presentation of concepts of structure will be the presentation of controversies which have resulted from differing methods and interpretations. Lecture, four hours. Course material will be presented in lectures, seminars, laboratory, through selected readings or a combination of these instructional methods. May be repeated to a maximum of four hours. Prereq: Advanced work in biological sciences and consent of the instructor.

ANA 530 COMBINED HISTOLOGY AND SPECIAL ORAL MICROANATOMY. (5)
An analysis of the histological structure and organization of the human body, including an especially detailed treatment of the tissues and organs related to the oral cavity. Prereq: Admission to the College of Dentistry or some background in biology and consent of instructor.

ANA 532 SYSTEMIC GROSS ANATOMY. (2)
A presentation at the gross-anatomical level of the structure and organization of the several organ systems that constitute the human body. Prereq: Entrance requirements of the College of Dentistry or some background in biology and consent of instructor.

ANA 534 ANATOMY OF THE HUMAN HEAD AND NECK. (3)
The detailed regional anatomy of the human head and neck is studied by various techniques, the most important of which is dissection. Emphasis is placed on the anatomical relationships with each region. Lecture, two hours; laboratory, six hours. Prereq: ANA 532 or consent of instructor.

ANA 536 HUMAN EMBRYOLOGY, AN ABBREVIATED COURSE. (1)
A concise presentation of developmental mechanisms, early development of the embryo, and subsequent development of selected systems and regions of the body. Lecture, two hours. Prereq: ANA 532, ANA 534 or consent of instructor.

ANA 538 HUMAN NEUROANATOMY, AN ABBREVIATED COURSE. (1)
A concise presentation of the functional organization of the human nervous system. Lecture, two hours. Prereq: ANA 532, 534 and 536 or consent of instructor.

ANA 600 SEMINAR IN ANATOMY. (1)
A weekly seminar devoted to presentation and discussion of classic and new research in the field. May be repeated to a maximum of four credits. Prereq: Admission to the anatomy graduate program or permission of the course director.

ANA 611 REGIONAL GROSS ANATOMY. (8)
The course will include: (1) a detailed dissection of the human body, (2) study of specific relations of the systems within major regions, (3) a familiarization with reference sources in the field of gross human anatomy. Prereq: Courses in comparative anatomy and embryology and ANA 511 or the equivalent and consent of instructor.

ANA 629 TECHNIQUES OF ANATOMICAL RESEARCH. (2)
The objective of this course is the familiarization of students with research techniques in anatomy. The relationship will be tutorial. Students will work under the direction of given staff members for determined periods of time, usually on a problem. The exact length of time will depend upon the student's purposes, progress and the techniques. The problem may be new research or a repetition of previous work. May be repeated to a maximum of four hours. Prereq: Previous senior college or graduate level work in biology and consent of instructor.

ANA 631 ADVANCED GROSS ANATOMY. (3-5)
The objective of this course is to meet individual student needs for increased knowledge in particular areas of gross human morphology. Investigations of problems involving gross morphology will be carried out. One or several defined areas of the body will be studied in considerable detail by dissection, by intensive use of the pertinent literature, by the use of visual aids, prosected materials and other appropriate learning aids. May be repeated at the discretion of the student's committee. Prereq: A background in gross human anatomy equivalent to a medical school course in regional anatomy and consent of instructor.

ANA 633 ADVANCED DEVELOPMENTAL ANATOMY. (2-5)
This is a detailed study of intra-uterine development, both normal and abnormal, usually arranged as a tutorial or small seminar series. Enrollment limited to 10 students. Prereq: ANA 511 or 811 and ANA 513 or their equivalents; or consent of instructor.

ANA 634 ADVANCED ENDOCRINOLOGY. (2-5)
The objectives include interrelating the microscopic and ultrastructural morphology of endocrine glands (or endocrine-like structures) with the functions of these glands (or structures) and effects on target cells and organs. Emphasis will be placed on structure-function aspects, chemistry, mode of action of specific hormone or hormone-like substances, relationships between the nervous system and endocrine system, and relationships of paracrine or neurocrine structures. The detailed content and emphasis will depend on the background and goals of the students. Depending on the number of credits a student registers for, and the topic and course orientation, laboratory work, library work, written and/or oral presentations may be a course requirement. Prereq: BIO/PGY 549, ANA 512 or equivalents, or consent of instructor.

ANA 636 ADVANCED NEUROANATOMY. (3-5)
The objectives include specific and detailed correlation of microscopic and ultrastructural morphology of structures in the nervous system with function of these structures. Emphasis will be placed on structure-function relationships, neurotransmitters, chemical constituents of the nervous system, neuronal as well as non-neuronal cells, plasticity of the nervous system and developmental biology. The detailed content and emphasis will depend on both the background and goals of the students. Depending on number of credits a student registers for, and the topic and course orientation, laboratory work, library work, written and/or oral presentations may be a course requirement. Prereq: ANA 511, 512, 513, 516, or equivalents, or consent of instructor.

ANA 662 ULTRASTRUCTURAL ANATOMY. (2-5)
The objectives of this course are to advance the students' knowledge of the submicroscopic structure of cells and tissues. Correlation of intra- and extracellular morphology and function will be emphasized. Students will do detailed laboratory work in the techniques of electron microscopy. Depending on the number of credits a student registers for, and the topic and course orientation, laboratory work, library work, written and/or oral presentations may be a course requirement. Prereq: ANA 512, previous work in microscopy including histology or cytology, or equivalents, and consent of instructor.

ANA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

ANA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ANA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

ANA 790 RESEARCH IN ANATOMY. (1-12)
Individualized laboratory and research experience under the supervision of a faculty member. May be repeated to a maximum of 12 credits. Prereq: Consent of the instructor.

ANA 801 HISTOLOGY FOR PHYSICAL THERAPY STUDENTS. (1)
This course familiarizes students with the structure and function of the four basic tissues of mammalian organisms. This knowledge is required for treatment of medical and surgical diseases by physical therapy technicians.

ANA 802 NEUROANATOMY FOR PHYSICAL THERAPY STUDENTS. (2)
A concise account of the functional anatomy of the central nervous system. The anatomical organization is correlated with physiological activity. Emphasis is placed upon the morphological basis for progressively higher levels of control of activity from the simple reflex to voluntary motor activities controlled by the cerebral cortex. This type of knowledge is required for proper understanding and performance of physical therapy technicians in the treatment of medical and surgical disease.

ANA 811 GROSS ANATOMY FOR PHYSICAL THERAPY STUDENTS. (5)
A gross anatomy course designed to present the principles of the human body on a systemic basis emphasizing general concepts or principles which apply to the structure of the systems. (Note: This course is based on and will include parts of ANA 511, Introduction to Anatomy, the standard course for medical students, with two credit hours of laboratory, especially pertinent to physical therapy.) Prereq: Comparative anatomy and/or consent of instructor.

ANA 813 DEVELOPMENTAL ANATOMY FOR PHYSICAL THERAPY STUDENTS. (1)
The course of intrauterine somatic development is presented through class discussions, visual aids, and occasional laboratory demonstrations in conjunction with ANA 811. This course should not be elected by a student desiring a detailed review of prenatal human development. Lecture/discussion, two hours per week. Prereq: ANA 811, which may be taken concurrently, or consent of instructor.

ANA 815 FIRST-YEAR ELECTIVE, ANATOMY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Anatomy. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

ANA 825 SECOND-YEAR ELECTIVE, ANATOMY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Anatomy. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

ANA 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his/her fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or by the permission of the Student Progress and Promotions Committee.

Approved elective:
ANA 850 APPLIED GROSS ANATOMY

ANESTHESIOLOGY

ANS 815 FIRST-YEAR ELECTIVE, ANESTHESIOLOGY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Anesthesiology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

ANS 825 SECOND-YEAR ELECTIVE, ANESTHESIOLOGY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Anesthesiology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

ANS 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
ANS 850 CLINICAL CLERKSHIP IN ANESTHESIOLOGY
ANS 851 INTENSIVE CARE UNIT
ANS 852 RESEARCH IN ANESTHESIOLOGY
ANS 890 ANESTHESIOLOGY OFF-SITE

BEHAVIORAL SCIENCE

BSC 331 BEHAVIORAL FACTORS IN HEALTH AND DISEASE. (3)
The study of human behavior relating to health and disease and the organization of health care as a social system. Selected concepts from the psychological and social sciences are presented in a biobehavioral frame of reference and applied to the consideration of specific problems.

BSC 527 SOCIETY AND HEALTH. (3)
The study of human behavior in illness and of medicine as a complex form of social organization from historical, cross-cultural and contemporary perspectives. Prereq: Consent of instructor. (Same as SOC 527.)

BSC 529 SURVEY OF MEDICAL ANTHROPOLOGY. (3)
Cross-cultural survey of health, disease, and healing in folk, primitive, and modern pluralistic societies. Biocultural and ethnomedical approaches in medical anthropology. Prereq: ANT 120, 121 or permission of instructor. (Same as ANT 529.)

BSC 546 SOCIAL FACTORS IN MENTAL HEALTH. (3)
The significance of social, psychological and cultural factors in the recognition and course of mental health problems; the organization of mental health services in society. Prereq: Consent of instructor. (Same as SOC 546.)

BSC 626 SURVEY OF HEALTH PSYCHOLOGY. (3)
A survey of the field of health psychology. It will explore the ways in which social and psychological research contribute to an understanding of health and illness behavior. Prereq: Graduate or professional standing and consent of instructor. (Same as PSY 626.)

BSC 670 SEMINAR ON ROLE THEORY. (3)
An exploration of sociocultural and psychological concepts as used in the study of roles. Special attention is paid to professional and client roles in health care and other organizational contexts. Prereq: Consent of instructor. (Same as ANT/SOC 670.)

BSC 764 TOPICAL SEMINAR IN PSYCHOLOGICAL ANTHROPOLOGY. (3)
Advanced study of topics of current interest in psychological anthropology; e.g., language and cognition, psychological concomitants of rapid culture change; and transcultural psychiatry. Prereq: ANT 526 or PSY 444G, or consent of instructor. (Same as ANT 764.)

BSC 765 RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY. (3)
(1) Advanced history and theory of medical anthropology; (2) research design, field work, analysis of data in medical anthropology. Prereq: Consent of instructor. (Same as ANT 765.)

BSC 766 CONCEPTS IN MEDICAL SOCIOLOGY. (3)
A review of sociological concepts and methods which have been applied to the study of health and medicine; the contributions of medical sociology to general sociological theory and to concepts and research on health-related problems of society. Prereq: Consent of instructor. (Same as SOC 766.)

BSC 767 RESEARCH PROBLEMS IN MEDICAL SOCIAL PSYCHOLOGY. (3)
Advanced study of current problems and issues in medical social psychology, such as patient compliance, adaptive and maladaptive responses to pathology, status relations as a variable in the effectiveness of health teams, socialization of medical students. Prereq: Consent of instructor.

BSC 772 TOPICAL SEMINAR IN MEDICAL BEHAVIORAL SCIENCE. (1-3)
Advanced study of selected topics of current importance in medical behavioral science. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

BSC 774 BEHAVIORAL AND ECOLOGICAL ASPECTS OF HUMAN NUTRITION. (3)
This course will examine the social ecology of human nutrition using the evolutionary perspective. It will apply the concepts and principles of social science to the study of human nutrition. The course serves also as an introduction to nutritional anthropology. Discussions will focus on the origins of the human diet; human dietary adaptation to diverse ecological and technological situations; social, cultural, behavioral and ecological factors that influence dietary choices in primitive, peasant, modernizing and contemporary societies; and methodological issues in studying food habits and assessing nutritional status. Among the topics that may be addressed are: social, cultural, and psychological factors involved in eating disorders; infant feeding cross-culturally; causes of malnutrition in the Third World as well as in developed countries; ethnic variation in food ideology and food habits; issues in the applicability of anthropometric measures to diverse populations and culturally appropriate approaches to nutritional change. Prereq: Consent of instructor. (Same as ANT 774.)

BSC 775 HUMAN RESPONSE TO STRESS. (3)
Human Response to Stress provides an overview of current models and theories of stress, a review of multidisciplinary approaches to the study of stress in applied settings, and a reading knowledge of selected research findings in the field of stress. Prereq: Consent of instructor.

BSC 776 SEMINAR IN DEPENDENCY BEHAVIOR. (3)
The course is designed to explore theories of dependency behavior by examining the concept of dependency as it can be applied to the study of various phenomena including alcohol use and abuse; dependence on other psychoactive substances; institutional dependency; dependency in work settings; and poverty and welfare. Prereq: Consent of instructor. (Same as SOC 776.)

BSC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY. (3)
Advanced study of contemporary concepts of mental health and mental illness, and their historical development; major forms of response to mental illness. Prereq: Consent of instructor. (Same as SOC 777.)

BSC 778 BEHAVIORAL FACTORS IN SELECTED DISEASES. (3)
An exploration of behavioral science concepts which bear on various physical illnesses. The perspective of the course is interdisciplinary, using concepts from the various behavioral science disciplines. Prereq: Consent of instructor.

BSC 779 BEHAVIORAL FACTORS IN DEATH AND DYING. (3)
Behavioral concepts are examined which explain reactions of individuals, collectivities and social institutions to the phenomenon of death. Prereq: Consent of instructor.

BSC 790 RESEARCH IN MEDICAL BEHAVIORAL SCIENCE. (1-6)
Individually directed research and reading in particular aspects of medical behavioral science under the supervision of one or more members of the faculty. May be repeated to a maximum of 12 hours. Prereq: Consent of instructor.

BSC 811 HEALTH AND SOCIETY. (3)
Concepts and principles from the behavioral sciences in the context of a unifying theory of behavior; psychological, social and cultural variables in understanding human behavior in health and disease; application of behavioral science concepts to the etiology, course and management of health problems; variations in human responses to illness; medicine as a major system of behavior and of interpersonal relationships and social structure within medicine. Seminar format permits exploring selected topics in depth. Prereq: For medical students only.

BSC 812 INTRODUCTION TO COMMUNICATION AND INTERVIEWING. (1)
Brief didactic presentations, demonstrations and group discussions on communication concepts and interviewing techniques are followed by video-recorded practice interviews that are reviewed with faculty in seminar and tutorial sessions. Lecture, 2 hours; group discussion, 8 hours; tutorial interviews with critiquing for each student, 10 hours. Prereq: Admission to the College of Medicine.

BSC 815 FIRST-YEAR ELECTIVE, BEHAVIORAL SCIENCE. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Behavioral Science. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

BSC 825 SECOND-YEAR ELECTIVE, BEHAVIORAL SCIENCE. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Behavioral Science. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

BSC 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved elective:
BSC 850 ELECTIVE IN BEHAVIORAL SCIENCE

BIOCHEMISTRY

BCH 395 INDEPENDENT WORK IN BIOCHEMISTRY. (3-12)
Students will carry out a laboratory research project and related reference reading. Laboratory: 6-24 hours per week. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor.

BCH 401G FUNDAMENTALS OF BIOCHEMISTRY. (3)
Descriptive chemistry of amino acids and proteins, carbohydrates, lipids and nucleic acids and discussion of major metabolic pathways and of methods of energy production in cells. Lecture, three hours; one optional conference. Prereq: CHE 107, CHE 236 and BIO 152 or equivalent.

BCH 501 GENERAL BIOCHEMISTRY. (3)
An introductory course devoted to the structure and function of proteins and enzymes and the generation and storage of metabolic energy associated with the metabolism of carbohydrates, lipids, and amino acids. Prereq: CHE 107, CHE 230 and 232, or equivalent. BIO 152 is also recommended.

BCH 502 GENERAL BIOCHEMISTRY. (3)
A continuation of BCH 501. The topics discussed include the molecular basis of gene expression; molecular endocrinology; biochemistry of connective tissue, muscle, erythrocyte, and the immune system; structure, function and metabolism of membranes. The sequence BCH 501, BCH 502 covers the material of BCH 811. Prereq: BCH 501 or equivalent.

BCH 503 PLANT BIOCHEMISTRY. (3)
The chemical constituents of plants, their interaction and the regulation of their interaction in key plant metabolic systems will be studied. Included in the course will be discussions of photosynthesis, nitrogen fixation, nitrate reduction, nitrogen assimilation, plant growth and its regulation and the structure and metabolism of constituents unique to plants. Prereq: BCH 501 and 502 or CHE 550 and 552 or equivalent. May be taken concurrently with BCH 502 or CHE 552. (Same as PPA 503.)

BCH 504 PHYSICAL BIOCHEMISTRY. (3)
Thermodynamic, hydrodynamic, structure, and kinetic properties of biological systems and macromolecules. Prereq: CHE 444G or equivalent.

BCH 517 EXPERIMENTAL METHODS IN BIOCHEMISTRY. (4)
A laboratory course dealing with the instrumentation and procedures of biochemical research. Because many of the materials used are labile, the course is given in a block during a four-week period at the end of the spring semester. Five days per week during four-week intersession, or summer session. Prereq: BCH 401G, 502 or 811 and consent of instructor.

BCH 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BIO/MI/PPA 601.)

BCH 610 BIOCHEMISTRY OF LIPIDS AND MEMBRANES. (3)
A lecture and seminar course devoted to intermediary metabolism of lipids and various biochemical aspects of the structure, assembly and functions of biological membrane systems. Prereq: CHE 232, CHE 444G, BCH 401G, 502 or 811. BCH 502 may be taken concurrently.

BCH 611 BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS. (3)
A lecture and seminar course devoted to a study of the principles of nucleic acid chemistry and to the role of nucleic acids in cellular function. Prereq: BCH 401G, 502 or 811.

BCH 612 STRUCTURE AND FUNCTION OF PROTEINS AND ENZYMES. (3)
Primarily a lecture course devoted to the relationship of the structure of protein molecules to their biological roles. Proteins will be discussed in terms of their size, shape, conformation, primary structure, catalytic mechanism and regulatory properties. Prereq: BCH 401G, 502 or 811; CHE 444G or consent of instructor. May be taken concurrently with BCH 502.

BCH 615 MOLECULAR BIOLOGY. (3)
An integrative and functional approach to the regulatory aspects of DNA, RNA and proteins in procaryotic and eucaryotic cells. Lectures and discussions with readings in original literature. Prereq: BIO 404G or equivalent; BCH 401G or equivalent. (Same as BIO/MI 615.)

BCH 618 SEMINAR IN BIOCHEMISTRY. (1)
A weekly seminar, required of all students majoring in biochemistry, devoted to discussions of areas not covered in other courses and to recent developments in the field.

BCH 619 SEMINAR IN BIOCHEMISTRY. (1)
A weekly seminar, required of all students majoring in biochemistry, devoted to discussions of areas not covered in other courses and to recent developments in the field.

BCH 640 RESEARCH IN BIOCHEMISTRY. (1-15)
Prereq: Consent of instructor.

BCH 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

BCH 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

BCH 811 BIOCHEMISTRY FOR MEDICAL STUDENTS. (6)
A selective summary of available information on cellular activities at the molecular level. Particular emphasis will be given to the processes by which metabolites are converted into compounds essential to the maintenance or growth of the cell or are oxidized to yield energy in a form which is useful to the cell. Discussions of respiration, nutrition and of the processes by which a constant extracellular environment is maintained are also included. Lecture, five hours; laboratory, one hour. Prereq: Admission to College of Medicine.

BCH 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved elective:
BCH 850 ELECTIVE IN BIOCHEMISTRY

CONJOINT

(College of Medicine)

CON 818 BASIC SCIENCE-CLINICAL CORRELATION CONFERENCES. (2)
This course illustrates the interrelation among basic science concepts and their clinical implications. Classroom sessions involve the presentation of case histories of selected illnesses and the discussion of pertinent underlying behavioral, biological and clinical considerations. Individual observations are made in hospital and ambulatory care settings supported by tutorial discussions. Pass-fail only. Prereq: Admission to the College of Medicine.

CON 831 INTRODUCTION TO CLINICAL CLERKSHIPS. (1)
This course is designed to introduce students to the responsibilities of the clinical clerk. Students will gain knowledge about the hospital, its wards, services, and administration, and will learn the roles of members of the patient care team. Students will follow the health care experiences of selected patients. Lecture, 4 hours; laboratory, 36 hours per week. Pass/fail only. Prereq: Promotion to the third year.

DIAGNOSTIC RADIOLOGY

DR 831 DIAGNOSTIC RADIOLOGY CLERKSHIP. (2)
This course is an introduction to the indications and use of diagnostic radiology in patient care. Fundamental concepts of diagnosis are briefly covered. The course is a combination of lecture and laboratory exercises and observation periods. Prereq: Admission to third year, College of Medicine.

DR 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the Third and Fourth Year Curriculum and Student Progress Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or by the permission of Third and Fourth Year Curriculum and Student Progress Committee.

Approved electives:
DR 850 FOURTH-YEAR ELECTIVE IN DIAGNOSTIC RADIOLOGY
DR 890 OFF-SITE CLERKSHIP IN DIAGNOSTIC RADIOLOGY

EMERGENCY MEDICINE

ER 001 CERTIFICATION IN BASIC CARDIAC LIFE SUPPORT. (0)
This course is designed to prepare students to become certified to perform cardiopulmonary resuscitation. Students will attend demonstrations and supervised practice sessions and will be expected to master the content of the student manual for basic life support. Prereq: For first-year medical students only.

ER 815 FIRST-YEAR ELECTIVE, EMERGENCY MEDICINE. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Emergency Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

ER 825 SECOND-YEAR ELECTIVE, EMERGENCY MEDICINE. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Emergency Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

ER 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
ER 850 FOURTH-YEAR ELECTIVE EMERGENCY MEDICINE
ER 853 RESEARCH IN EMERGENCY MEDICINE
ER 890 EMERGENCY MEDICINE OFFSITE

FAMILY PRACTICE

FP 812 INTRODUCTION TO THE PROFESSION. (2)
This course is intended to provide first-year medical students with selected learning experiences designed to develop basic knowledge, skills, and attitudes that are important in the education of a physician. Lecture, one hour; discussion, two hours per week. Prereq: Admission to the College of Medicine.

FP 815 FIRST-YEAR ELECTIVE, FAMILY PRACTICE. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Family Practice. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

FP 825 SECOND-YEAR ELECTIVE, FAMILY PRACTICE. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Family Practice. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

FP 841 FAMILY PRACTICE OFF-SITE SELECTIVE. (1-6)
A senior selective in remote sites designed to acquaint the student with the functions, techniques, and experiences associated with a family physician. Students will function in an office-based practice of family physicians, will live in the community and practice primary health care delivery. One credit per week, not to exceed six weeks. Prereq: Admission to the fourth year, College of Medicine.

FP 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved elective:
FP 850 ELECTIVE IN FAMILY PRACTICE

MEDICINE

MED 815 FIRST YEAR ELECTIVE, MEDICINE. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

MED 821 PHYSICAL DIAGNOSIS. (5)
This course will provide students with a structured experience in the principles and techniques of physical diagnosis and history taking. Lecture, one hour per week for two semesters; laboratory, three hours per week for two semesters. Prereq: Admission to second year, College of Medicine or consent of instructor and dean.

MED 825 SECOND-YEAR ELECTIVE, MEDICINE. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

MED 831 MEDICAL CLERKSHIP. (12)
Students participate in the diagnosis and care of hospitalized patients. The clerks are assigned to a team of house officers. Together they make work rounds and attend the same seminars and conferences. The faculty conducts conferences for students, emphasizing basic medical information. Clerks are assigned to all patients admitted to medical service, assuring exposure to a wide variety of acute and chronic illness. Usually students are able to assist in the patient's management throughout the entire hospital course. Responsibility is increased as clinical experience is gained. Prereq: Admission to third year in College of Medicine.

MED 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
MED 850 CLINICAL ENDOCRINOLOGY AND METABOLISM, ADULT
MED 851 GASTROINTESTINAL DISEASE, UK AND VAH
MED 852 DERMATOLOGY—SECTION 1
MED 853 DERMATOLOGY—SECTION 2
MED 854 DERMATOLOGY—SECTION 3
MED 855 DERMATOLOGY—SECTION 4
MED 856 NEPHROLOGY, BONE AND MINERAL METABOLISM
MED 857 PULMONARY MEDICINE
MED 858 CARDIOLOGY—UK
MED 860 INFECTIOUS DISEASES
MED 862 CARDIOLOGY—VAH
MED 863 RESEARCH IN MEDICINE
MED 870 ACTING INTERNSHIP IN MEDICINE
MED 871 CLINICAL CLERKSHIP IN MEDICINE
MED 872 FOURTH YEAR REMEDIAL CLINICAL CLERKSHIP
MED 873 MEDICAL SPECIALTIES AND GENERAL MEDICINE CLINICS
MED 874 STUDENT HEALTH SERVICE
MED 875 EXTERNSHIPS IN INTERNAL MEDICINE
MED 876 HEMATOLOGY—ONCOLOGY, UK
MED 877 HEMATOLOGY—ONCOLOGY, VAH
MED 879 GENERAL MEDICAL CONSULTING SERVICE
MED 890 INTERNAL MEDICINE OFF-SITE

MICROBIOLOGY AND IMMUNOLOGY

MI 494G IMMUNOBIOLOGY. (3)
A survey of theories and mechanisms of immunity, including: nature of antigens and antibodies, antigen-antibody reactions, immunocompetent cells, immunogenetics, allergic reactions, tumor immunology and transplantation immunology. Prereq: BCH 401G (may be taken concurrently) and BIO 108 or BIO 276, or BIO 476G, or consent of instructor. (Same as BIO 494G.)

MI 512 CELLULAR PHYSIOLOGY. (4)
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. Lecture, three hours; laboratory, two hours. Prereq: Physics and general chemistry. (Same as PGY 512.)

MI 515 GENERAL CELL BIOLOGY. (3)
An integrative, analytical study of the cell as the basic unit of biological structure and function, with emphasis on eukaryotes. Lecture, discussions with readings in some original literature. Prereq: BIO 315 or BCH 401G or equivalent and consent of instructor. (Same as BIO 515.)

MI 595 IMMUNOBIOLOGY LABORATORY. (2)
Laboratory in immunology and serology. Preparation, standardization, and uses of biological products; serology. Laboratory; four hours. Prereq: BIO/MI 494G or concurrently; or consent of instructor. (Same as BIO 595.)

MI 601 SPECIAL TOPICS IN MOLECULAR AND CELLULAR GENETICS. (1)
Each semester five distinguished scientists visit the UK campus to deliver a series of three formal lectures each and participate in numerous informal contacts with graduate students. The emphasis is on the presentation of the most current advances (often unpublished) in selected topics in molecular and cellular genetics. May be repeated to a maximum of six credits. (Same as AGR/BCH/BIO/PPA 601.)

MI 611 BIOPATHOLOGY. (3)
The course will examine the mechanisms by which various biological, chemical and physical agents injure susceptible hosts and the complex biochemical and immunological reactions which occur in response to injury. The host defense mechanisms will be illustrated by an analysis of selected human diseases and animal model systems with particular emphasis on the events at the molecular and cellular level. Prereq: BCH 502 or concurrent, BIO/MI 494G or equivalents and consent of instructor. (Same as BIO 611.)

MI 615 MOLECULAR BIOLOGY. (3)
An integrative and functional approach to the regulatory aspects of DNA, RNA and proteins in procaryotic and eucaryotic cells. Lectures and discussions with readings in original literature. Prereq: BIO 404G or equivalent; BCH 401G or equivalent. (Same as BCH/BIO 615.)

MI 685 ADVANCED IMMUNOBIOLOGY. (4)
An introductory level graduate course surveying current trends in immunology including the organization and structure of cells relevant to immunity, immunochemistry, types of immune responses, cellular immunology, immunogenetics and immunopathology. Prereq: BCH 401G, or BCH 501 or 502 or equivalent, or consent of instructor. (Same as BIO 685.)

MI 707 CONTEMPORARY TOPICS IN IMMUNOLOGY. (2)
This course will deal with controversial and evolving areas of immunology. Lectures in a given topic will be accompanied by student discussion of contemporary literature. Prereq: MI 685 or equivalent or consent of instructor. (Same as BIO 707.)

MI 710 SPECIAL TOPICS IN MICROBIOLOGY. (2)
A variety of topics relating to modern molecular and cell biology. Prereq: Consent of instructor.

MI 720 MICROBIAL STRUCTURE AND FUNCTION. (3)
Molecular basis of structure and function in unicellular microbes. Molecular genetic and structural approaches to the analysis of bacterial architecture growth, division, and differentiation. Prereq: Consent of instructor, BCH 501, BCH 502, and BIO 476G or equivalent. (Same as BIO 720 and OBI 720).

MI 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams. (Same as MB 749.)

MI 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours. (Same as MB 768.)

MI 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (1-12)
May be repeated indefinitely. (Same as MB 769.)

MI 772 SEMINAR IN MICROBIOLOGY. (0-1)
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national and international scientific and professional societies and symposia. Required of all graduate students. Two hours per week. May be repeated nine times for a maximum of 10 credits. (Same as BIO 772.)

MI 798 RESEARCH IN MICROBIOLOGY. (1-9)
May be repeated to a maximum of 24 credits. Prereq: Consent of instructor. (Same as BIO 798.)

MI 811 IMMUNOLOGY FOR MEDICAL STUDENTS. (3)
An introduction to the basic principles of immunobiology, immunochemistry, and clinical immunology. Prereq: Admission to the College of Medicine.

MI 812 GENETICS FOR MEDICAL STUDENTS. (2)
Introduction to the basic principles of gene transmission, molecular genetics, and cytology as related to human genetics. Prereq: Admission to the College of Medicine.

MI 815 FIRST-YEAR ELECTIVE, MEDICAL MICROBIOLOGY AND IMMUNOLOGY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Medical Microbiology and Immunology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

MI 821 MECHANISMS OF MICROBIAL PATHOGENICITY FOR MEDICAL STUDENTS. (5)
A course in microbial pathogenicity designed to provide the medical student with an understanding of the structure, function, genetics, control mechanisms, and mechanism of pathogenicity in relation to disease of various microorganisms. Prereq: Admission to second year, College of Medicine.

MI 825 SECOND-YEAR ELECTIVE, MEDICAL MICROBIOLOGY AND IMMUNOLOGY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Medical Microbiology and Immunology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

MI 835 THIRD-YEAR ELECTIVE, MEDICAL MICROBIOLOGY AND IMMUNOLOGY. (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25 to 150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of the faculty adviser. Prereq: Admission to the third year, College of Medicine.

MI 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

NEUROLOGY

NEU 815 FIRST-YEAR ELECTIVE, NEUROLOGY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Neurology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

NEU 821 BASIC NEUROSCIENCES. (3)
The course is designed to acquaint students with major forms and manifestations of diseases of the nervous system and an introduction to the techniques of their diagnosis; to express the changing functions of the nervous system which attend its growth, maturation and senescence; and to make all aware of the effects of chronic neurological disorders on patients, their families and their communities. Prereq: Admission to second year, College of Medicine.

NEU 825 SECOND-YEAR ELECTIVE, NEUROLOGY. (1-4)
With the advice and approval of his or her adviser, the second-year student may choose approved electives offered by the Department of Neurology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

NEU 831 BASIC CLINICAL NEUROLOGY. (4)
Under direct supervision of the faculty of the Department of Neurology, students will be assigned to the Neurology inpatient service and participate firsthand in obtaining and recording histories and physical examinations of adults and children with acute and chronic neurological disorders. Emphasis will be placed on refinement of skills in performing the neurological examination and use of deductive logical reasoning using the clinical method to formulate an anatomic and pathophysiologic diagnosis. Students will become familiar with special neurodiagnostic tests that are adjuncts to the clinical evaluations. Students will learn the neuropharmacologic and neurosurgical interventions and the psychosocial support systems involved in treating the common acute and chronic neurological disorders: seizure disorders, infections of the nervous system, stroke, dementia, head and spine trauma, tumors of the central nervous system, depressed level of consciousness, headache, dizziness and back pain. Taught for four weeks. Prereq: Admission to the third year, College of Medicine.

NEU 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth-year College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
NEU 850 ACTING INTERNSHIP IN NEUROLOGY
NEU 851 CLINICAL CLERKSHIP IN NEUROLOGY
NEU 852 RESEARCH IN NEUROLOGY
NEU 853 NEUROLOGY CONSULTATION
NEU 854 CLINICAL NEUROPHYSIOLOGY (EEG, EMG, AND EVOKED POTENTIALS)
NEU 855 ROTATION IN GERIATRIC NEUROLOGY
NEU 856 ELECTIVE IN HEARING, SPEECH AND LANGUAGE

OBSTETRICS AND GYNECOLOGY

OBG 815 FIRST-YEAR ELECTIVE, OBSTETRICS AND GYNECOLOGY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Obstetrics and Gynecology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

OBG 825 SECOND-YEAR ELECTIVE, OBSTETRICS AND GYNECOLOGY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Obstetrics and Gynecology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

OBG 831 OBSTETRICS AND GYNECOLOGY CLERKSHIP. (6)
During this clerkship, the student is expected to become knowledgeable concerning the physiology of reproduction and pathologic processes which may adversely affect the reproductive process. This is accomplished by intensive participation in the care of both outpatient and hospitalized patients on the obstetric and gynecologic services. The student is given the opportunity to examine and evaluate all patients admitted to the hospital as a member of the patient care team. During this period of time, concepts are developed and elaborated by means of conferences, seminars, and bedside teaching. Prereq: Admission to the third year, College of Medicine.

OBG 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth-year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
OBG 850 GYNECOLOGIC ONCOLOGY
OBG 851 OBSTETRICS AND GYNECOLOGY PRECEPTORSHIP
OBG 852 OBSTETRICS AND GYNECOLOGY INDEPENDENT STUDY
OBG 854 CLINICAL CLERKSHIP IN OBSTETRICS
OBG 861 OUTPATIENT OBSTETRICS AND GYNECOLOGY
OBG 862 ACTING INTERNSHIP IN REPRODUCTIVE ENDOCRINOLOGY
OBG 863 MATERNAL-FETAL MEDICINE
OBG 890 OFF-SITE OBSTETRICS AND GYNECOLOGY

OPHTHALMOLOGY

OPH 815 FIRST-YEAR ELECTIVE, OPHTHALMOLOGY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Ophthalmology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

OPH 825 SECOND-YEAR ELECTIVE, OPHTHALMOLOGY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Ophthalmology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

OPH 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
OPH 850 CLINICAL CLERKSHIP IN OPHTHALMOLOGY
OPH 852 ADVANCED CLINICAL CLERKSHIP IN OPHTHALMOLOGY
OPH 890 OPHTHALMOLOGY OFF-SITE

PATHOLOGY

PAT 660 CLINICAL TOXICOLOGY AND DRUG MONITORING. (3)
A lecture and demonstration course designed to acquaint the student with the two main areas of clinical toxicology. The first part of the course will cover the scope of the drug abuse problem in the U.S.A. and detail the emerging role of the clinical toxicologist in dealing with a wide variety of analytical and medicolegal problems associated with illicit drug detection. The second part of the course will cover the rapidly expanding area of clinical toxicology which deals with the monitoring of therapeutic drugs as they relate to the appropriate clinical management of patients. Prereq: BCH 501 and 502, PHA 521 and 522 or equivalent with consent of instructor. (Same as TOX 660.)

PAT 821 PATHOLOGIC BASIS OF DISEASE. (10)
This course is designed to provide the student with an understanding of the basic principles and mechanisms of tissue and bodily reactions to injury, and the morphologic expressions of these reactions. In addition to attending lectures, students, in small groups, meet regularly with instructors for informal instruction and review of gross and histologic materials. Extensive use is made of independent study resources, including subject-oriented slide/tape programs, self-instructional case studies, and clinically-oriented histopathology problems. There are lectures in anatomic pathology given by members of the Department of Pathology, clinical correlative lectures given by members of clinical departments, and lectures in laboratory medicine. Prereq: Admission to second year, College of Medicine.

PAT 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
PAT 850 AUTOPSY PATHOLOGY
PAT 851 SURGICAL PATHOLOGY
PAT 852 LABORATORY MEDICINE
PAT 853 NEUROPATHOLOGY

PEDIATRICS

PED 815 FIRST-YEAR ELECTIVE, PEDIATRICS. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Pediatrics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

PED 825 SECOND-YEAR ELECTIVE, PEDIATRICS. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Pediatrics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

PED 831 CHILDREN'S CLERKSHIP. (8)
This basic clerkship is designed to give the student experience in the diagnosis and management of diseases in children, training in preventive pediatrics, and study of normal growth and development. The time is divided between the inpatient hospital wards, and outpatient clinics. Patients are assigned for diagnosis, suggested management, and study. Three to four patients are assigned each student on starting an inpatient rotation and then two to three new patients per week. An average of four new patients per week are investigated while on the outpatient service, and a number of other outpatients are assigned for continuing care. A large active walk-in clinic provides ample experience in acute medical conditions. The entire pediatric house staff and faculty are available at all times for consultations. Students participate in rounds, seminars, and conferences that emphasize general concepts as well as specific medical information. Prereq: Admission to third year, College of Medicine.

PED 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
PED 850 NEONATAL INTENSIVE CARE
PED 852 PEDIATRIC RENAL-IMMUNOLOGY
PED 853 INFECTIOUS DISEASE
PED 859 ACTING INTERNSHIP IN PEDIATRICS—UK
PED 868 AMBULATORY PEDIATRICS
PED 869 PEDIATRIC ALLERGY AND CLINICAL IMMUNOLOGY
PED 870 PEDIATRIC CARDIOLOGY
PED 871 GENETICS/ENDOCRINOLOGY/METABOLISM
PED 876 DYSMORPHOLOGY/GENETICS
PED 890 COMMUNITY PEDIATRICS

PHARMACOLOGY

PHA 522 SYSTEMS PHARMACOLOGY. (3)
This course is aimed to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: PHA 521; consent of instructor.

PHA 541 BIOLOGICAL ASSAY. (4)
Review of selected specialized methods in study of the effects of drugs including the study of the estimation of potencies of treatments against some standardized scale. Lecture, two hours; laboratory, five hours. Prereq: Consent of the department chairperson.

PHA 602 NEUROPHARMACOLOGY. (4)
A study of drugs which modify the function of all parts of the nervous system, including the brain, spinal cord, nerve fibers, the pituitary gland and endocrines as well as an introduction to receptor theory and principles of general pharmacology. Lecture, 77 hours; demonstration, four hours. Prereq: BCH 501 and 502, and PGY 502 and/or consent of faculty.

PHA 603 PHARMACOLOGY OF ORGANS AND SYSTEMS. (3)
Discussion of the pharmacodynamic principles underlying the action of cardiovascular, renal, gastrointestinal, and hematologic drugs, as well as drugs used in the treatment of infections. In addition, cancer chemotherapeutic drugs, drugs for treating artherosclerosis, principles of toxicology and drug metabolism and kinetics are discussed. Lecture, 43 hours. Prereq: BCH 501 and 502, PGY 502, PHA 602 and/or consent of faculty.

PHA 612 QUANTITATIVE PHARMACODYNAMICS: PHARMACOKINETICS. (3)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of both mathematical models and model-independent approaches for describing these processes. Prereq: PHR 802 (or equivalent), MA 114 and consent of instructor. (Same as PHR 612.)

PHA 621 ADVANCED PHARMACODYNAMICS. (4)
Small group discussion course for students of the natural sciences who, using drugs as research tools, wish to understand the basis of drug therapy. The principles and mechanism of drug action on biochemical and physiological systems is emphasized. Prereq: Consent of instructor.

PHA 634 PHARMACOLOGY OF CARDIOVASCULAR DRUG THERAPY. (3)
A discussion of the mechanism of action, dosing theory, toxicity and metabolism of drugs used as therapeutic agents in the treatment of cardiovascular disease. Prereq: Consent of instructor.

PHA 658 ADVANCED NEUROPHARMACOLOGY. (3)
A study of the general theories of the mode of action of drugs upon nervous tissue and a review of the effects of analgesics, sedatives, hypnotics, anesthetics, tranquilizers, psychotomimetics, analeptics, antidepressants, anti-convulsants and drugs affecting motor dyskinesias upon neurones, synapses and functional components of the central nervous system. Prereq: PGY 412G or equivalent and PHA 522 or equivalent; consent of instructor.

PHA 660 CHEMICAL CARCINOGENESIS. (3)
Lectures and discussion of the chemical and biochemical reactions of aromatic hydrocarbons and their derivatives. Prereq: CHE 232; PHR 400; or BCH 501, 502.

PHA 663 DRUG METABOLISM AND DISPOSITION. (3)
Drug metabolism and disposition. Lectures and discussion of the pharmacokinetics, chemistry and biochemistry of drug biotransformation with emphasis on the mixed-function oxidase system and toxification reactions. Prereq: BCH 401G or 501, 502 or consent of instructor.

PHA 672 BEHAVIORAL PHARMACOLOGY AND TOXICOLOGY. (2)
Principles and research relating to the quantitative behavioral effects of drugs and toxic chemicals in animals. Topics include effects of drugs on operant and respondent behavior, stimulus properties of drugs, drugs as reinforcers, and behavioral toxicology. Prereq: Consent of instructor. (Same as TOX 672.)

PHA 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PHA 750 RESEARCH IN PHARMACOLOGY. (1-5)
May be repeated to a maximum of 15 credits.

PHA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PHA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PHA 770 SEMINAR IN PHARMACOLOGY. (1)
May be repeated indefinitely.

PHA 815 FIRST-YEAR ELECTIVE, PHARMACOLOGY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Pharmacology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

PHA 821 MEDICAL PHARMACOLOGY I. (7)
This course aims to give a fundamental understanding of the pharmacodynamic action of drugs most commonly used in medical practice. Prereq: Admission to second-year medical curriculum.

PHA 825 SECOND-YEAR ELECTIVE, PHARMACOLOGY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Pharmacology. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

PHA 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

PHYSIOLOGY-AND BIOPHYSICS

PGY 206 ELEMENTARY PHYSIOLOGY. (3)
An introductory survey course in basic mammalian physiology. Prereq: One semester of college biology.

PGY 412G PRINCIPLES OF HUMAN PHYSIOLOGY LECTURES. (4)
Intermediate level human physiology course emphasizing applied concepts. Prereq: One year of college chemistry, one year of biology or PGY 206.

PGY 502 PRINCIPLES OF PHYSIOLOGY LECTURE. (5)
Advanced survey of the major mammalian physiological systems. Course organization includes lectures, assigned reading in advanced texts or monographs, demonstrations and problem oriented study questions. Prereq: One year each, physics, general chemistry; PGY 206 or its equivalent. (Same as BIO 502.)

PGY 504 INDEPENDENT WORK IN PHYSIOLOGY. (2-4)
A study of some advanced problems in physiology under the direct supervision of the instructor. Discussion period, one hour; laboratory, four hours. May be repeated to a maximum of eight credits. Prereq: Consent of instructor.

PGY 512 CELLULAR PHYSIOLOGY. (4)
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. Lecture, three hours; laboratory, two hours. Prereq: Physics and general chemistry. (Same as MI 512.)

PGY 522 QUANTITATIVE PHYSIOLOGY. (4)
Presents principles of biophysics applicable to physiological systems. Mechanical and electrochemical systems are discussed and compared. Applications to neurophysiology, respiratory, cardiovascular, renal and endocrine physiology are given.

PGY 535 COMPARATIVE NEUROBIOLOGY AND BEHAVIOR. (3)
The course consists of an introduction to neurophysiology and study of the neural basis of sensory processing and motor patterns. A comparative analysis of the neurobiological basis of behavioral responses will be made, utilizing a broad range of vertebrates and invertebrates. Prereq: BIO 350 or consent of instructor. (Same as BIO 535.)

PGY 549 COMPARATIVE ENDOCRINOLOGY. (3)
An introductory and comparative survey of invertebrate and vertebrate endocrine organs and neuroendocrine mechanisms with emphasis on the evolution, chemistry, actions and functions of hormones. Prereq: BIO 350 or consent of instructor. (Same as BIO 549.)

PGY 550 AN INTRODUCTION TO INTEGRATIVE THOUGHT. (3)
Modern life, with its proliferation of specialized knowledge, offers little opportunity to develop an integrative conception of our personal existence and of the world. One result is the absence of a coherent framework within which to organize experience; another is a loss of meaning. Drawing on science, religion, literature and other sources, this course takes a few steps toward the development of such a framework. The course involves writing, oral presentation, and group discussion. Topics: the nature of living systems, the cell, cosmic evolution, the integrative way, and integrative study. Lecture, four hours per week. Prereq: Three years of undergraduate study or permission of instructor.

PGY 604 ADVANCED CARDIOVASCULAR PHYSIOLOGY. (3)
The objective of this course is to examine in-depth the various functions of the cardiovascular system and their proposed mechanisms. Prereq: PGY 502, or PGY 511 or consent of instructor.

PGY 606 ADVANCED NEUROPHYSIOLOGY. (3)
Electrical analysis of nerve fibers and synapse; nerve impulse theories, reflexes, metabolism and central nervous function are considered from the cybernetic viewpoint. Prereq: PGY 512, 513; consent of instructor.

PGY 607 HORMONAL CONTROL MECHANISMS (Subtitle required). (3)
Advanced study of the role of hormones in the physiologic regulation of vertebrate organ systems. One or two specific areas of endocrinology will be selected by the instructor. Emphasis will be placed on critical analysis and discussion of the experimental basis for current theories of the mechanisms whereby hormones modulate physiologic processes. Readings will be taken from the literature. May be repeated to a maximum of six credits. Prereq: PGY 502 or PGY 811 or PGY 549 or their equivalent.

PGY 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate standing or consent of instructor. (Same as PSY 627.)

PGY 630 ADVANCED TOPICS IN PHYSIOLOGY AND BIOPHYSICS. (1-3)
Contemporary topics in physiology and biophysics. Course designed to utilize the special research interests of resident and visiting faculty. May be repeated to a maximum of six credits. Prereq: PGY 502 or 511 or consent of instructor.

PGY 660 SYSTEMS PHYSIOLOGY. (3)
The analysis of physiological systems. This includes application of mathematical and engineering techniques. Development and discussion of modeling physiological systems.

PGY 749 DISSERTATION RESEARCH. (0)
Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

PGY 767 TOPICAL SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (3)
A study of selected topics in physiological psychology with emphasis on recent research and theory. May be repeated to a maximum of nine credits. This course may be elected to fulfill requirements in the psychology and physiology graduate programs. Prereq: Consent of instructor. (Same as PSY 767.)

PGY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

PGY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PGY 771 PROSEMINAR IN CELL PHYSIOLOGY AND BIOPHYSICS. (2)
A comprehensive discussion of topics in cellular physiology and biophysics using advanced texts and readings in the original literature. Includes such topics as biological membranes, transport mechanisms, effects of hormones on membranes. Prereq: Graduate student in physiology and biophysics or consent of Director of Graduate Study.

PGY 772 PROSEMINAR IN MAMMALIAN PHYSIOLOGY. (2)
A comprehensive discussion of topics in mammalian physiology using advanced texts and readings in the original literature. Includes such topics as reproduction electrophysiology, cardiovascular dynamics, temperature regulation and behavioral physiology. Prereq: Graduate students in physiology and biophysics or consent of Director of Graduate Studies.

PGY 774 GRADUATE SEMINAR IN PHYSIOLOGY. (1)

PGY 791 RESEARCH IN PHYSIOLOGY. (1-15)
May be repeated to a maximum of 15 credits. Prereq: Consent of instructor.

PGY 811 MEDICAL PHYSIOLOGY. (7)
Instruction in medical physiology provides advanced work in mammalian physiology approached from a biophysical point of view. Course organization includes lectures, assigned reading, problem-oriented study questions, laboratory work, demonstrations, group discussions and clinical correlation activities. Prereq: Admission to College of Medicine or enrollment in the physiology and biophysics graduate programs.

PGY 815 FIRST-YEAR ELECTIVE, PHYSIOLOGY AND BIOPHYSICS. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Physiology and Biophysics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

PGY 825 SECOND-YEAR ELECTIVE, PHYSIOLOGY AND BIOPHYSICS. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Physiology and Biophysics. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

PGY 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved elective:
PGY 850 RESEARCH IN PHYSIOLOGY

PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

PM 521 EPIDEMIOLOGY. (4)
Initial gradeuate level course in the principles of epidemiology and its uses and applications in preventive medicine and public health. Lecture, three hours; laboratory, two hours per week. Prereq: An understanding of the natural history of disease or consent of instructor.

PM 601 ENVIRONMENTAL AND OCCUPATIONAL HEALTH. (4)
An overview of occupational and environmental health problems, toxicology related to the work place and other environments, industrial hygiene, safety, and other topics relevant to environmental health. Lecture, three hours; laboratory, two hours per week. Prereq: PHA 603 and PGY 502 or equivalents, or consent of instructor.

PM 602 OCCUPATIONAL AND ENVIRONMENTAL HEALTH. (4)
A continuation of topics in PM 601. Lecture, three hours; laboratory, two hours per week. Prereq: PM 601 or consent of instructor.

PM 768 RESIDENCY CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of six credits.

PM 815 FIRST-YEAR ELECTIVE, PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Preventive Medicine and Environmental Health. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

PM 821 PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH. (2)
The major purpose of this course is to acquaint medical students with the population dimension of preventive medicine. The student, via lectures, seminar groups, demonstrations, and laboratory exercises will learn about the basic tools of preventive medicine; namely, epidemiology and biostatistics. Students will learn how to systematically approach the scientific literature. Principles of preventive medicine will be taught and will include, but not be limited to, clinical prevention, nutrition, occupational medicine, community assessment, and health care organization and financing. Prereq: Admission to the College of Medicine.

PM 825 SECOND-YEAR ELECTIVE, PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Preventive Medicine and Environmental Health. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

PM 835 THIRD-YEAR ELECTIVE, PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH. (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25 to 150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty adviser. Prereq: Admission to the third year, College of Medicine.

PM 841 PREVENTIVE MEDICINE CLERKSHIP SELECTIVE. (1-6)
The medical student working singly or in small groups will, with Preventive Medicine faculty assistance, identify a question in the broadest sense in "medicine" which can best be answered by a population-based study. This could include comparison of therapeutic techniques, status of knowledge by health provider or consumer about certain conditions or costs of care, problems of organizing health services, ethical problems, or any other population-based question amenable to study. Building on the second year experience, the project will involve identification of a question, design and conduct the study, appropriate analysis of data, and a written and oral presentation. Prereq: Admission to College of Medicine.

PM 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
PM 850 PREVENTIVE MEDICINE OFF-SITE ELECTIVE.
PM 851 CLINICAL CLERKSHIP IN PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.
PM 852 RESEARCH IN PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH.

PSYCHIATRY

PSC 812 HUMAN GROWTH, DEVELOPMENT AND AGING. (2)
A consideration of normal changes that occur throughout the human life span, with emphasis on the interface of biological, interpersonal and sociocultural processes and determinants of change, and on providing an understanding and appreciation of the complexity and uniqueness of each human life. Lecture, three hours of week. Prereq: Admission to the College of Medicine.

PSC 815 FIRST-YEAR ELECTIVE, PSYCHIATRY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Psychiatry. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

PSC 821 PSYCHOPATHOLOGY OF BEHAVIOR. (3)
Basic clinical psychiatry for medical students. Part of a unit of study and clinical work facilitating the use of psychiatric concepts in medicine and surgery. Course covers psychiatric signs and symptoms, psychiatric syndromes in children and adults, causal factors in mental disturbances, theories of psychiatric treatment; includes research methods, preventive psychiatry, forensic psychiatry, and the applications in medical and surgical practice. Discussions and demonstrations to supplement experience by interviewing and evaluating selected psychiatric patients under supervision. Prereq: Open only to medical students or with consent of instructor.

PSC 825 SECOND-YEAR ELECTIVE, PSYCHIATRY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Psychiatry. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

PSC 831 PSYCHIATRIC CLERKSHIP. (6)
Psychiatric diagnosis via patient interviews, appropriate relatives and other methods. Study of total process from admission through treatment to rehabilitation, emphasizing somatic and pharmacological tactics and limits. Students see variety of patients and observe hospitalization impact, treatment resistance by patient or family, readjustment to family, community and referring physician. Evaluation of outpatient psychotherapy. Students assist throughout hospital emergency room and clinic, including crisis intervention. Prereq: Admission to third year, College of Medicine.

PSC 841 PSYCHIATRY SELECTIVE. (4)
Designed to give fourth year med student advanced exposure to principles and practice of psychiatry with close faculty supervision. Formalized seminars. Includes outpatient specialty wards, family counseling, emergency areas, consult psychiatry and geropsychiatry. Advance instruction in psychopharmacology and neurochemistry, straightforward constructs in psychotherapy, couple/family assessment, crisis intervention, etc. Course individualized within department, staffing patterns. Grade determined by supervisor's assessment of knowledge, skills, performance and progress. Four-week rotation. Prereq: PSC 831.

PSC 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
PSC 865 CLINICAL CLERKSHIP IN PSYCHIATRY
PSC 869 RESEARCH IN PSYCHIATRY
PSC 872 PRIVATE PRACTICE PSYCHIATRY
PSC 875 GERIATRICS/GERIATRIC PSYCHIATRY
PSC 890 OFF-SITE CLERKSHIP IN PSYCHIATRY

RADIATION MEDICINE

RM 472G INTERACTION OF RADIATION WITH MATTER. (3)
Basic aspects of the interaction of ionizing radiation with matter. Bohr atom, atomic spectra, radioactivity, energetics of decay. Sources of radiation, penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; selected nuclear reactions; basic radiation detection and dosimetry. Prereq: PHY 213 or 232; MA 114 (may be taken concurrently); or equivalent. (Same as PHY 472G.)

RM 540 GENERAL RADIATION BIOLOGY. (4)
A basic course devoted to a study of radiation techniques and research and their application in the various fields of biology. Lectures devoted to basic background and health hazard aspects followed by more comprehensive treatment of biological aspects. Laboratory devoted to use of radioisotopes and techniques of their measurement using various radiation detectors and counters. Lecture, two hours; laboratory, four hours. Prereq: Two years of biological sciences, one year of chemistry, and consent of instructor. (Same as BIO 540.)

RM 545 RADIATION HAZARDS AND PROTECTION. (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and non-ionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as PHY/HRS 545.)

RM 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as PHY/HRS 546.)

RM 601 ADVANCED RADIATION DOSIMETRY. (2)
Advanced aspects of the interaction of radiation with matter and specialized topics in the dosimetry of ionizing radiations. Modifications of Bragg-Gray theory for application to megavoltage sources. Beta dosimetry. Specialized calibration techniques. Relative response functions of various media. Nontraditional techniques. Dosimetry of radiation fields including complex spectra. Prereq: PHY 472G, RM 546, or equivalent.

RM 640 BIOLOGICAL EFFECTS OF RADIATION. (3)
A consideration of the action of ionizing radiation and ultraviolet light at progressively higher levels of organization. Recent experiments and current theoretical concepts will be emphasized. Prereq: BIO/RM 540 or one year of chemistry, physics, and biological sciences and consent of instructor. (Same as BIO 640.)

RM 647 PHYSICS OF DIAGNOSTIC IMAGING I. (3)
Specialized and advanced topics in diagnostic imaging, including modulation transfer function analysis, image processing algorithms, acceptance testing, CT, NMR, ultrasound, etc. Prereq: PHY/RM/HRS 546 or consent of instructor. (Same as HRS 647.)

RM 648 PHYSICS OF DIAGNOSTIC IMAGING II. (3)
A continuation of HRS/RM 647, with laboratory. Specialized and advanced topics in nuclear medicine imaging physics. Quality control protocols in imaging physics. Laboratory experiences with diagnostic imaging using standard and fluoroscopic X-ray units, CT, ultrasound, NMR, and Anger cameras. Lecture, two hours; laboratory, three hours per week. Prereq: HRS/RM 647 or consent of intructor. (Same as HRS 648.)

RM 649 PHYSICS OF RADIATION THERAPY. (2)
Specialized beam and brachy therapy treatment planning; therapy facility shielding design; advanced Bragg-Gray cavity theory applications; calibration, acceptance testing, and quality control procedures. Prereq: HRS/PHY/RM 546 or consent of instructor. (Same as HRS 649.)

RM 660 PRACTICUM IN RADIATION MEDICINE. (1-12)
This course offers practical training in the field of radiation medicine including radiation therapy, nuclear medicine and health physics. It will be open to qualified students in the physical, biological, and medical sciences. Lecture, 10 hours; laboratory, 30 hours. Prereq: Consent of instruction staff in radiation medicine.

RM 740 MAMMALIAN RADIATION BIOLOGY. (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. Prereq: Consent of instructor; BIO/RM 540 or RM 546 or equivalent background. (Same as BIO 740.)

RM 815 FIRST-YEAR ELECTIVE, RADIATION MEDICINE. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Radiation Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

RM 821 BASIC RADIATION MEDICINE. (1)
This course is designed for recognition of various forms of malignancy; use of radiation in treatment of malignant diseases; use of radioactive isotopes in diagnosis and treatment in medicine. Prereq: Admission to the second year, College of Medicine.

RM 825 SECOND-YEAR ELECTIVE, RADIATION MEDICINE. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Radiation Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

RM 835 THIRD-YEAR ELECTIVE, RADIATION MEDICINE. (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25 to 150 hours and will carry one to six hours credit. Electives will be chosen with the advice and approval of faculty adviser. Prereq: Admission to the third year, College of Medicine.

RM 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
RM 850 RADIATION ONCOLOGY
RM 851 NUCLEAR MEDICINE
RM 852 RESEARCH IN RADIATION MEDICINE

REHABILITATION MEDICINE

RBM 815 FIRST-YEAR ELECTIVE, REHABILITATION MEDICINE. (1-3)
The student will be assigned to a faculty member and will attend inpatient rounds and staff conferences on the Spinal Cord Injury, Brain Injury or Stroke units at Cardinal Hill Hospital. Student will attend OT and PT Clinics with assigned patients; a brief discussion paper will be required on an assigned topic.

RBM 825 SECOND-YEAR ELECTIVE, REHABILITATION MEDICINE. (1-4)
The student will be assigned to a faculty member and will attend inpatient rounds and staff conferences on the Spinal Cord Injury, Brain Injury or Stroke units at Cardinal Hill Hospital. Student will attend OT and PT Clinics with assigned patients; a brief discussion paper will be required on an assigned topic.

RBM 835 THIRD-YEAR ELECTIVE, REHABILITATION MEDICINE. (1-6)
The student with specific interests in brain injury, stroke or spinal cord injury will be assigned to follow appropriate patients selected from the Rehabilitation Medicine service at Cardinal Hill Hospital. Student will interview, examine and study those cases in-depth to gain an expanded understanding of the selected area. Brief presentation at the end of the rotation.

RBM 850 ACTING INTERNSHIP IN REHABILITATION MEDICINE. (1-6)
Acting internship in Rehabilitation Medicine. May be repeated to a maximum of eight credits. Prereq: Medicine and/or surgery clerkship.

SURGERY

SUR 815 FIRST YEAR ELECTIVE, SURGERY. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Surgery. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

SUR 825 SECOND-YEAR ELECTIVE, SURGERY. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Surgery. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

SUR 831 GENERAL SURGERY CLERKSHIP. (8)
An eight week clerkship providing lectures, audiovisual packaged instruction and practical experience in the principles of general surgery. Prereq: Admission to third year, College of Medicine.

SUR 841 SURGICAL SPECIALTY SELECTIVE. (1-6)
A required clerkship providing lectures and practical experience in three surgical specialties, including but not limited to: cardiothoracic surgery, plastic surgery, neurosurgery, orthopedics, urology, pediatric surgery, and ophthalmology. One credit per week, not to exceed six weeks. Prereq: Admission to the fourth year of the College of Medicine.

SUR 850-899 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
SUR 851 ACTING INTERNSHIP IN ORTHOPEDIC SURGERY
SUR 852 ACTING INTERNSHIP IN PEDIATRIC SURGERY
SUR 854 ACTING INTERNSHIP IN UROLOGY
SUR 855 ACTING INTERNSHIP IN PLASTIC SURGERY
SUR 857 ACTING INTERNSHIP IN TRANSPLANTATION SURGERY
SUR 862 ACTING INTERNSHIP IN GENERAL SURGERY
SUR 863 ACTING INTERNSHIP IN CARDIOTHORACIC SURGERY
SUR 864 ACTING INTERNSHIP IN NEUROSURGERY
SUR 865 CLINICAL CLERKSHIP IN SURGERY
SUR 867 ELECTIVE IN MICROSURGERY
SUR 868 URBAN GENERAL SURGERY ELECTIVE
SUR 869 ACTING INTERNSHIP IN TRAUMA SURGERY
SUR 890 SURGERY OFF-SITE

FACULTY

COLLEGE OF AGRICULTURE

C. Oran Little, dean

AGRICULTURAL ECONOMICS

Larry D. Jones, chairperson

Kurt Ramon Anschel, professor, Ph.D., Michigan State, 1965
Robert Lee Beck, professor, Ph.D., Michigan State, 1963
Fred J. Benson, extension professor, Ph.D., Missouri, 1972
Barry Wright Bobst, associate professor, Ph.D., Washington State, 1966
Garnett L. Bradford, professor, Ph.D., North Carolina State, 1968
Lawrence A. Bradford, professor emeritus, M.S., Kentucky, 1939
Russell Herbert Brannon, professor, Ph.D., Wisconsin, 1967
Wilmer Browning, extension professor emeritus, Ph.D., Kentucky, 1969
George B. Byers, professor emeritus, Ph.D., Iowa, 1948
Dana G. Card, professor emeritus, Ph.D., Cornell, 1939
James Earnest Criswell, assistant professor emeritus, Ph.D., Minnesota, 1966
Joe Thomas Davis, professor, Ph.D., Tennessee, 1974
David Lee Debertin, professor, Ph.D., Purdue, 1973
Harry Hale Hall, professor, Ph.D., Iowa State, 1969
Woodrow Wilson Hourigan, extension professor emeritus, Ph.D., Kentucky, 1969
Craig Lynn Infanger, extension professor, Ph.D., Washington State, 1974
Larry D. Jones, extension professor, Ph.D., Purdue, 1973
Fred Edward Justus, Jr., professor, Ph.D., Illinois, 1955
Harold Gibson Love, associate professor, Ph.D., Missouri, 1969
Loys L. Mather, associate professor, Ph.D., Wisconsin, 1968
A. Lee Meyer, associate extension professor, Ph.D., Purdue, 1979
Angelos Pagoulatos, professor, Ph.D., Iowa State, 1975
Michael R. Reed, associate professor, Ph.D., Iowa State, 1978
Steven K. Riggins, extension professor, Ph.D., Cornell, 1977
Robert William Rudd, professor emeritus, Ph.D., California, 1952
Dallas Milton Shuffett, professor, Ph.D., Kentucky, 1956
William Donald Shurley, associate extension professor, Ph.D., Purdue, 1980
Jerry Robert Skees, associate professor, Ph.D., Michigan State, 1981
Eldon D. Smith, professor, Ph.D., Wisconsin, 1954
Forest E. Stegelin, associate extension professor, Ph.D., Oklahoma State, 1979
Bernard Tew, assistant professor, Ph.D., Georgia, 1984
R.L. Trimble, assistant extension professor, Ph.D., Michigan State, 1973
Lionel Williamson, assistant extension professor, Ph.D., Missouri, 1977

AGRICULTURAL EDUCATION

Harold R. Binkley, professor emeritus, Ed.D., Kentucky, 1955
Herbert H. Bruce, Jr., professor, Ed.D., Kentucky, 1965
Charles W. Byers, professor, Ph.D., Ohio State, 1972
Rodney W. Tulloch, associate professor, Ph.D., Penn State, 1972

AGRICULTURAL ENGINEERING

Ira Joseph Ross, chairperson

Billy J. Barfield, professor, Ph.D., Texas A&M, 1968
Jesse B. Brooks, associate professor emeritus, M.S., Auburn, 1950
Donald G. Colliver, associate professor, Ph.D., Purdue, 1979
George A. Duncan, extension professor, Ph.D., Kentucky, 1980
Robert L. Fehr, extension professor, Ph.D., Iowa State, 1976
Gary K. Felton, assistant professor, Ph.D., Texas A&M, 1987
Richard S. Gates, assistant professor, Ph.D., Cornell, 1984
William E. Murphy, associate extension professor, Ph.D., Purdue, 1980
Douglas G. Overhults, associate extension professor, Ph.D., Nebraska, 1982
Blaine Frank Parker, professor, Ph.D., Michigan State, 1954
Frederick A. Payne, associate professor, Ph.D., Kentucky, 1980
Ira Joseph Ross, professor, Ph.D., Purdue, 1960
Scott A. Shearer, assistant professor, Ph.D., Ohio State, 1986
Edward Manson Smith, professor, M.S., Kansas State, 1950
Joseph L. Taraba, associate extension professor, Ph.D., Ohio State, 1978
Larry W. Turner, assistant extension professor, Ph.D., Kentucky, 1984
John Neal Walker, professor, Ph.D., Purdue, 1961
Linus R. Walton, professor, Ph.D., Tennessee, 1974
Richard C. Warner, associate extension professor, Ph.D., Clemson, 1981
Larry G. Wells, professor, Ph.D., North Carolina State, 1975
Gerald Martin White, professor, Ph.D., Purdue, 1960

AGRONOMY

Andrew Jackson Hiatt, chairperson

Roger Allen Andersen, associate professor adjunct, Ph.D., Wisconsin, 1963
Harry Hudson Bailey, professor emeritus, Ph.D., Michigan State, 1956
Richard Irven Barnhisel, professor, Ph.D., Virginia Polytechnic Institute, 1964
Michael Barrett, assistant professor, Ph.D., University of California-Davis, 1980
Morris Jay Bitzer, extension professor, Ph.D., Purdue, 1968
Robert L. Blevins, professor, Ph.D., Ohio State, 1967
Robert Cecil Buckner, professor emeritus adjunct, Ph.D., Minnesota, 1955
Harold Rhodes Burton, associate professor, Ph.D., Louisville, 1964
Lowell Palmer Bush, professor, Ph.D., Iowa State, 1964
Joseph Chappell, assistant professor, Ph.D., California-Santa Cruz, 1981
George M. Cheniae, professor, Ph.D., North Carolina State, 1959
Glenn Burton Collins, professor, Ph.D., North Carolina State, 1966
Michael Collins, associate professor, Ph.D., Kentucky, 1978
Paul Leroy Cornelius, professor, Ph.D., Illinois, 1972
Steven J. Crafts-Brandner, assistant professor adjunct, Ph.D., Illinois, 1983
Charles Thomas Dougherty, associate professor, Ph.D., Purdue, 1966
Dennis B. Egli, professor, Ph.D., Illinois, 1969
Georgia Clarisse Eizenga, assistant professor adjunct, Ph.D., Missouri, 1980
Vasilios P. Evangelou, associate professor, Ph.D., California-Davis, 1980
Verne Clifford Finkner, professor emeritus, Ph.D., Iowa State, 1950
Joseph F. Freeman, professor emeritus, M.S., Kentucky, 1923
Wilbur W. Frye, professor, Ph.D., Virginia Polytechnic Institute, 1969
Lawrence J. Grabau, assistant professor, Ph.D., Missouri, 1984
J.D. Green, assistant extension professor, Oklahoma State, 1986
John Hamman Grove, associate professor, Ph.D., Georgia, 1980
James Herbek, associate extension professor, Ph.D., Illinois, 1970
James Watt Herron, extension professor emeritus, Ph.D., Cornell, 1951
Andrew Jackson Hiatt, professor, Ph.D., North Carolina State, 1960

David Floyd Hildebrand, associate professor, Ph.D., Illinois, 1982
Arthur G. Hunt, assistant professor, Ph.D., Brandeis, 1981
Anastasios D. Karathanasis, associate professor, Ph.D., Auburn University, 1982
Garry D. Lacefield, extension professor, Ph.D., Missouri, 1974
Paul Davis Legg, professor, Ph.D., North Carolina State, 1964
James Everett Leggett, professor emeritus, Ph.D., Maryland, 1965
Charles T. MacKown, associate professor adjunct, Ph.D., Arizona, 1978
James R. Martin, associate extension professor, Ph.D., Kentucky, 1978
Herbert Fane Massey, Jr., professor, Ph.D., Wisconsin, 1952
Lloyd W. Murdock, Jr., extension professor, Ph.D., Virginia Polytechnic Institute, 1967
Mark T. Nielsen, associate professor, Ph.D., Kansas State, 1980
Gary K. Palmer, assistant extension professor, Ph.D., Tennessee, 1984
Doyle Eugene Peaslee, professor, Ph.D., Iowa State, 1960
Todd Wayne Pfeiffer, assistant professor, Ph.D., Wisconsin-Madison, 1981
Ronald Edward Phillips, professor, Ph.D., Iowa State, 1959
Charles Gustav Poneleit, professor, Ph.D., Purdue, 1967
Andrew J. Powell, extension professor, Ph.D., Virginia Polytechnic Institute, 1966
John Leonard Ragland, professor, Ph.D., North Carolina State, 1959
Monroe Rasnake, associate extension professor, Ph.D., Kentucky, 1973
Harold B. Rice, associate extension professor, Ph.D., North Carolina State, 1966
Roy Edward Sigafus, professor emeritus, Ph.D., Cornell, 1951
John Leonidas Sims, professor, Ph.D., Iowa State, 1960
Jones H. Smiley, extension professor, Ph.D., Wisconsin, 1963
M. Scott Smith, associate professor, Ph.D., Michigan State, 1978
Granville Woolman Stokes, professor emeritus, Ph.D., Wisconsin, 1953
Norman Linn Taylor, professor, Ph.D., Cornell, 1953
Timothy Henry Taylor, professor emeritus, Ph.D., Penn State, 1955
Dennis M. TeKrony, professor, Ph.D., Oregon State, 1969
William C. Templeton, Jr., professor emeritus, Ph.D., Purdue, 1960
William Orville Thom, associate extension professor, Ph.D., Missouri, 1975
Grant Worthington Thomas, professor, Ph.D., North Carolina State, 1958
David Anthony Van Sanford, assistant professor, Ph.D., North Carolina State, 1981
George Joseph Wagner, professor, Ph.D., SUNY at Buffalo, 1974
Gilbert T. Webster, professor emeritus, Ph.D., Iowa, 1949
Kenneth Lincoln Wells, extension professor, Ph.D., Iowa State, 1963
Elizabeth G. Williams, professor, Ph.D., Wisconsin, 1972
William W. Witt, associate professor, Ph.D., North Carolina State, 1974

ANIMAL SCIENCES

Virgil W. Hays, chairperson

Debra K. Aaron, assistant professor, Ph.D., Oklahoma State, 1984
Curtis W. Absher, extension professor, Ph.D., Tennessee, 1969
Richard L. Anderson, professor emeritus, Ph.D., Iowa State, 1941
John P. Baker, professor, Ph.D., Illinois, 1960
Charles E. Barnhart, professor, Ph.D., Iowa State, 1954
James A. Boling, professor, Ph.D., Wisconsin, 1967
Neil W. Bradley, professor, Ph.D., Illinois, 1958
C. Frank Buck, professor emeritus, Ph.D., Cornell, 1953
Walter R. Burris, extension professor, Ph.D., Kentucky, 1974
Austin H. Cantor, associate professor, Ph.D., Cornell, 1974
G. L. Monty Chappell, extension professor, Ph.D., Virginia Polytechnic Institute, 1966
William L. Crist, extension professor, Ph.D., Ohio State, 1970
Gary L. Cromwell, professor, Ph.D., Purdue, 1967
Karl A. Dawson, associate professor, Ph.D., Iowa State, 1979
Ray H. Dutt, professor emeritus, Ph.D., Wisconsin, 1948
Lee A. Edgerton, associate professor, Ph.D., Purdue, 1970
Donald G. Ely, professor, Ph.D., Kentucky, 1966
T. R. Freeman, professor emeritus, Ph.D., Penn State, 1937
Nelson Gay, professor, Ph.D., Illinois, 1962
Robert E. Goodwill, associate professor, Ph.D., Minnesota, 1969
Robert J. Harmon, associate professor, Ph.D., Guelph, Ontario, 1977
Virgil W. Hays, professor, Ph.D., Iowa State, 1957
George Heersche, Jr., extension professor, Ph.D., Kansas State, 1975
Roger W. Hemken, professor, Ph.D., Cornell, 1957
Clair L. Hicks, professor, Ph.D., Wisconsin, 1974
James A. Jackson, assistant professor, Ph.D., Kentucky, 1982
Stephen G. Jackson, associate professor, Ph.D., Kentucky, 1981
John T. Johns, extension professor, Ph.D., Michigan State, 1974
James D. Kemp, professor, Ph.D., Illinois, 1952
Bruce E. Langlois, professor, Ph.D., Purdue, 1962
Dennis O. Liptrap, extension professor, Ph.D., Michigan State, 1969
Stephen Lowry, assistant professor, Ph.D., Virginia Polytechnic Institute, 1975
Donald W. MacLaury, professor emeritus, Ph.D., Iowa State, 1955
Warrie J. Means, assistant extension professor, Ph.D., Colorado State, 1985
George E. Mitchell, Jr., professor, Ph.D., Illinois, 1956
William G. Moody, professor, Ph.D., Missouri, 1963
Carla G. Nichols, associate extension professor, Ph.D., Oklahoma State, 1981
Durward Olds, professor emeritus, Ph.D., Illinois, 1956
Joseph O'Leary, associate professor, Ph.D., Minnesota, 1974
Kenneth E. Olson, extension professor, Ph.D., Wisconsin, 1976
Gary R. Parker, extension professor, Ph.D., Kentucky, 1975
Anthony J. Pescatore, assistant professor, Ph.D., Texas A&M, 1981
John C. Robertson, professor, Ph.D., Kentucky, 1960
Keith K. Schillo, assistant professor, Ph.D., Wisconsin, 1981
William J. Silvia, assistant professor, Ph.D., Colorado State, 1984
Tim S. Stahly, professor, Ph.D., Nebraska, 1975
D. M. Seath, professor emeritus, Ph.D., Iowa State, 1939
Paul A. Thornton, associate professor, Ph.D., Michigan State, 1956
Fred A. Thrift, professor, Ph.D., Oklahoma State, 1968
Ray E. Tucker, professor, Ph.D., Kentucky, 1966
John W. Tuttle, extension professor emeritus, Ph.D., Michigan State, 1968
W. Y. Varney, extension professor emeritus, Ph.D., Michigan State, 1960
M. D. Whiteker, extension professor emeritus, Ph.D., Kentucky, 1961
Craig H. Wood, assistant extension professor, Ph.D., New Mexico State, 1985
Patch G. Woolfolk, professor emeritus, Ph.D., Cornell, 1950
Panayiotis M. Zavos, associate professor, Ph.D., Minnesota, 1978

COOPERATIVE EXTENSION

Alan Utz, Jr., professor, Ph.D., Wisconsin, 1965

ENTOMOLOGY

Bobby Clifton Pass, chairperson

Grayson C. Brown, associate professor, Ph.D., Washington State University, 1977
Christian M. Christensen, extension professor, Ph.D., Purdue, 1974
Douglas Lee Dahlman, professor, Ph.D., Iowa State, 1965
Paul Harold Freytag, professor, Ph.D., Ohio State, 1963
Kenneth F. Haynes, assistant professor, Ph.D., California, Davis, 1982
Douglas W. Johnson, associate extension professor, Ph.D., Florida, 1980
Davy Jones, assistant professor, Ph.D., California, Davis, 1982
Grace M. Jones, assistant research professor, Ph.D., California, 1984
Fred William Knapp, professor, Ph.D., Kansas State, 1961
Gerald L. Nordin, professor, Ph.D., Illinois, 1971
Bobby Clifton Pass, professor, Ph.D., Clemson, 1962
Daniel A. Potter, associate professor, Ph.D., Ohio, 1978
Harley G. Raney, extension professor, Ph.D., Oklahoma State, 1970
Juan Guadelupe Rodriquez, professor, Ph.D., Ohio State, 1949
Rudolph A. Scheibner, extension professor, Ph.D., Michigan State, 1963
Richard Thurston, professor emeritus, Ph.D., Rutgers, 1952
Lee Hill Townsend, extension professor, Ph.D., Virginia Polytechnic Institute, 1977
Marijo E. Wilson, assistant professor, Ph.D., Kansas State, 1984
Kenneth V. Yeargan, professor, Ph.D., California, 1974

FORESTRY

Bart A. Thielges, chairperson

Sun Joseph Chang, associate professor, Ph.D., Wisconsin, 1979
George B. Coltharp, associate professor, Ph.D., Michigan State, 1958
Donald H. Graves, associate extension professor, Ph.D., Kentucky, 1974
Deborah B. Hill, associate extension professor, Ph.D., Yale, 1977
Paul J. Kalisz, assistant professor, Ph.D., Florida, 1982
Thomas W. Kimmerer, assistant professor, Ph.D., Wisconsin, 1981
Calvin J. Liu, associate professor, Ph.D., Louisiana State, 1976
Robert N. Muller, associate professor, Ph.D., Yale, 1975
James R. Olson, associate professor, Ph.D., California-Berkeley, 1979
James M. Ringe, assistant professor, Ph.D., Purdue, 1983
Bart A. Thielges, professor, Ph.D., Yale, 1968
David B. Wagner, assistant professor, Ph.D., California, Davis, 1986
Allan J. Worms, associate extension professor, Ph.D., Texas A&M, 1972

HORTICULTURE AND LANDSCAPE ARCHITECTURE

Albert S. Williams, chairperson

Robert G. Anderson, extension professor, Ph.D., Florida, 1976
Douglas D. Archbold, assistant professor, Ph.D., Michigan State, 1982
Sharon Bale, extension specialist, M.S., Kentucky, 1975
Gerald R. Brown, associate extension professor, Ph.D., Arkansas, 1974
Jack W. Buxton, associate professor, Ph.D., Kentucky, 1973
Janice A. Cervelli, associate professor, M.L.A., Guelph, 1981
Winston Dunwell, associate extension professor, Ph.D., Idaho, 1978
William Fountain, associate extension professor, Ph.D., Louisiana, 1979
Robert L. Geneve, assistant professor, Ph.D., Minnesota, 1985
Robert L. Houtz, assistant professor, Ph.D., Michigan State, 1984
R. Terry Jones, associate extension professor, Ph.D., Ohio State, 1974
Thomas R. Kemp, professor, Ph.D., Kentucky, 1970
Dean E. Knavel, professor, Ph.D., Michigan State, 1959
Robert E. McNiel, extension professor, Ph.D., Purdue, 1975
Hubert C. Mohr, professor emeritus, Ph.D., Texas A&M, 1955
Thomas J. Nieman, professor, Ph.D., Southern Illinois, 1973
C. R. Roberts, extension professor, Ph.D., Texas A&M, 1964
Horst Schach, professor, M.L.A., California, 1966
John C. Snyder, associate professor, Ph.D., Minnesota, 1978
Robert J. Southerland, associate professor, M.L.A., Syracuse, 1976
Leonard P. Stoltz, associate professor, Ph.D., Purdue, 1965
John G. Strang, associate extension professor, Ph.D., Oregon State, 1978
Leslie A. Weston, assistant professor, Ph.D., Michigan State, 1986
Albert S. Williams, extension professor, Ph.D., North Carolina State, 1954
Mary L. Witt, extension professor, Ph.D., Oregon State, 1976
Dwight Wolfe, research specialist, M.S., Rutgers, 1983

PLANT PATHOLOGY

David A. Smith, chairperson

Richard A. Chapman, professor emeritus, Ph.D., Illinois, 1948
Stephen Diachun, professor emeritus, Ph.D., Illinois, 1938
Richard S. Ferriss, associate professor, Ph.D., Florida, 1979
Said A. Ghabrial, professor, Ph.D., Louisiana State, 1965
John R. Hartman, extension professor, Ph.D., Wisconsin, 1971
James W. Hendrix, professor, Ph.D., North Carolina State, 1963
Donald E. Hershman, assistant extension professor, Ph.D., Rutgers, 1982
Joseph A. Kuć, professor, Ph.D., Purdue, 1955
William C. Nesmith, extension professor, Ph.D., North Carolina State, 1977
Thomas P. Pirone, professor, Ph.D., Wisconsin, 1960
Christopher L. Schardl, assistant professor, Ph.D., California-Davis, 1983
Louis Shain, associate professor, Ph.D., North Carolina State, 1967
John G. Shaw, professor, Ph.D., Wisconsin, 1960
Shuh-ji Sheen, professor, Ph.D., Minnesota, 1962
Robert J. Shepherd, professor, Ph.D., Wisconsin, 1959
Malcolm R. Siegel, professor, Ph.D., Maryland, 1962
David A. Smith, professor, Ph.D., Cornell, 1974
Richard E. Stuckey, extension professor, Ph.D., Michigan State, 1973
Harry E. Wheeler, professor emeritus, Ph.D., Louisiana State, 1949

SOCIOLOGY

James A. Christenson, chairperson

Howard Beers, professor emeritus, Ph.D., Cornell, 1935
Janet Bokemeier, associate professor, Ph.D., Iowa State, 1978
James S. Brown, professor emeritus, Ph.D., Harvard, 1950
Larry Burmeister, assistant professor, Ph.D., Cornell, 1984
Lawrence M. Busch, professor, Ph.D., Cornell, 1974
James A. Christenson, professor, Ph.D., Washington State, 1972
A. Lee Coleman, professor emeritus, Ph.D., Cornell, 1950
C. Milton Coughenour, professor, Ph.D., Missouri, 1953
Lorraine Garkovich, associate professor, Ph.D., Missouri, 1976
Gary L. Hansen, assistant extension professor, Ph.D., Iowa State, 1978
T.W. Ilvento, assistant extension professor, Ph.D., Penn State, 1985
William F. Kenkel, professor, Ph.D., Ohio State, 1952
Richard Maurer, associate extension professor, Ph.D., Ohio State, 1977
Louis E. Swanson, Jr., associate professor, Ph.D., Penn State, 1982
Paul D. Warner, extension professor, Ph.D., Ohio State, 1973

VETERINARY SCIENCE

J.R. Rooney, chairperson

G. P. Allen, professor, Ph.D., Kentucky, 1975
E. F. Bailey, associate professor, Ph.D., California-Davis, 1979
J. W. Blake, professor, Ph.D., Ohio State, 1968
John T. Bryans, professor, Ph.D., Cornell, 1954
Ernest G. Cothran, assistant research professor, Ph.D., Oklahoma, 1982
M. W. Crowe, professor, D.V.M., Auburn, 1957
J. M. Donahue, associate professor, Ph.D., Missouri, 1971
J. H. Drudge, professor, D.V.M., Michigan State, 1943; Sc. D., Johns Hopkins, 1950
Barry P. Fitzgerald, assistant professor, Ph.D., Reading, England, 1979
R. C. Giles, assistant professor, D.V.M., Auburn, 1970
C. B. Hong, professor, B.V.Sc., National Taiwan University, 1965; Ph.D., Cornell, 1972
D. E. LaBore, extension professor emeritus, D.V.M., Colorado State, 1942
R. G. Loy, professor emeritus, Ph.D., Wisconsin, 1959
E. T. Lyons, professor, Ph.D., Colorado State, 1963
K. G. McDowell, assistant professor, Ph.D., Florida, 1986
W. H. McCollum, professor, Ph.D., Wisconsin, 1954
D. Miksch, associate extension professor, D.V.M., Kansas State, 1957
L. E. Newman, professor, D.V.M., Cornell, 1956; Ph.D., Michigan State, 1957
Marie B. Petritis-Murphy, assistant professor, Ph.D., Texas A&M, 1985
K. B. Poonacha, clinical professor, D.V.M., Madras University, India, 1963; Ph.D., Wisconsin, 1972
D.G. Powell, assistant extension professor, B.V.Sc., MRCVS, Bristol University, England, 1965
J. R. Rooney, professor, D.V.M., Cornell, 1954
T. W. Swerczek, professor, D.V.M., Kansas State, 1964; Ph.D., Connecticut, 1969
P. J. Timoney, professor, M.V.B., University College Dublin, Ireland, 1964; Ph.D., Trinity College (University of Dublin), Ireland, 1974
Thomas Tobin, professor, M.V.B., University College Dublin, Ireland, 1964; Ph.D., Toronto, Canada, 1969
Robert R. Tramontin, associate clinical professor, Ph.D., Auburn, 1965
Kathryn A. Trembicki, assistant research professor, Ph.D., Cornell, 1985
P. A. Tuttle, associate clinical professor, D.V.M., Michigan State, 1954

COLLEGE OF ALLIED HEALTH PROFESSIONS

Thomas C. Robinson, dean

DEPARTMENT OF CLINICAL SCIENCES

Clinical Nutrition
Paul A. Thornton, program director

Gilbert Boissonneault, assistant professor, Ph.D., Illinois, 1982
Geza G. Bruckner, assistant professor, Ph.D., Kentucky, 1979
Donald Hochstrasser, professor, Ph.D., Oregon, 1963
Paul A. Thornton, professor, Ph.D., Michigan State, 1956

Radiation Science
Ralph C. Christensen, program director

Joseph L. Beach,* associate professor, Ph.D., Wisconsin, 1972
John Calkins,* professor, Ph.D., Texas, 1963
Ralph C. Christensen, associate professor, Ph.D., California-Berkeley, 1971
Yosh Maruyama,* professor, M.D., California-San Francisco, 1955
Joseph Sayeg,* associate professor, Ph.D., California-Berkeley, 1954
Guy H. Simmons,* associate professor, Ph.D., Cincinnati, 1972

*joint appointment

Physical Therapy
Dean Currier, program director

Debbie S. Brown, clinical coordinator, P.T., M.S.Ed., Kentucky, 1985
Dean Currier, professor, P.T., Ph.D., Maryland, 1971
D. LaVonne Jaeger, professor, P.T., M.A., Washington, 1966
Richard V. McDougall, professor, P.T., M.S.Ed., Kentucky, 1965
Mary Alice Minor, assistant professor, P.T., M.S., Boston, 1972
Scott Minor, assistant professor, P.T., Ph.D., Iowa, 1987
Arthur J. Nitz, assistant professor, P.T., Ph.D., Kentucky, 1984
A. Joseph Threlkeld, assistant professor, Ph.D., Kentucky, 1984

Clinical Laboratory Sciences
Marie Vittetoe, program director

Thomas Earle Bowen, associate professor, M.T., Ph.D., Alabama, 1968
Kim Campbell, instructional assistant, M.T. (ASCP), M.S., Kentucky, 1985
Patricia Ann Collins, associate professor, M.T. (ASCP), M.S., West Virginia, 1971
Cheryl L. Conley, assistant professor, M.T. (ASCP), Ph.D., Wright State, 1984
Vincent S. Gallicchio, M.T. (ASCP), Ph.D., New York, 1986
Linda Gorman, associate professor, M.T. (ASCP), M.S., Virginia Commonwealth University, 1980
Mary Frances James, professor emeritus, M.T. (ASCP), M.S., Alabama, 1961
Janet Pisaneschi, associate professor, Ph.D., St. Louis, 1972
E. Anne Stiene-Martin, professor, M.T. (ASCP), M.S., Minnesota, 1969
Marie Vittetoe, professor, M.T. (ASCP), C.L.S., Ed.D., West Virginia, 1973
Vicki Vossmeyer, instructional assistant, M.T. (ASCP), M.S., Kentucky, 1987

DEPARTMENT OF HEALTH SERVICES

Allied Health Education and Research
William G. Pfeifle, program director

Jane M. Emanuel, associate professor, Ed.D., Alabama, 1970
Davis L. Gardner, professor, M.A., Kentucky, 1950
Lenora Finn Paradis, assistant professor, Ph.D., Michigan State, 1983
William G. Pfeifle, associate professor, Ed.D., Kentucky, 1977
Thomas C. Robinson,* professor, Ph.D., SUNY at Buffalo, 1971
Betty B. Spohn, adjunct assistant professor, M.S.L.S., Kentucky, 1973

*joint appointment

Clinical Pastoral Counseling
Ralph S. Carpenter, program director

Benjamin P. Bogia, assistant professor, M.Div., Princeton Theological Seminary, 1959
Ralph S. Carpenter, professor, S.T.M., Union Theological Seminary, 1961

Health Administration
David Berry, program director

David Berry, professor, Dr. P.H., North Carolina, 1971
Joyce E. Bowlyow, Ph.D., assistant professor, Michigan, 1985
Frank A. Butler, adjunct associate professor, M.H.S., Medical College of Virginia, 1972
Joe Fink,* professor, J.D., Georgetown University, Washington, D.C., 1973
Bernard A. Goetz, adjunct assistant professor, M.A., Kentucky, 1970
Joseph Hamburg, professor, M.D., Hahnemann, 1951
Donald Hochstrasser,* professor, Ph.D., Oregon, 1963
Joel M. Lee, associate professor, Dr. P.H., Texas, 1979
Martin Marx,* associate professor, Ph.D., North Carolina, 1968
William Massie, adjunct assistant professor, M.H.A., Cincinnati, 1976
Thomas C. Robinson,* professor, Ph.D., SUNY-Buffalo, 1971
Gary Shannon,* professor, Ph.D., Michigan, 1970
Thomas C. Tucker, assistant professor, M.P.H., Michigan, 1982
John Webb, adjunct assistant professor, B.S., Kentucky, 1963

*joint appointment

Physician Assistant Studies
Glen E. Combs, program director
Samuel R. Scott, medical director

Glen E. Combs, associate professor, PA-C, M.A., Michigan State, 1977
Gerry A. Gairola, associate professor, Ph.D., Kentucky, 1975
Samuel R. Scott,* professor, M.D., Bowman Gray, 1969
Karen O. Skaff, associate professor, M.S., Columbia, 1971
Robert Wildman, associate professor, PA-C, M.A., Temple, 1976

COLLEGE OF ARCHITECTURE

José Oubrerie, dean

Clyde R. Carpenter, professor, M.Arch., Pennsylvania, 1962
Mark S. Clary, assistant professor, B. Arch, Kentucky, 1983
Maria G. Dallerba-Ricci, professor, D.Arch. & Urban Design, Florence, 1964
Stephen C. Deger, associate professor, M.S.Arch.Engr., Illinois, 1966
Ellen Doble-Smith, architect, M.Arch., Virginia, 1986
Hans Gesund,* professor, D.Engr., Yale, 1958
Robert B. Gillig, architect, B.S.Arch., Virginia, 1976
Charles P. Graves, professor and dean emeritus, M.Arch., Pennsylvania, 1957
John R. Groves, assistant professor, B.Arch., Kentucky, 1979; J.D., Kentucky, 1972
Issam E. Harik,* assistant professor, D.Engr., Wayne, 1983
Leslie Hennessey, assistant professor, Ph.D., Kansas, 1983
Michael W. Jacobs, architect, B.Arch., Kentucky, 1975
Michael D. Kennedy, associate professor, M.S.Systems, Louisville, 1979
Richard S. Levine, associate professor, M.Arch., Rennsselaer, 1963
J. Philip Noffsinger, professor, D.Arch., Catholic, 1955
José Oubrerie, professor, Architecte, Conseil National Superior des Architectes, Paris, 1960

Paul M. Pinney, associate professor, M.S.Arch., Columbia, 1967
Richard Polk, architect, B.Arch., Kentucky, 1980
Leonardo Ricci, professor (part-time), dean emeritus-Florence, D.Arch., Rome, 1950
Anthony Roccanova, associate professor, M.Arch., Cornell, 1972
Jerzy Rozenberg, assistant professor, M.A., New York, 1981
Julia W. Smyth-Pinney, assistant professor, M.Arch., Harvard, 1979
David A. Spaeth, associate professor, M.Arch., Illinois Institute of Technology, 1966

*joint appointment

COLLEGE OF ARTS AND SCIENCES

Michael A. Baer, dean

AEROSPACE STUDIES
(Air Force ROTC)
Colonel Ronald C. Hoover, chairperson

Captain Daniel W. Baugh, admissions counselor, M.A., Evansville, 1977
Captain Dwayne L. Bernitt, assistant professor, M.A., Central Michigan, 1983
Captain John W. Gregory, assistant professor, M.A., University of the Philippines, 1982
Colonel Ronald C. Hoover, professor of aerospace studies, M.S., Illinois, 1973
Captain Henry A. Moore, assistant professor, M.A., Bowling Green State, 1975

ANTHROPOLOGY
Billie R. DeWalt, chairperson

Susan Abbott, associate professor, Ph.D., North Carolina, 1974
William Y. Adams, professor, Ph.D., Arizona, 1958
Thomas Arcury, adjunct assistant professor, Ph.D., Kentucky, 1983
Albert S. Bacdayan, assistant professor, Ph.D., Cornell, 1967
Carol Bryant, adjunct assistant professor, Ph.D., Kentucky, 1978
Brenda J. Clay, adjunct assistant professor, Ph.D., Southern Illinois, 1974
R. Berle Clay, adjunct assistant professor, Ph.D., Southern Illinois, 1960
C. Milton Coughenour, professor, Ph.D., Missouri, 1953
Billie R. DeWalt, professor, Ph.D., Connecticut, 1975
Kathleen M. DeWalt, associate professor, Ph.D., Connecticut, 1979
Tom D. Dillehay, associate professor, Ph.D., Texas-Austin, 1976
Art Gallaher, Jr., professor, Ph.D., Arizona, 1956
Kenneth Hirth, associate professor, Ph.D., Wisconsin-Milwaukee, 1974
Donald L. Hochstrasser, professor, Ph.D., Oregon, 1963, M.P.H., California-Berkeley, 1969
Charles A. Hofling, assistant professor, Ph.D., Washington, 1982
Richard Jefferies, adjunct assistant professor, Ph.D., Georgia, 1978
Robert F. Kraus, professor, M.D., Wisconsin, 1955
Margaret Lantis, professor emerita, Ph.D., California-Berkeley, 1939
Della McMillan, assistant professor, Ph.D., Northwestern, 1983
Mary L. Powell, adjunct assistant professor, Ph.D., Northwestern, 1985
Karl B. Raitz, professor, Ph.D., Minnesota, 1970
Sara A. Quandt, assistant professor, Ph.D., Michigan State, 1981
John van Willigen, associate professor, Ph.D., Arizona, 1971
H. Jean Wiese, associate professor, Ph.D., North Carolina, 1971

SCHOOL OF BIOLOGICAL SCIENCES
Eugene C. Crawford, director

M. I. H. Aleem, professor, Ph.D., Cornell, 1959
Roger W. Barbour, professor emeritus, Ph.D., Cornell, 1949
Thomas C. Barr, Jr., professor, Ph.D., Vanderbilt, 1958
Carol Baskin, adjunct associate professor, Ph.D., Vanderbilt, 1968
Jerry M. Baskin, professor, Ph.D., Vanderbilt, 1967
Wesley J. Birge, professor, Ph.D., Oregon State, 1955
P. H. Bonner, associate professor, Ph.D., California, San Diego, 1971
John C. Calkins, professor, Ph.D., Texas, 1963
John M. Carpenter, professor emeritus, Ph.D., Texas, 1946
Jim D. Clark, associate professor, Ph.D., California, Berkeley, 1972
W. S. Cohen, associate professor, Ph.D., City University of New York, 1970
Eugene C. Crawford, Jr., professor, Ph.D., Duke, 1965
Philip H. Crowley, associate professor, Ph.D., Michigan State, 1975
Wayne H. Davis, professor, Ph.D., Illinois, 1957
Michael S. DeKin, assistant professor, Ph.D., Temple, 1982
Leo S. Demski, professor, Ph.D., Rochester, 1969
J. M. Edney, associate professor emeritus, M.S., Iowa, 1934
O. F. Edwards, associate professor emeritus, Ph.D., Yale, 1936
Lester Goldstein, professor, Ph.D., Pennsylvania, 1953
Thomas C. Gray, associate professor, Ph.D., Vanderbilt, 1965
Denny O. Harris, associate professor, Ph.D., Indiana, 1967
Carl E. Henrickson, associate professor, Ph.D., Ohio State, 1950
Ricky Hirschhorn, assistant professor, Ph.D., Pittsburgh, 1980
James C. Humphries, professor emeritus, Ph.D., Yale, 1944
John J. Just, associate professor, Ph.D., Iowa, 1968
Judith A. Lesnaw, associate professor, Ph.D., Illinois, 1969
Willem Meijer, professor, Ph.D., Amsterdam, Holland, 1951
Kiisa C. Nishikawa, assistant professor, Ph.D., North Carolina, 1985
N. J. Pisacano, professor, M.D., Hahnemann, 1951
John M. Rawls, Jr., associate professor, Ph.D., North Carolina, 1973
H. P. Riley, distinguished professor emeritus, Ph.D., Princeton, 1931
Gerald A. Rosenthal, professor, Ph.D., Duke, 1966
I. Ruchman, professor emeritus, Ph.D., Cincinnati, 1944
R. Craig Sargent, assistant professor, Ph.D., SUNY-Stony Brook, 1981
Morris Scherago, professor emeritus, D.V.M., Cornell, 1949; Hon. Doctorate, Kentucky, 1966
Jeffery A. Schloss, assistant professor, Ph.D., Carnegie-Mellon, 1979
Andrew Sih, associate professor, Ph.D., California, Santa Barbara, 1980
Sheldon Steiner, professor, Ph.D., Kentucky, 1967
Gary L. Uglem, associate professor, Ph.D., Idaho, 1972
Ralph F. Wiseman, professor emeritus, Ph.D., Wisconsin, 1956

CHEMISTRY
David S. Watt, chairperson

Jeffrey R. Appling, assistant professor, Ph.D., Georgia Institute of Technology, 1985
Leonidas Bachas, assistant professor, Ph.D., Michigan, 1986
Rodney E. Black, associate professor emeritus, Ph.D., Wisconsin, 1942
Carolyn P. Brock, professor, Ph.D., Northwestern, 1972
Ellis V. Brown, professor emeritus, Ph.D., Iowa State, 1936
David A. Butterfield, professor, Ph.D., Duke, 1974
Dennis J. Clouthier, assistant professor, Ph.D., University of Saskatchewan, 1980
Audrey L. Companion, professor, Ph.D., Carnegie, 1958
Paul L. Corio, professor, Ph.D., Columbia, 1957
William D. Ehmann, professor, Ph.D., Carnegie, 1957
Thomas F. Guarr, assistant professor, Ph.D., Rochester, 1984
Robert D. Guthrie, professor, Ph.D., Rochester, 1963
Ellwood M. Hammaker, professor emeritus, Ph.D., Rutgers, 1940
Floyd J. Holler, associate professor, Ph.D., Michigan State, 1977
Robert W. Kiser, professor, Ph.D., Purdue, 1958
Kurt Niedenzu, professor, Dr. rer.nat., Heidelberg, Germany, 1956
James E. O'Reilly, associate professor, Ph.D., Michigan, 1971
Merle D. Pattengill, professor, Ph.D., California, 1969
John M. Patterson, professor, Ph.D., Northwestern, 1953
William K. Plucknett, associate professor emeritus, Ph.D., Iowa State, 1942
John P. Richard, assistant professor, Ph.D., Ohio State, 1979
Donald E. Sands, professor, Ph.D., Cornell, 1955
Paul G. Sears, professor, Ph.D., Kentucky, 1953
John P. Selegue, associate professor, Ph.D., Massachusetts Institute of Technology, 1979
Stanford L. Smith, professor, Ph.D., Iowa State, 1961
Walter T. Smith, Jr., professor, Ph.D., Indiana, 1946
Martin Stiles, adjunct professor, Ph.D., Harvard, 1953
Robert T. Sullins, associate professor, Ph.D., Texas A&M, 1981

William F. Wagner, professor emeritus, Ph.D., Illinois, 1947
David S. Watt, professor, Ph.D., Harvard, 1972
Joseph W. Wilson, associate professor, Ph.D., Indiana, 1961
Steven W. Yates, professor, Ph.D., Purdue, 1973

CLASSICAL LANGUAGES AND LITERATURES
Hubert Martin, Jr., chairperson

James P. Chapman, adjunct associate professor, Ph.D., Indiana, 1972
Hubert M. Martin, Jr., professor, Ph.D., Johns Hopkins, 1958
Jane E. Phillips, associate professor, Ph.D., North Carolina, 1969
Joseph M. Pucci, assistant professor, Ph.D., Chicago, 1987
Robert J. Rabel, associate professor, Ph.D., Michigan, 1975
Louis J. Swift, professor, Ph.D., Johns Hopkins, 1963

COMPARATIVE LITERATURE
Theodore Fiedler, chairperson

Theodore Fiedler, associate professor of German, Ph.D., Washington University, 1969
John L. Greenway, associate professor of English and Honors, Ph.D., Wisconsin, 1969
Michael Impey, associate professor of Spanish and Italian, Ph.D., Michigan State, 1970
John Lihani, professor of Spanish, Ph.D., Texas, 1954
Jane E. Phillips, associate professor of Classics, Ph.D., North Carolina, 1969
Rupert T. Pickens, associate professor of French, Ph.D., North Carolina, 1966
Boris Sorokin, assistant professor of Slavics, Ph.D., Chicago, 1973

COMPUTER SCIENCE
Yuri Breitbart, chairperson

Tom Altman, assistant professor, Ph.D., Pittsburgh, 1984
Anthony Q. Baxter, associate professor, Ph.D., Virginia, 1973
Yuri J. Breitbart, professor, Ph.D., Israel Technological Institute, 1973
Fuhua Cheng, assistant professor, Ph.D., Ohio State, 1982
Raymond H. Cox,* associate professor, Ph.D., North Carolina, 1963
Raphael A. Finkel, professor, Ph.D., Stanford, 1976
Ardeshir Goshtasby, assistant professor, Ph.D., Michigan State, 1983
Yijie Han, assistant professor, Ph.D., Duke, 1987
Jurek W. Jaromczyk, assistant professor, Ph.D., Warsaw, Poland, 1984
K. K. Kubota,* professor, Ph.D., Facultes des Sciences de Paris, France, 1969
Forbes D. Lewis, professor, Ph.D., Cornell, 1970
Wiktor Marek, professor, Ph.D., Warsaw, Poland, 1968
A.C.R. Newbery, professor, Ph.D., London, England, 1962
Mirek Truszczynski, associate professor, Ph.D., Technical University of Warsaw, 1980
Grzegorz Wasilkowski, associate professor, Ph.D., University of Warsaw, 1980

*joint appointment

ENGLISH
Kevin S. Kiernan, chairperson

Michael E. Adelstein, professor emeritus, Ph.D., Michigan, 1958
Jonathan Allison, assistant professor, Ph.D., Michigan, 1988
Richard G. Alvey, associate professor, Ph.D., Pennsylvania, 1974
Wendell E. Berry, professor, M.A., Kentucky, 1957
Ben W. Black, assistant professor emeritus, Ph.D., Michigan, 1953
Thomas O. Blues, associate professor, Ph.D., Iowa, 1966
Joan H. Blythe, associate professor, Ph.D., North Carolina, 1970
Virginia L. Blum, assistant professor, Ph.D., Brown, 1988
Joseph A. Bryant, Jr., professor, Ph.D., Yale, 1948
William R. Campbell, associate professor, Ph.D., Oregon, 1967
John G. Cawelti, professor, Ph.D., Iowa, 1960
John L. E. Clubbe, professor, Ph.D., Columbia, 1965
Arthur L. Cooke, professor emeritus, Ph.D., Michigan, 1942
Alfred L. Crabb, Jr., associate professor emeritus, M.S., Peabody, 1941
John L. Cutler, associate professor emeritus, Ph.D., Ohio State, 1949
Oscar Ronald Dathorne, professor, Ph.D., Sheffield, 1966
Guy M. Davenport, Jr., professor, Ph.D., Harvard, 1961
David S. Durant, associate professor, Ph.D., North Carolina, 1968
Janet M. Eldred, assistant professor, Ph.D., Illinois, 1987
Lee A. Elioseff, associate professor, Ph.D., New York, 1959
Robert O. Evans, professor emeritus, Ph.D., Florida, 1954
Percival Everett, associate professor, A.M., Brown, 1982
Walter C. Foreman, associate professor, Ph.D., Washington, 1974
Joseph H. Gardner, associate professor, Ph.D., California, Berkeley, 1969
William A. Gordon, associate professor emeritus, Ph.D., Tulane, 1963
John L. Greenway, associate professor, Ph.D., Wisconsin, 1969
James Baker Hall, professor, M.A., Stanford, 1961
H. Joan Hartwig, professor, Ph.D., Washington, 1967
Maurice Hatch, associate professor emeritus, Ph.D., Cornell, 1948
Thomas J. Hudak, associate professor, Ph.D., Michigan, 1981
Kevin S. Kiernan, professor, Ph.D., Case-Western Reserve, 1970
Anna P. Kremer, assistant professor, Ph.D., Kentucky, 1973
Stephen Manning, professor, Ph.D., Johns Hopkins, 1956
Jerome T. Meckier, professor, Ph.D., Harvard, 1968
Gurney Norman, associate professor, A.B., Kentucky, 1955
Lance Olsen, assistant professor, Ph.D., Virginia, 1985
Jean G. Pival, associate professor emeritus, M.A., Kentucky, 1962
Armando Prats, associate professor, Ph.D., Florida, 1976
Donald A. Ringe, professor, Ph.D., Harvard, 1954
James H. Robinson, assistant professor, Ph.D., Stanford, 1982
Ellen B. Rosenman, associate professor, Ph.D., Virginia, 1983
Janine Scancarelli, assistant professor, Ph.D., California, Los Angeles, 1987
John T. Shawcross, professor, Ph.D., New York, 1958
Thomas B. Stroup, professor emeritus, Ph.D., North Carolina, 1933
Gregory T. Stump, associate professor, Ph.D., Ohio State, 1981
Larry J. Swingle, associate professor, Ph.D., Wisconsin, 1967
Patricia M. Troxel, assistant professor, Ph.D., Princeton, 1986
Jane G. Vance, associate professor, Ph.D., North Carolina, 1975
Gregory A. Waller, associate professor, Ph.D., SUNY at Stony Brook, 1977
William S. Ward, professor emeritus, Ph.D., Duke, 1943
Steven Weisenburger, associate professor, Ph.D., Washington, 1978
Arthur Wrobel, associate professor, Ph.D., North Carolina, 1968

FRENCH LANGUAGE AND LITERATURE
Rupert T. Pickens, chairperson

Jean D. Charron, professor, Ph.D., North Carolina, 1956
Phillip A. Duncan, professor, Ph.D., Indiana, 1958
Jane Haselden, associate professor emeritus, Ph.D., Kentucky, 1941
L. Clark Keating, professor emeritus, Ph.D., Harvard, 1934
Raymond C. LaCharité, professor, Ph.D., Pennsylvania, 1966
Virginia A. LaCharité, professor, Ph.D., Pennsylvania, 1966
Theodore H. Mueller, professor emeritus, Ph.D., Northwestern, 1953
Rupert T. Pickens, professor, Ph.D., North Carolina, 1966
John A. Rea, associate professor, A.B., Miami, 1948

GEOGRAPHY
Stanley D. Brunn, chairperson

Wilford A. Bladen, associate professor, Ph.D., Kentucky, 1972
Stanley D. Brunn, professor, Ph.D., Ohio State, 1966
John Paul Jones III, assistant professor, Ph.D., Ohio State, 1984
P. P. Karan, professor, Ph.D., Indiana, 1956
Thomas Leinbach, professor, Ph.D., Penn State, 1971
Karl B. Raitz, professor, Ph.D., Minnesota, 1970
Graham D. Rowles, associate professor, Ph.D., Clark University, 1976
Gary Shannon, professor, Ph.D., Michigan, 1970
Richard Ulack, professor, Ph.D., Penn State, 1972
John F. Watkins, assistant professor, Ph.D., Colorado, 1986
William A. Withington, associate professor, Ph.D., Northwestern, 1955

GEOLOGICAL SCIENCES
Nicholas Rast, chairperson

Richard Irven Barnhisel,* professor, Ph.D., Virginia Polytechnic Institute, 1964
William Howard Blackburn, professor, Ph.D., Massachusetts Institute of Technology, 1967
William R. Brown, professor emeritus, Ph.D., Cornell, 1942
Lois Jeannette Campbell, associate professor, Ph.D., Ohio State, 1955
James C. Cobb,* assistant professor, Ph.D., Illinois, 1981
James S. Dinger, assistant professor, Ph.D., Nevada, Reno, 1977
Frank R. Ettensohn, professor, Ph.D., Illinois, 1975
John C. Ferm, professor, Ph.D., Penn State, 1952
Donald C. Haney,* professor, Ph.D., Tennessee, 1967
James C. Hower,* assistant professor, Ph.D., Penn State, 1978
Erwin J. Lyons, associate professor emeritus, Ph.D., Wisconsin, 1947
William C. MacQuown, professor emeritus, Ph.D., Cornell, 1943
Gregory McHone, assistant professor, Ph.D., North Carolina at Chapel Hill, 1978
Bruce Robert Moore, associate professor, Ph.D., Melbourne, Australia, 1967
Stephen O. Moshier, assistant professor, Ph.D., Louisiana State, 1987
Kieran O'Hara, assistant professor, Ph.D., Brown University, 1984
Nicholas Rast, professor, Ph.D., University of Glasgow, 1956
Susan M. Rimmer, assistant professor, Ph.D., Penn State, 1985
Thomas Glasdir Roberts, associate professor emeritus, Ph.D., Columbia, 1949
Rene Rodriguez, assistant professor, Ph.D., St. Louis University, 1974
Lyle V. Sendlein,* professor, Ph.D., Iowa State, 1964
Ronald L. Street, associate professor, Ph.D., St. Louis University, 1975
John Thrailkill, professor, Ph.D., Princeton, 1965
Frederick D. Wright,* professor emeritus, M.S., Columbia, 1942

*joint or adjunct appointment

GERMANIC LANGUAGES AND LITERATURES
Theodore Fiedler, chairperson

Norman H. Binger, professor emeritus, Ph.D., Ohio State, 1942
Jeannine Blackwell, assistant professor, Ph.D., Indiana, 1982
Theodore Fiedler, associate professor, Ph.D., Washington University, 1969
Bernd Kratz, professor, Ph.D., Marburg, Germany, 1963
Phillip S. McKnight, associate professor, Ph.D., Brown University, 1978
Wolfgang Natter, assistant professor, Ph.D., Johns Hopkins, 1987
Ingeborg F. Riester, assistant professor emeritus, M.A., Kentucky, 1952
John Wesley Thomas, professor emeritus, Ph.D., Penn State, 1942
Paul K. Whitaker, professor emeritus, Ph.D., Ohio State, 1942
Linda Kraus Worley, assistant professor, Ph.D., Cincinnati, 1985

HISTORY
E. Randolph Daniel, chairperson

James C. Albisetti, associate professor, Ph.D., Yale, 1976
Lance Banning, professor, Ph.D., Washington University, 1971
Raymond F. Betts, professor, Ph.D., Columbia, 1958; D.d'U., Grenoble, France, 1955
Harry M. Caudill, professor emeritus, LLB, Kentucky, 1948
William J. Chambliss, associate professor emeritus, Ph.D., Michigan, 1963
Francie R. Chassen-Lopez, assistant professor, Ph.D., Universidad National de Mexico, 1986
Eric H. Christianson, associate professor, Ph.D., Southern California, 1976
Thomas D. Clark, professor emeritus, Ph.D., Duke, 1932
Thomas Cogswell, assistant professor, Ph.D., Washington University, 1983
Carl B. Cone, professor emeritus, Ph.D., Iowa, 1940
E. Randolph Daniel, professor, Ph.D., Virginia, 1966
Aingred G. Dunston, assistant professor, Ph.D., Duke, 1981
Nancy Schrom Dye, professor, Ph.D., Wisconsin, 1974
Bruce S. Eastwood, professor, Ph.D., Wisconsin, 1964
Ronald D Eller, associate professor, Ph.D., North Carolina-Chapel Hill, 1979
David E. Hamilton, assistant professor, Ph.D., Iowa, 1984
Mary W. M. Hargreaves, professor emeritus, Ph.D., Radcliffe, 1951
George C. Herring, Jr., professor, Ph.D., Virginia, 1965
James F. Hopkins, professor emeritus, Ph.D., Duke, 1949
Robert M. Ireland, professor, Ph.D., Nebraska, 1967
Robert G. Lunde, associate professor emeritus, M.A., Chicago, 1928
Humbert S. Nelli, professor, Ph.D., Chicago, 1965
Donald G. Nugent, associate professor, Ph.D., Iowa, 1965
Robert W. Olson, professor, Ph.D., Indiana, 1973
David M. Olster, assistant professor, Ph.D., Chicago, 1985
Theda Perdue, professor, Ph.D., Georgia, 1976
Jeremy D. Popkin, professor, Ph.D., California, 1977
Robert W. Randall, associate professor emeritus, Ph.D., Harvard, 1965
Charles P. Roland, professor emeritus, Ph.D., Louisiana State, 1951
Daniel B. Rowland, associate professor, Ph.D., Yale, 1976
Robert Seager II, professor emeritus, Ph.D., Ohio State, 1956
Gerard W. Silberstein, professor, Ph.D., Harvard, 1962
Daniel B. Smith, associate professor, Ph.D., Virginia, 1977
Mark W. Summers, associate professor, Ph.D., California, 1980
Charles G. Talbert, associate professor emeritus, Ph.D., Kentucky, 1952
Joe A. Thompson, professor, Ph.D., Stanford, 1966
Robert D. Warth, professor, Ph.D., Chicago, 1949

LATIN AMERICAN STUDIES
Kenneth G. Hirth, director

John J. Allen, Department of Spanish and Italian
Fernando Bendfeldt, Department of Psychiatry
David Berry, Department of Community Health
William Blackburn, Department of Geological Sciences
Lance W. Brunner, School of Music
Austin H. Cantor, Department of Animal Sciences
Francie R. Chassen-Lopez, Department of History
Kenneth M. Coleman, Department of Political Science
Charles L. Davis, UK Center at Fort Knox
Billie R. DeWalt, Department of Anthropology
Kathleen M. DeWalt, Department of Behavioral Science
Tom Dillehay, Department of Anthropology
Hilda Dunn, Department of Spanish and Italian
Thomas R. Ford, Department of Sociology
Judith F. Fugate, Collection Development, M.I. King Library
Kenneth G. Hirth, Department of Anthropology
Andy Hofling, Department of Anthropology
Margaret E. W. Jones, Department of Spanish and Italian
John E. Keller, Department of Spanish and Italian
John Lihani, Department of Spanish and Italian
Lenora Finn Paradis, Department of Allied Health Education and Research
Laurence E. Prescott, Department of Spanish and Italian
Daniel R. Reedy, Department of Spanish and Italian
David F. Ross, Department of Economics
Ramona R. Rush, Department of Communication
Gerardo Sáenz, Department of Spanish and Italian
C. Leland Smith, Department of Curriculum and Instruction
Grant W. Thomas, Department of Agronomy
H. Mac Vandiviere, Department of Pediatrics
Michael A. Webb, Department of Economics
H. Jean Wiese, Department of Behavioral Science
Raymond Wilkie, Department of Educational and Counseling Psychology

LINGUISTICS
Gregory T. Stump, chairperson

Thomas Hudak, associate professor of English, adviser
Thomas Olshewsky, professor of Philosophy, adviser
Jean Pival, associate professor emeritus of English, adviser
John Rea, associate professor of French, adviser

Janine Scancarelli, assistant professor of English, adviser
Gregory T. Stump, associate professor of English, adviser

MATHEMATICS

Ronald Gariepy, chairperson

David R. Adams, professor, Ph.D., Minnesota, 1969
James C. Beidleman, professor, Ph.D., Penn State, 1964
Craig John Benham, professor, Ph.D., Princeton, 1972
Bernard Bialecki, assistant professor, Ph.D., Utah, 1987
James E. Brennan, professor, Ph.D., Brown, 1969
Carl T. Brezovec, assistant professor, Ph.D., Carnegie-Mellon, 1987
J. D. Buckholtz, professor, Ph.D., Texas, 1960
Richard W. Carey, professor, Ph.D., SUNY-Stony Brook, 1970
Thomas A. Chapman, professor, Ph.D., Louisiana State, 1970
Frederick R. Cohen, professor, Ph.D., Chicago, 1972
Donald B. Coleman, professor, Ph.D., Purdue, 1961
Raymond H. Cox, associate professor, Ph.D., North Carolina, 1963
Paul M. Eakin, Jr., professor, Ph.D., Louisiana State, 1968
Carl Eberhart, professor, Ph.D., Louisiana State, 1966
Edgar Enochs, professor, Ph.D., Notre Dame, 1958
Graeme Fairweather, professor, Ph.D., St. Andrews, Scotland, 1966
Steven Ferry, professor, Ph.D., Michigan, 1973
Michael Freeman, professor, Ph.D., California-Berkeley, 1965
Brauch Fugate, professor, Ph.D., Iowa, 1964
Ronald Gariepy, professor, Ph.D., Wayne State, 1969
William B. Gragg, professor, Ph.D., UCLA, 1964
Lawrence A. Harris, professor, Ph.D., Cornell, 1969
Thomas L. Hayden, professor, Ph.D., Texas, 1961
Arthur Heinricher, Jr., assistant professor, Ph.D., Carnegie-Mellon, 1986
Kurt Helmes, associate professor, Ph.D., University of Bonn, 1976
Henry C. Howard, professor, Ph.D., Carnegie-Mellon, 1958
David C. Johnson, professor, Ph.D., Virginia, 1970
Nicholas Korevaar, associate professor, Ph.D., Stanford, 1981
Kenneth K. Kubota, professor, Ph.D., Facultes des Sciences de Paris, France, 1969
Carl Lee, associate professor, Ph.D., Cornell, 1980
David Leep, assistant professor, Ph.D., Michigan, 1980
John Lewis, professor, Ph.D., Illinois, 1970
John E. Mack, professor, Ph.D., Purdue, 1959
Chi-Sing Man, associate professor, Ph.D., Johns Hopkins, 1980
James McClure, associate professor, Ph.D., Chicago, 1978
Stephen C. Milne, professor, Ph.D., California-San Diego, 1976
Robert Molzon, associate professor, Ph.D., Johns Hopkins, 1977
Peter Perry, assistant professor, Ph.D., Princeton, 1981
Lother Reichel, associate professor, Ph.D., University of Stockholm, 1982
Raymond Rishel, professor, Ph.D., Wisconsin, 1959
Wimberly C. Royster, professor, Ph.D., Kentucky, 1952
Avinash Sathaye, professor, Ph.D., Purdue, 1973
S. M. Shah, professor emeritus, Ph.D., London, England, 1942
James E. Simpson, associate professor, Ph.D., Yale, 1961
Ted J. Suffridge, professor, Ph.D., Kansas, 1965
Cliff Swauger, Jr., adjunct assistant professor, M.S., Kentucky, 1962
Chris Vancil, administrative officer, M.A., Murray State, 1974
Clasine van Winter, professor, Ph.D., Groningen, The Netherlands, 1957
Gregory Verchota, assistant professor, Ph.D., University of Minnesota, 1982
James H. Wells, professor, Ph.D., Texas, 1958

MILITARY SCIENCE

(Army ROTC)
Lieutenant Colonel Gerald W. Lemons, chairperson

Captain John G. Bayless, assistant professor, B.A., North Carolina State, 1975
Captain Kevin E. Connors, assistant professor, B.S., Florida, 1978
Captain William M. Davis, assistant professor, B.S., B.A., John Carroll University, 1972
Captain Mark A. Fouquier, assistant professor, B.A., Nicholls, 1979
Lieutenant Colonel Gerald W. Lemons, professor, M.A., Webster, 1982
Captain Wayne C. Schuster, assistant professor, B.A., Ohio State, 1977
Major Charles M. Steelman, assistant professor, B.S., Virginia Military Institute, 1973
Major William A. Stull, assistant professor, M.S., Kentucky, 1979
Captain Gregory A. Walden, assistant professor, Kentucky, 1978

PHILOSOPHY

Thomas M. Olshewsky, chairperson

J. Daniel Breazeale, associate professor, Ph.D., Yale, 1971
Ronald Bruzina, professor, Ph.D., Notre Dame, 1966; Doctorat de 3^{e} cycle, Paris-Nanterre, France, 1970
Jesse de Boer, professor emeritus, Ph.D., Harvard, 1942
Joan C. Callahan, assistant professor, Ph.D., Maryland, 1982
James Force, associate professor, Ph.D., Washington University (St. Louis), 1977; joint appointment Honors/Philosophy
Daniel H. Frank, associate professor, Ph.D., Pittsburgh, 1982
Dallas M. High, professor, Ph.D., Duke, 1964
Harmon R. Holcomb, III, assistant professor, Ph.D., Wisconsin, 1983
Don Howard, associate professor, Ph.D., Boston University, 1979
Edward H. Madden, adjunct professor, Ph.D., Iowa, 1950
James W. Manns, associate professor, Ph.D., Boston University, 1971
Thomas M. Olshewsky, professor, Ph.D., Emory, 1965
Alan R. Perreiah, professor, Ph.D., Indiana, 1967
Henry A. S. Schankula, associate professor, Ph.D., Toronto, Canada, 1976
Theodore R. Schatzki, assistant professor, Ph.D., California, Berkeley, 1986
Patricia G. Smith, associate professor, Ph.D., Arizona, 1981

PHYSICS AND ASTRONOMY

Alan D. MacKellar, chairperson

Suketu Bhavsar, assistant professor, Ph.D., Chicago, 1981
Eugene Bradford Bradley,* professor of electrical engineering, Ph.D., Vanderbilt, 1964
Joseph Warren Brill, associate professor, Ph.D., Stanford, 1978
John Ernest Christopher, associate professor, Ph.D., Virginia, 1967
Frank Oliver Clark, professor, Ph.D., Virginia, 1973
Lewis Wellington Cochran, professor emeritus, Ph.D., Kentucky, 1952
John W. D. Connolly, professor, Ph.D., Florida, 1960
Marcel Coz, professor, D.Sc., Sorbonne, France, 1960
Lance Eric DeLong, associate professor, Ph.D., California-San Diego, 1977
Peter Clay Eklund, professor, Ph.D., Purdue, 1974
Moshe Elitzur, professor, Ph.D., Weizmann Institute, 1971
Fletcher Gabbard, professor, Ph.D., Rice, 1959
Richard Hanau, professor emeritus, Ph.D., Michigan, 1947
David A. Harmin, assistant professor, Ph.D., Chicago, 1981
George Samuel Hurst,* professor, Ph.D., Tennessee, 1959
Bernard Donald Kern, professor emeritus, Ph.D., Indiana, 1949
Robert Edward Knight, associate professor, Ph.D., Texas, 1963
Michael A. Kovash, associate professor, Ph.D., Ohio State, 1978
Wasley Swen Krogdahl, professor emeritus, Ph.D., Chicago, 1942
Guy Walter Lehman, professor, Ph.D., Purdue, 1954
Bing-an Li, associate professor, Ph.D., Academia Sinica, China, 1968
Keh-Fei Liu, professor, Ph.D., SUNY at Stony Brook, 1975
Keith Bradford MacAdam, professor, Ph.D., Harvard, 1971
Alan Douglas MacKellar, professor, Ph.D., Texas A&M, 1966
Nicholas L.S. Martin, assistant professor, Ph.D., Oxford, 1977
Marcus Thomas McEllistrem, professor, Ph.D., Wisconsin, 1956
Marvin G. Payne,* associate professor, Ph.D., Kentucky, 1965
Mark Anthony Pickar, assistant professor, Ph.D., Indiana, 1982
Earl Larsen Steele,* professor of electrical engineering, Ph.D., Cornell, 1970
Robert Allan Stokes,* associate professor, Ph.D., Princeton, 1968
Joseph Paul Straley, professor, Ph.D., Cornell, 1970
Kumble Ramarao Subbaswamy, professor, Ph.D., Indiana, 1976
Michael Vincent Torbett, assistant professor, Ph.D., Texas-Austin, 1982
Thomas H. Troland, associate professor, Ph.D., California-Berkeley, 1980

Clasine van Winter, professor, Ph.D., Groningen, The Netherlands, 1957
Jesse Leo Weil, professor, Ph.D., Columbia, 1959
Francis L. Yost, professor emeritus, Ph.D., Wisconsin, 1936

*adjunct or joint appointment

POLITICAL SCIENCE
Malcolm E. Jewell, chairperson

Michael A. Baer, professor, Ph.D., Oregon, 1968
William D. Berry, associate professor, Ph.D., Minnesota, 1979
Bradley C. Canon, professor, Ph.D., Wisconsin, 1967
Kenneth Coleman, associate professor, Ph.D., North Carolina, 1970
B. Vincent Davis, professor, Ph.D., Princeton, 1961
Herbert N. Drennon, professor emeritus, Ph.D., Duke, 1951
Stanley Feldman, associate professor, Ph.D., Minnesota, 1978
George H. Gadbois, associate professor, Ph.D., Duke, 1965
Donald A. Gross, associate professor, Ph.D., Iowa, 1976
Malcolm E. Jewell, professor, Ph.D., Penn State, 1958
Mark Kessler, assistant professor, Ph.D., Penn State, 1985
William E. Lyons, professor, Ph.D., Penn State, 1965
Karen A. Mingst, associate professor, Ph.D., Wisconsin, 1974
Chung In Moon, assistant professor, Ph.D., Maryland, 1984
Daniel N. Nelson, professor, Ph.D., Johns Hopkins, 1975
Mark A. Peffley, assistant professor, Ph.D., Minnesota, 1984
Herbert G. Reid, professor, Ph.D., North Carolina, 1968
Susan Rhodes, associate professor, Ph.D., Illinois, 1986
Phillip Roeder, associate professor, Ph.D., Florida State, 1973
Andrew Ross, associate professor, Ph.D., Cornell, 1984
S. Sidney Ulmer, professor emeritus, Ph.D., Duke, 1956
Amry Vandenbosch, professor emeritus, Ph.D., Chicago, 1926
Kenneth E. Vanlandingham, professor emeritus, Ph.D., Illinois, 1950
Bruce Williams, associate professor, Ph.D., Minnesota, 1980
Ernest Yanarella, professor, Ph.D., North Carolina, 1971

PSYCHOLOGY
Arthur J. Nonneman, chairperson

Billie M. Ables,* professor, Ph.D., Purdue, 1954
Michael A. Andrykowski,* assistant professor, Illinois, 1984
Ruth A. Baer, assistant professor, Ph.D., West Virginia, 1985
Michael T. Bardo, associate professor, Ph.D., Iowa State, 1980
David T. R. Berry, assistant professor, Ph.D., Florida, 1985
Charles R. Carlson, assistant professor, Ph.D., Vanderbilt, 1983
Ronald C. Dillehay, professor, Ph.D., California, 1962
Allen L. Ellis, assistant professor, Ph.D., Illinois, 1988
Edward Engel, associate professor, Ph.D., Princeton, 1955
Roberta Ferrara, assistant professor, Ph.D., Illinois, 1987
Jonathan M. Golding, assistant professor, Ph.D., University of Denver, 1986
John V. Haley,* professor, Ph.D., Loyola, 1963
Jesse G. Harris, Jr., professor, Ph.D., Duke, 1955
Monica Harris, assistant professor, Ph.D., Harvard, 1987
Elizabeth P. Lorch, associate professor, Ph.D., Massachusetts, 1981
Robert F. Lorch, associate professor, Ph.D., Massachusetts, 1980
Donald F. McCoy, Jr., associate professor, Ph.D., Missouri, 1966
William J. Meegan,* assistant professor, Ph.D., Kentucky, 1975
Richard S. Milich, associate professor, Ph.D., Washington University, St. Louis, 1976
Thomas W. Miller,* professor, Ph.D., SUNY-Buffalo, 1971
T. Kerby Neill,* assistant professor, Ph.D., Catholic University, 1968
Michael T. Nietzel, professor, Ph.D., Illinois, 1973
Arthur J. Nonneman, professor, Ph.D., Florida, 1970
John D. Ranseen,* assistant professor, Ph.D., Ohio University, 1982
Chris O'Sullivan, assistant professor, Ph.D., Oklahoma, 1983
Donald E. Ralph,* assistant professor, Ph.D., Catholic University, 1965
Frederick A. Schmitt,* assistant professor, Ph.D., University of Akron, 1982
Douglas K. Snyder, professor, Ph.D., North Carolina, 1978
Thomas A. Widiger, associate professor, Ph.D., Miami (Ohio), 1981
John F. Wilson,* assistant professor, Ph.D., Michigan, 1977
Thomas R. Zentall, professor, Ph.D., California-Berkeley, 1969
James F. Zolman,* professor, Ph.D., California-Berkeley, 1963

*joint or adjunct appointment

RUSSIAN AND EASTERN STUDIES
Roger Anderson, chairperson

Roger Anderson, professor, Ph.D., Michigan, 1967
Gerald Janecek, professor, Ph.D., Michigan, 1972
Boris Sorokin, associate professor, Ph.D., Chicago, 1973
Leon Zolondek, professor, Ph.D., Chicago, 1957

SOCIOLOGY
James A. Christenson, chairperson

Walter Abbott, associate professor, Ph.D., Washington, 1969
Howard Beers, professor emeritus, Ph.D., Cornell, 1935
Dwight Billings, associate professor, Ph.D., North Carolina, 1976
Kathleen Blee, associate professor, Ph.D., Wisconsin, 1982
Janet Bokemeier, associate professor, Ph.D., Iowa State, 1978
James S. Brown, professor, Ph.D., Harvard, 1950
Larry Burmeister, assistant professor, Ph.D. Cornell, 1984
Lawrence M. Busch, professor, Ph.D., Cornell, 1974
James A. Christenson, professor, Ph.D., Washington State, 1972
Richard R. Clayton, professor, Ph.D., Tennessee, 1972
A. Lee Coleman, professor emeritus, Ph.D., Cornell, 1950
C. Milton Coughenour, professor, Ph.D., Missouri, 1953
Billie DeWalt, associate professor, Ph.D., Connecticut, 1975
Alan DeYoung, associate professor, Ph.D., Stanford, 1975
Thomas R. Ford, professor, Ph.D., Vanderbilt, 1951
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Lorraine Garkovich, associate professor, Ph.D., Missouri, 1976
Thomas F. Garrity, professor, Ph.D., Duke, 1971
James W. Gladden, professor emeritus, Ph.D., Pittsburgh, 1945
Gary L. Hansen, assistant professor, Ph.D., Iowa, 1978
Laurie R. Hatch, assistant professor, Ph.D., University of Washington, 1986
Jon Hendricks, professor, Ph.D., Penn State, 1971
James G. Hougland, Jr., professor, Ph.D., Indiana, 1975
Thomas Ilvento, assistant extension professor, Ph.D., Penn State, 1985
William F. Kenkel, professor, Ph.D., Ohio State, 1952
William B. Lacy, professor, Ph.D., Michigan, 1975
Richard C. Maurer, associate professor, Ph.D., Ohio State, 1977
Philip M. Moody, associate professor, Ph.D., Utah, 1967
Patrick Mooney, assistant professor, Ph.D., Wisconsin, Madison, 1984
Cynthia Robbins, assistant professor, Ph.D., Michigan, 1984
Jon M. Shepard, professor, Ph.D., Michigan State, 1967
William F. Skinner, assistant professor, Ph.D., Iowa, 1984
Gerald T. Slatin, associate professor, Ph.D., Indiana, 1967
Robert Straus, professor, Ph.D., Yale, 1947
Willis A. Sutton, Jr., professor emeritus, Ph.D., North Carolina, 1952
Louis E. Swanson, Jr., associate professor, Ph.D., Penn State, 1982
Ann R. Tickamyer, associate professor, Ph.D., North Carolina, 1979
Harwin L. Voss, professor, Ph.D., Wisconsin, 1961
Paul Warner, extension professor, Ph.D., Ohio State, 1973
Doris Wilkinson, professor, Ph.D., Case Western, 1968
Kristen R. Yount, assistant professor, Ph.D., Colorado, 1985

SPANISH AND ITALIAN LANGUAGES AND LITERATURES
John J. Allen, chairperson

John J. Allen, professor, Ph.D., Wisconsin, 1960
Anibal A. Biglieri, assistant professor, Ph.D., Syracuse, 1982
Brian J. Dendle, professor, Ph.D., Princeton, 1966
Michael Impey, associate professor, Ph.D., Michigan State, 1970
Joseph R. Jones, professor, Ph.D., Wisconsin, 1962
Margaret E. W. Jones, professor, Ph.D., Wisconsin, 1963
John E. Keller, professor emeritus, Ph.D., North Carolina, 1946
John Lihani, professor, Ph.D., Texas, 1954
Laurence Prescott, associate professor, Ph.D., Indiana, 1981

Daniel R. Reedy, professor, Ph.D., Illinois, 1962
Gerardo Sáenz, professor, Ph.D., Texas, 1959
Edward Stanton, associate professor, Ph.D., California, Los Angeles, 1972

STATISTICS
David M. Allen, chairperson

Debra K. Aaron, adjunct assistant professor, Ph.D., Oklahoma State, 1984
David M. Allen, professor, Ph.D., North Carolina State, 1968
Vasant P. Bhapkar, professor, Ph.D., North Carolina, 1959
Jonathan P. Cohen, assistant professor, Ph.D., Imperial College (London), 1982
Paul L. Cornelius, professor, Ph.D., Illinois, 1972
Zakkula Govindarajulu, professor, Ph.D., Minnesota, 1961
Tom Greene, assistant professor, Ph.D., Cornell, 1985
William Griffith, associate professor, Ph.D., Pittsburgh, 1979
Richard Kryscio, professor, Ph.D., SUNY at Buffalo, 1971
Marie-Pierre Malice, assistant professor, Ph.D., Kentucky, 1986
Harlley E. McKean, professor, Ph.D., Purdue, 1958
William S. Rayens, assistant professor, Ph.D., Duke, 1986
Cidambi Srinivasan, associate professor, Ph.D., Indian Statistical Institute, 1979
Klaus Utikal, assistant professor, Ph.D., Florida State, 1988
Constance L. Wood, associate professor, Ph.D., Florida State, 1975

COLLEGE OF BUSINESS AND ECONOMICS

Richard W. Furst, dean

SCHOOL OF ACCOUNTANCY
Michael G. Tearney, director

Charles Bokemeier, assistant professor, D.B.A., Kentucky, 1983; CPA
Myrtle W. Clark, associate professor, Ph.D., South Carolina, 1978; CMA
Stephen M. Courtenay, assistant professor, Ph.D., Arkansas, 1982; CPA
Paul Michael Davis, professor, Ph.D., Illinois, 1969; LL.M., Boston, 1977; CPA
W. W. Ecton, professor, Ph.D., Missouri, 1966; CPA
Oliver Feltus, assistant professor, Ph.D., Alabama, 1986; CPA
Daniel L. Fulks, associate professor, Ph.D., Georgia State, 1980; CPA
James R. Holmes, associate professor, Ph.D., Missouri, 1977; CPA
Stuart B. Keller, associate professor, Ph.D., North Carolina, 1982
James A. Knoblett, professor, Ph.D., Washington, 1963
Donald L. Madden, professor, Ph.D., Texas, 1967; CPA, CMA
Robert McNeese, visiting associate professor, B.S., Kent State, 1947; CPA
Clyde Douglas Poe, assistant professor, Ph.D., Texas A&M, 1986
Thomas Pope, associate professor, D.B.A., Kentucky, 1976; CPA
Michael G. Tearney, professor, Ph.D., Missouri, 1971; CPA
Manuel A. Tipgos, professor, Ph.D., Louisiana State, 1974; CPA
Relmond P. VanDaniker, professor, D.B.A., Maryland, 1970; CPA
Ralph Viator, assistant professor, Ph.D., Texas A&M, 1986; CPA
Jane Wells, instructor (part-time), M.S., Kentucky, 1986; CPA

DECISION SCIENCE AND INFORMATION SYSTEMS
James R. Marsden, acting chairperson

John J. Bernardo, associate professor, Ph.D., Purdue, 1972
Chen-Hua Chung, associate professor, Ph.D., Ohio State, 1982
Hae W. Chung, assistant professor, Ph.D., SUNY-Buffalo, 1986
James R. Marsden, professor, Ph.D., Purdue, 1970
R. Pakath, instructor, Ph.D. candidate, Purdue
Katharina Walker, instructor, Ph.D. candidate, Wisconsin

ECONOMICS
Mukhtar M. Ali, chairperson

Mukhtar M. Ali, professor, Ph.D., Wisconsin, 1969
Paul M. Anglin, assistant professor, Ph.D., Western Ontario, 1987
Mark C. Berger, associate professor, Ph.D., Ohio State, 1981
Dan A. Black, associate professor, Ph.D., Purdue, 1983
Glenn C. Blomquist*, professor, Ph.D., Chicago, 1977
Carl Cabe, professor emeritus, Ph.D., Illinois, 1952
Virgil L. Christian, Jr., professor, Ph.D., Kentucky, 1956
Carlos C. Erwin, associate professor emeritus, Ph.D., Illinois, 1952
James S. Fackler, associate professor, Ph.D., Indiana, 1977
John E. Garen, associate professor, Ph.D., Ohio State, 1982
Richard E. Gift, associate professor, Ph.D., Duke, 1965
H. W. Hargreaves, professor emeritus, Ph.D., Duke, 1941
Curtis E. Harvey, professor, Ph.D., Southern California, 1963
A. Steven Holland, assistant professor, Ph.D., Michigan State, 1983
William H. Hoyt, assistant professor, Ph.D., Wisconsin, 1986
Charles W. Hultman, professor, Ph.D., Iowa, 1960
Richard A. Jensen, associate professor, Ph.D., Northwestern, 1980
Joseph Krislov, professor, Ph.D., Wisconsin, 1954
G. S. Laumas, professor, Ph.D., Wayne State, 1966
John L. Madden, associate professor, Ph.D., Kansas State, 1968
James R. Marsden, professor, Ph.D., Purdue, 1970
L. Randolph McGee, extension professor, Ph.D., Tulane, 1963
John H. Rogers, instructor, Ph.D. candidate, Virginia
David F. Ross, associate professor, Ph.D., Harvard, 1956
Frank A. Scott, Jr., associate professor, Ph.D., Virginia, 1979
Don M. Soule, professor, Ph.D., Wisconsin, 1953
William J. Stober*, professor, Ph.D., Duke, 1965
Robert H. Stroup, professor, Ph.D., Iowa, 1953
Eugenia F. Toma*, associate professor, Ph.D., Virginia Polytechnic Institute, 1977
Michael A. Webb, associate professor, Ph.D., Illinois, 1980

*joint appointment

FINANCE
Donald J. Mullineaux, chairperson

Jeffrey A. Born, assistant professor, Ph.D., North Carolina, 1986
Michael D. Carpenter, associate professor, Ph.D., Arizona State, 1976
I. Keong Chew, associate professor, Ph.D., South Carolina, 1977
Richard W. Furst, professor, D.B.A., Washington, 1968
Merlin M. Hackbart, professor, Ph.D., Kansas State, 1968
Charles F. Haywood, professor, Ph.D., California, 1955
Keith H. Johnson, associate professor, Ph.D., Illinois, 1970
Willard McIntosh, assistant professor, Ph.D., N. Texas State, 1987
Donald J. Mullineaux, professor, Ph.D., Boston College, 1971
Dennis T. Officer, associate professor, Ph.D., Arkansas, 1979

MANAGEMENT
Jon M. Shepard, chairperson

Philip K. Berger, professor, Ph.D., Texas Christian, 1969
Philip Bobko, professor, Ph.D., Cornell, 1976
James W. Freeman, associate professor, L.L.M., Harvard, 1978
James L. Gibson, professor, Ph.D., Kentucky, 1962
Andrew Grimes, professor, D.B.A., Minnesota, 1969
Nancy Brown Johnson, assistant professor, Ph.D., Kansas, 1987
Michael Kane, assistant professor, Ph.D., South Carolina, 1986
James R. Lang, associate professor, Ph.D., Massachusetts, 1976
Keith Provan, associate professor, Ph.D., SUNY-Buffalo, 1978
Rakesh Sambharya, assistant professor, Ph.D., Temple University, 1987
Jon M. Shepard, professor, Ph.D., Michigan State, 1968
Marc J. Wallace, professor, Ph.D., Minnesota, 1972
Yaakov Weber, instructor, M.B.A., South Carolina, 1983

MARKETING
James H. Donnelly, Jr., interim chairperson

Jill Attaway, instructor, Ph.D. candidate, Louisiana State
Roger J. Calantone, associate professor, Ph.D., Massachusetts, 1976
C. Anthony diBenedetto, assistant professor, Ph.D., McGill, 1984
James H. Donnelly, Jr., professor, D.B.A., Maryland, 1968
Jule Gossenheimer, instructor, Ph.D. candidate, Alabama
L. Vince Howe, assistant professor, Ph.D., Georgia, 1985

Thomas N. Ingram, associate professor, Ph.D., Georgia State, 1980
Rosemary R. Lagace, instructor, Ph.D. candidate, Cincinnati
Gary K. Rhoads, instructor, Ph.D. candidate, Texas Tech
Steven J. Skinner, associate professor, D.B.A., Kentucky, 1983
Tommy E. Whittler, assistant professor, Ph.D., Purdue, 1985

COLLEGE OF COMMUNICATIONS

Douglas A. Boyd, dean

COMMUNICATION

James L. Applegate, chairperson

James L. Applegate, associate professor, Ph.D., Illinois, 1977
John R. Baseheart, associate professor, Ph.D., Michigan State, 1969
Robert N. Bostrom, professor, Ph.D., Iowa, 1961
R. Lewis Donohew, professor, Ph.D., Iowa, 1965
Joachim Knut, assistant professor, Ph.D., Oxford, England, 1986
Philip C. Palmgreen, professor, Ph.D., Michigan, 1975
J. W. Patterson, associate professor, Ph.D., Oklahoma, 1960
Ramona R. Rush, professor, Ph.D., Wisconsin, 1969
Beverly Davenport Sypher, associate professor, Ph.D., Michigan, 1981
Howard E. Sypher, associate professor, Ph.D., Michigan, 1979
G. Norman Van Tubergen, associate professor, Ph.D., Iowa, 1968
Enid Waldhart, associate professor, Ph.D., Indiana, 1975

SCHOOL OF JOURNALISM

David B. Dick, director

Maria Braden Clark, associate professor, B.A., McGill, Canada, 1968
David B. Dick, associate professor, M.A., Kentucky, 1964
Roy L. Moore, associate professor, Ph.D., Wisconsin, 1974; J.D., Georgia State, 1986
Robert L. Orndorff, associate professor, A.B., Kentucky, 1961
Lauranell Scarfo, assistant professor, B.A., Amherst, 1982
Edward C. Scheiner, assistant professor, Ph.D., Michigan State, 1987
Theodore Schulte, associate professor, M.A., Oregon, 1975
S. Scott Whitlow, associate professor, Ph.D., Southern Illinois, 1975

TELECOMMUNICATIONS

Joseph M. Ripley, chairperson

Steve R. Levitt, instructor, Ph.D. candidate
Thomas R. Lindlof, associate professor, Ph.D., Texas, 1980
Joseph M. Ripley, professor, Ph.D., Ohio State, 1961
Milton J. Shatzer, assistant professor, Ph.D., Michigan State, 1987
James B. Weaver III, assistant professor, Ph.D., Indiana, 1987

COLLEGE OF DENTISTRY

David A. Nash, dean

DEPARTMENT OF ORAL HEALTH SCIENCE

Thomas T. Lillich, chairperson

Raymond B. Bridges, professor, Ph.D., Vanderbilt, 1969
Albert T. Brown, professor, Ph.D., Vanderbilt, 1968
Robert B. Calmes, Jr., associate professor, Ph.D., West Virginia, 1972
Thomas M. Cooper, professor, D.D.S., Tennessee, 1956
William K. Elwood, associate professor, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Robert G. Henry, assistant professor (part-time), D.M.D., Kentucky, 1981; M.P.H., Loma Linda, 1985
Alan A. Kaplan, associate professor (Adjunct Series), Ph.D., Kentucky, 1975
Gene P. Lewis, associate professor, D.D.S., Baylor, 1961; M.P.H., Michigan, 1969
Thomas T. Lillich, professor, Ph.D., North Carolina State, 1970
James L. Matheny, professor, Ph.D., Mississippi, 1971
Richard J. Mitchell, associate professor, Ph.D., Virginia, 1975
M. Raynor Mullins, associate professor, D.M.D., Kentucky, 1968; M.P.H., North Carolina, 1970
Michael T. Romano, professor, D.D.S., Temple, 1947
Gerald I. Roth, professor, D.D.S., Columbia, 1957; Ph.D., Pennsylvania, 1969
Patrick J. Sammon, associate professor, Ph.D., Louisville, 1968
Stanley R. Saxe, professor, D.M.D., Harvard, 1958; M.S.D., Washington, 1960
Timothy A. Smith, professor, Ph.D., North Carolina, 1963
Eric E. Spohn, professor, D.D.S., Michigan, 1969
David B. Webster, Jr., associate professor, D.D.S., Virginia Commonwealth, 1969; M.P.H., North Carolina, 1971

Section on Oral Diagnosis

Laurence R. Bean, section leader

Laurence R. Bean, professor, D.D.S., Ohio State, 1961
Greg Erena, assistant professor (part-time), D.M.D., Kentucky, 1979; Cert. Oral and Maxillofacial Surgery, Medical College of Georgia, 1983
Donald A. Falace, professor, D.M.D., Kentucky, 1970; Cert. Oral Surgery, North Carolina, 1975
Doyle Freano, assistant professor (part-time), D.M.D., Kentucky, 1982
W. Spalding Green, Jr., associate professor (part-time), D.M.D., Louisville, 1961
Harry E. Moore, associate professor, D.M.D., Louisville, 1952
Damon R. Pence, assistant professor, D.M.D., Kentucky, 1983
Susan C. Schell, assistant professor (part-time), D.M.D., Kentucky, 1981

Section on Oral Pathology

Dean K. White, section leader

Douglas D. Damm, associate professor, D.D.S., Louisiana State, 1977; Cert. Oral Pathology, Emory, 1979
James F. Drummond, professor, D.D.S., St. Louis, 1963; M.D.D., St. Louis, 1966; Ph.D., St. Louis, 1970
Dean K. White, professor, D.D.S., Missouri, 1970; M.S.D., Indiana, 1972

DEPARTMENT OF ORAL HEALTH PRACTICE

E. Preston Hicks, chairperson

Section on Endodontics

Thomas P. Mullaney, section leader

Charles J. Cunningham, associate professor, D.D.S., Marquette, 1957; Cert. Endo., U.S.N. Graduate School, 1965
Roland C. Duell, professor, D.D.S., Ohio State, 1963; M.S., Iowa, 1967
Stephen B. Jones, assistant professor (part-time), D.M.D., Kentucky, 1981
Bobby G. Karnes, assistant professor (part-time), D.D.S., Tennessee, 1963
Bernard L. Lutz, associate professor (part-time), D.D.S., Marquette, 1953; M.P.H., Michigan, 1969; Ph.D., Iowa, 1973
Thomas P. Mullaney, professor, D.D.S., Loyola, 1961; M.S.D., Indiana, 1965
Harold E. Ownby, assistant professor (part-time), D.M.D., Kentucky, 1977
Paul T. Wehrman, assistant professor (part-time), D.M.D., Kentucky, 1973; Cert. Endo., Pittsburgh, 1978

Section on Oral and Maxillofacial Surgery

Markell W. Kohn, section leader

Emmett R. Costich, professor, D.D.S., Pennsylvania, 1945; Cert. Oral Surgery, Strong Memorial Hospital, University of Rochester, 1947; Ph.D., Rochester, 1954
Joe W. Daugherty, associate professor (part-time), D.M.D., Louisville, 1951; Cert. Oral Surgery, City County Hospital, Houston, 1953
Jeffrey B. Dembo, assistant professor, D.D.S., Northwestern, 1981; M.S., Oral and Maxillofacial Surgery, Iowa, 1984

Arthur A. Gonty, associate professor, D.D.S., Marquette, 1968; Cert. Oral Surgery, Ohio State, 1974
John I. Gray, assistant professor (part-time), D.M.D., Kentucky, 1973; Cert. Oral and Maxillofacial Surgery, Tennessee, 1978
Markell W. Kohn, professor, D.D.S., California-San Francisco, 1963; Cert. Oral Surgery, Parkland Memorial Hospital, Dallas, 1969
Robert D. Marciani, professor, D.M.D., New Jersey, 1966; Cert. Oral Surgery, Veterans Hospital, Allen Park, Michigan, 1971
Kenneth J. Smith, assistant professor, D.D.S., Baylor, 1973; Cert. Oral and Maxillofacial Surgery, Kentucky, 1976

Section on Orthodontics
J. Burton Douglass, section leader

Melvin W. Dean, assistant professor (part-time), D.M.D., Kentucky, 1977; Cert., Ortho., Kentucky, 1979
J. Burton Douglass, assistant professor, D.M.D., Kentucky, 1973; Cert., Ortho., Kentucky, 1984; M.S.D., Kentucky, 1985
Terry W. Ferguson, assistant professor (part-time), D.M.D., Kentucky, 1984; Cert., Ortho., Kentucky, 1978
James R. Greer, assistant professor (part-time), D.M.D., Kentucky, 1978; Cert., Ortho., Kentucky, 1980
E. Preston Hicks, associate professor, D.D.S., North Carolina, 1966; M.S., Pedo., North Carolina, 1969; M.S.D., Ortho., Washington, 1976
Eric Huffman, assistant professor (part-time), D.M.D., Kentucky, 1984; Cert., Ortho., M.S.D., Kentucky, 1986
Judson M. Knight, associate professor (part-time), D.M.D., Kentucky, 1967; Cert., Ortho., Kentucky, 1972
C. Michael Stansbury, assistant professor (part-time), D.M.D., M.S., Kentucky, 1976; Cert., Ortho., Kentucky, 1979

Section on Pediatric Dentistry
John R. Mink, section leader

Wayne W. Collier, associate professor (part-time), D.M.D., Louisville, 1952
Gerald Ferretti, associate professor, D.D.S., Georgetown, 1976; M.S.D. Connecticut, 1980; Cert., Pedo., Connecticut, 1980
Jackie Lee Forbess, assistant professor (part-time), D.M.D., Kentucky, 1979; Cert., Pedo. Dent., Kentucky, 1981
Milton E. Gellin, professor, D.D.S., Western Reserve, 1946
William E. Kemper, assistant professor (part-time), D.M.D., Louisville, 1982; Cert., Pedo., Kentucky, 1986
John R. Mink, professor, D.D.S., Indiana, 1956; M.S.D., Indiana, 1961
Caroline S. Moody, assistant professor, D.M.D., Kentucky, 1983; Cert., Pedo., Kentucky, 1986
David A. Nash, professor, D.M.D., Kentucky, 1968; M.S., Pedo., Iowa, 1970; Ed.D., West Virginia, 1984
Robert H. Spedding, professor, D.D.S., Indiana, 1960; M.S.D., Indiana, 1963
Erwin G. Turner, assistant professor (part-time), D.M.D., Kentucky, 1974; Cert., Pedo. Dent., Kentucky, 1976

Section on Periodontics
Raymond A. Kopczyk, section leader

Herbert Abrams, associate professor, D.D.S., Temple, 1958; M.S., Ohio State, 1966
Anthony S. Feck, assistant professor (part-time), D.M.D., Kentucky, 1983
Ershal Harrison, assistant professor (part-time), D.M.D., Kentucky, 1981
Samuel J. Jasper, Jr., associate professor, D.D.S., Ohio State, 1976; M.S., Ohio State, 1980
Raymond A. Kopczyk, professor, D.D.S., Northwestern, 1956; M.S., Ohio State, 1966
Jan H. Kraal, professor, D.D.S., Tandarts, Netherlands, 1966; M.S., Michigan, 1972; Ph.D., Leiden, 1979
Keith J. Lemmerman, assistant professor (part-time), D.M.D., Kentucky, 1974; Cert., Perio., Kentucky, 1976
William J. Morgan, assistant professor (part-time), D.M.D., Kentucky, 1972; Cert., Perio., Kentucky, 1974
Merrill W. Packer, professor, D.D.S., Minnesota, 1959; M.S.D., Minnesota, 1964
Lloyd Parmley, assistant professor (part-time), D.M.D., Kentucky, 1973; Cert., Perio., Kentucky, 1981
Ira M. Rosenthal, assistant professor (part-time), D.D.S., Maryland, 1980

Section on Prosthodontics
Robert C. Wesley, section leader

Behruz J. Abadi, associate professor, D.M.D., Istanbul, Turkey, 1972; Cert. Prosth., Eastman Dental Center, Rochester, 1976
Timothy M. Armentrout, assistant professor, D.M.D., Kentucky, 1982
James A. Chandler, assistant professor (part-time), D.M.D., Kentucky, 1977
Charles W. Ellinger, professor, D.D.S., Ohio State, 1959; M.S., Ohio State, 1965
John G. Gattozzi, associate professor, D.D.S., Ohio State, 1959
Jimmy V. Hill, assistant professor (part-time), D.M.D., Kentucky, 1980
Karl W. Lange, associate professor (part-time), D.M.D., Louisville, 1960
H. Edward Lyon, associate professor, D.D.S., Indiana, 1959
Gary L. McCord, assistant professor (part-time), D.M.D., Kentucky, 1980
Ted P. Raybould, assistant professor, D.M.D., Kentucky, 1981
Steven J. Rider, assistant professor (part-time), D.M.D., Kentucky, 1981
Robert C. Wesley, associate professor, D.M.D., Louisville, 1954

Section on Restorative Dentistry
Donald C. Reel, section leader

Daniel O. Carroll, assistant professor (part-time), D.M.D., Kentucky, 1983
Sidney E. Cruise, assistant professor, D.M.D., Louisville, 1963
John W. Hankla, assistant professor (part-time), D.M.D., Kentucky, 1979
J. David Hardison, assistant professor (part-time), D.M.D., Kentucky, 1980
Lewis Harrison, assistant professor, D.M.D., Louisville, 1970
James E. Haubenreich, assistant professor (part-time), D.D.S., Tennessee, 1977
Mary Lou Head, assistant professor (part-time), D.M.D., Kentucky, 1978
Paul A. Henny, assistant professor (part-time), D.D.S., Michigan, 1984
Howard Higgins, assistant professor (part-time), D.M.D., Kentucky, 1975
Bruce Jordan, assistant professor (part-time), D.M.D., Kentucky, 1984
John T. Kemper, associate professor, D.M.D., Kentucky, 1976
M. Joan Kluemper, assistant professor (part-time), D.M.D., Kentucky, 1976
Joe Lasheen, assistant professor (part-time), D.M.D., Kentucky, 1984
Harold R. Laswell, professor, D.D.S., Indiana, 1961; M.S.D., Indiana, 1966
William E. Lee, assistant professor (part-time), D.M.D., Kentucky, 1981
Susan A. McEvoy, associate professor, D.M.D., Kentucky, 1968; M.S., Ohio, 1971
Jeffrey P. Okeson, professor, D.M.D., Kentucky, 1972
Donald C. Reel, associate professor, D.D.S., Tennessee, 1957
Carla M. Rodriguez, assistant professor (part-time), D.M.D., Kentucky, 1981
T. Milton Skeeters, associate professor, D.M.D., Kentucky, 1968
Charles A. Thomas, associate professor, D.M.D., Kentucky, 1977
James H. Timmons, associate professor, D.D.S., Detroit, 1969; M.S.Ed., Kentucky, 1983
Ingrid H. Valdez, assistant professor (part-time), D.M.D., Kentucky, 1986
Charles S. Vose, assistant professor (part-time), D.M.D., Kentucky, 1977
Loren N. Williams, assistant professor (part-time), D.M.D., Kentucky, 1978

COLLEGE OF EDUCATION

Edgar Sagan, dean

ADMINISTRATION AND SUPERVISION

Eddy J. Van Meter, chairperson

Fred Edmonds, professor emeritus, Ed.D., Kentucky, 1961
Charles F. Faber, professor, Ph.D., Chicago, 1961
James B. Kincheloe, professor emeritus, Ph.D., Peabody, 1954
James R. Ogletree, professor, Ed.D., Columbia, 1956
W. Paul Street, professor emeritus, Ph.D., Northwestern, 1947
Ronald Threadgill, assistant professor, Ph.D., Iowa, 1986
Eddy J. Van Meter, professor, Ed.D., New Mexico State, 1971

CURRICULUM AND INSTRUCTION

Frank Bickel, chairperson

Gary Anglin, associate professor, Ed.D., Indiana, 1979
Ronald Atwood, professor, Ed.D., Florida State, 1966
Virginia Atwood, professor, Ph.D., Texas, 1968
Ivan Banks, assistant professor, Ed.D., Kentucky, 1983
Harry V. Barnard, professor, Ed.D., Alabama, 1959
Olive Barrett, assistant professor emeritus, M.A., Kentucky, 1949
Frank Bickel, associate professor, Ed.D., Kentucky, 1970
Ollie E. Bissmeyer, Jr., assistant professor, Ed.D., Indiana, 1964
Connie A. Bridge, professor, Ed.D., University of Arizona, 1977
William S. Bush, assistant professor, Ed.D., Georgia, 1982
Georgia Collins,* associate professor, Ph.D., Ohio State, 1978
Mary Ann Farley, associate professor, M.A., Kentucky, 1976
Lyman Ginger, professor emeritus, Ed.D., Kentucky, 1950
Ruth Haines, assistant professor emeritus, M.A., Columbia, 1931
Donald Hoffman,* associate professor, Ed.D., Georgia, 1972
Linda Levstik, associate professor, Ph.D., Ohio State, 1980
Catherine Lytle, assistant professor emeritus, M.A., Kentucky, 1949
Nancy McClure, assistant professor emeritus, M.A., Kentucky, 1954
Ernest Middleton, associate professor, Ed.D., Colorado, 1974
Fannie Miller, assistant professor emeritus, M.A., Kentucky, 1937
James T. Moore, professor emeritus, Ph.D., Stanford, 1949
Vivian Moore, assistant professor emeritus, M.A., Kentucky, 1950
Theodore Mueller,* professor emeritus, Ph.D., Northwestern, 1953
Phil Nacke, associate professor, Ed.D., University of British Columbia, Canada, 1970
George Newell, assistant professor, Ph.D., Stanford, 1983
Christine Pappas, associate professor, Ph.D., Ohio State, 1981
E. Leon Porter, assistant professor emeritus, Ed.D., Kentucky, 1960
Opal Reynolds, assistant professor emeritus, M.A., Kentucky, 1952
Mary C. Shake, assistant professor, Ed.D., SUNY at Albany, 1984
C. Leland Smith, professor, Ed.D., Kentucky, 1962
J. Truman Stevens, associate professor, Ed.D., Virginia, 1972
Martha Sudduth, professor emeritus, Ed.D., Indiana, 1962
George Szekely,* associate professor, Ed.D., Columbia, 1975
Betty A. Taylor, associate professor, M.A., Kentucky, 1963
Sara Thomas, assistant professor emeritus, M.A., Kentucky, 1950
Ayleene Whitehead, assistant professor emeritus, M.A., Kentucky, 1961
Angene Wilson, professor, Ph.D., Ohio State, 1976
Peter N. Winograd, associate professor, Ph.D., Illinois, 1981
Bernard Young,* associate professor, Ph.D., Cornell, 1982
Alan Zollman, assistant professor, Ph.D., Indiana, 1986

*joint appointment

EDUCATIONAL AND COUNSELING PSYCHOLOGY

Fred W. Danner, chairperson

Reginald Alston, assistant professor, Ph.D., Florida State, 1986
C. Dwight Auvenshine, associate professor, Ph.D., Missouri, 1962
James R. Barclay, professor, Ph.D., Michigan, 1959
Lisa Barclay,* professor, Ph.D., Stanford, 1969
Charlotte Clark, associate professor, Ph.D., Minnesota, 1977
Henry P. Cole, professor, Ed.D., SUNY, 1968
Ralph Crystal, associate professor, Ph.D., Wisconsin, 1977
Fred W. Danner, associate professor, Ph.D., Minnesota, 1974
Stephen T. DeMers, associate professor, Ed.D., Rutgers, 1976
Griffith Dye, adjunct assistant professor, Ph.D., Wisconsin, 1975
Robert Ilback, adjunct assistant professor, Psy.D., Rutgers, 1980
Gordon P. Liddle, professor, Ph.D., Chicago, 1959
Emanuel Mason, professor, Ed.D., Temple, 1972
William Meegan, adjunct assistant professor, Ph.D., Kentucky, 1975
Thomas Miller,* professor, Ph.D., SUNY, 1971
Michael Nichols, adjunct assistant professor, Ph.D., Kentucky, 1978
Ben Oldham, adjunct assistant professor, Ed.D., Kentucky, 1982
Earl Rankin, professor emeritus, Ph.D., Michigan, 1958
Leonard Ravitz, associate professor emeritus, Ed.D., Maryland, 1957
Pam Remer, associate professor, Ph.D., Colorado, 1972
Rory Remer, associate professor, Ph.D., Colorado, 1972
Timothy Smith,* professor, Ph.D., North Carolina, 1963
William E. Stilwell III, professor, Ph.D., Stanford, 1969
Raymond A. Wilkie, associate professor, Ph.D., Yale, 1954; Ph.D., Kentucky, 1960
Judith Worell, professor, Ph.D., Ohio State, 1956

*joint appointment

EDUCATIONAL POLICY STUDIES AND EVALUATION

Richard Angelo, chairperson

Richard Angelo, associate professor, Ed.D., Temple, 1978
Leonard Baird, professor, Ed.D., University of California, 1966
Collins W. Burnett, professor emeritus, Ph.D., Ohio State, 1948
Clinton Collins, associate professor, Ph.D., Indiana, 1970
David E. Denton, professor, Ed.D., Tennessee, 1963
Alan J. DeYoung, associate professor, Ph.D., Stanford, 1975
Charles F. Elton, professor, Ph.D., Ohio State, 1951
Juanita W. Fleming,* professor, Ph.D., Catholic University, 1969
Beth Goldstein, assistant professor, Ph.D., Wisconsin, 1985
Willis Griffin, associate professor emeritus, Ed.D., Columbia, 1952
Thomas R. Guskey, professor, Ph.D., Chicago, 1978
Jon F. Hesseldenz, adjunct assistant professor, Ed.D., Kentucky, 1976
Edward Kifer, professor, Ph.D., Chicago, 1973
Richard LaBrecque, associate professor, Ed.D., Boston, 1971
Leslie L. Martin, professor emeritus, Ph.D., Indiana, 1952
Edgar L. Sagan, associate professor, Ph.D., Ohio State, 1969
Robert Sexton, adjunct assistant professor, Ph.D., Washington, 1970

*joint appointment

HEALTH, PHYSICAL EDUCATION AND RECREATION

John Hall, chairperson

Rayma Beal, assistant professor, Ed.D., Cincinnati, 1985
Ronald Bulbulian, associate professor, Ph.D., Southern California, 1980
Barbara Call, associate professor, Ed.S., Eastern Kentucky, 1975
Martha Carr, professor emeritus, Ed.D., Indiana, 1944
Maurice Clay, professor emeritus, Ed.D., Kentucky, 1955
Jess L. Gardner, associate professor emeritus, Ed.D., Kentucky, 1964
Stella Gilb, assistant professor emeritus, M.A., Kentucky, 1940
Joseph J. Gruber, professor, Ph.D., Purdue, 1959
John Hall, associate professor, Ph.D., Oregon, 1975
Eugene Huff, assistant professor, M.A., Tennessee, 1964
Sharon Hunt, associate professor, Ed.D., Georgia, 1977
Ada Mary Jobert, assistant professor emeritus, M.A., Kentucky, 1959
Ernest Jokl, professor emeritus, M.D., Breslau, 1931
Earl Kauffman, professor emeritus, Ed.D., NYU, 1949
Stanley Labanowich, associate professor, Ph.D., Illinois, 1975
James Nance, associate professor, Ed.S., Eastern Kentucky, 1977
Melody Noland, associate professor, Ph.D., Maryland, 1980
Alfred Reece, assistant professor emeritus, P.E.D., Indiana, 1969
Richard Riggs, associate professor, Ed.D., Tennessee, 1975
Abdelmonem Rizk, associate professor, Ed.D., Kentucky, 1968
Don Cash Seaton, professor emeritus, Ed.D., New York University, 1947
Robert Shapiro, associate professor, Ph.D., Illinois-Urbana, 1979
Pentti Teraslinna, professor, Ph.D., Purdue, 1966
Dennis Vinton, associate professor, Re.D., Indiana, 1969
Andrew Weiner, associate professor, Ed.D., Georgia, 1976

SPECIAL EDUCATION
Donald P. Cross, chairperson

William H. Berdine, associate professor, Ed.D., Penn State, 1972
JoAnn Berryman, assistant professor, M.A., Kentucky, 1963
A. Edward Blackhurst, professor, Ph.D., Pittsburgh, 1966
Deborah Bott, assistant professor, Ph.D., Florida, 1983
Donald P. Cross, associate professor, Ed.D., Kansas, 1968
Richard Culatta, associate professor, Ph.D., Pittsburgh, 1970
David Gast, associate professor, Ph.D., Kansas, 1975
Linda Leeper, assistant professor, Ph.D., Florida, 1981
Albert S. Levy, associate professor emeritus, Ed.D., Portia, 1953
Melton C. Martinson, associate professor, Ph.D., Wisconsin, 1965
C. Michael Nelson, professor, Ed.D., Kansas, 1969
Judy Page, associate professor, Ph.D., Purdue, 1981
Beverly Stanley, assistant professor, M.A., Kentucky, 1959
Mark Wolery, associate professor, Ph.D., Washington, 1980

VOCATIONAL EDUCATION
Clayton Omvig, chairperson

Harold R. Binkley, professor emeritus, Ed.D., Kentucky, 1955
Herbert H. Bruce, Jr., professor, Ed.D., Kentucky, 1965
Charles Byers, professor, Ph.D., Ohio State, 1972
Bernard Fagan, professor emeritus, Ed.D., Kentucky, 1970
Inez H. Hill, assistant professor emeritus, M.S., Kentucky, 1952
Margaret Bell Humphreys, assistant professor emeritus, M.A., Kentucky, 1943
Evangeline S. Kelsay, assistant professor emeritus, M.A., Kentucky, 1948
Carl F. Lamar, professor emeritus, Ph.D., Kentucky, 1957
Leonard C. McDowell, professor emeritus, Ed.D., Kentucky, 1964
Jack McElroy, professor, Ed.D., Cincinnati, 1974
David C. McMurtry, associate professor emeritus, Ed.D., Indiana, 1966
Sandra Miller, associate professor, Ph.D., Ohio State, 1981
Vernon Musselman, professor emeritus, Ed.D., Oklahoma, 1946
Clayton Omvig, professor, Ph.D., Iowa State, 1968
Kawanna Simpson, associate professor, Ed.D., Kentucky, 1976
Douglas Smith, assistant professor, Ph.D. Arizona State, 1986
Rodney Tulloch, associate professor, Ph.D., Penn State, 1972
Patricia Wilson, assistant professor, Ed.D., Kentucky, 1984

COLLEGE OF ENGINEERING

Ray M. Bowen, dean

CHEMICAL ENGINEERING
J. Thomas Schrodt, chairperson

Dibakar Bhattacharyya, professor, Ph.D., Illinois Institute of Technology, 1966
George F. Crewe, associate professor, Ph.D., West Virginia, 1970
Charles E. Hamrin, Jr., professor, Ph.D., Northwestern, 1964
Tony A. Hancock, adjunct assistant professor, Ph.D., Tennessee, 1981
Gerald P. Huffman, research professor, Ph.D., West Virginia, 1962
Richard I. Kermode, professor, Ph.D., Northwestern, 1962
Edward D. Moorhead, professor, Ph.D., Ohio State, 1959
Leonard K. Peters, professor, Ph.D., Pittsburgh, 1971
Asit K. Ray, professor, Ph.D., Clarkson College of Technology, 1980
J. Thomas Schrodt, professor, Ph.D., Louisville, 1966
Tate T. H. Tsang, assistant professor, Ph.D., Texas at Austin, 1980
Kimberly A. Ward, assistant professor, Ph.D., Carnegie-Mellon, 1986

CIVIL ENGINEERING
Hans Gesund, acting chairperson

Staley F. Adams, professor, Ph.D., Colorado, 1965
George E. Blandford, associate professor, Ph.D., Cornell, 1980
David K. Blythe, professor emeritus, M.S., Cornell, 1950
Richard Cheeks, adjunct assistant professor, M.S., Kentucky, 1972
John A. Deacon, professor, D.Engr., California-Berkeley, 1965
John A. Dearinger, professor, M.S., Kentucky, 1948
Vincent P. Drnevich, professor, Ph.D., Michigan, 1967
Hans Gesund, professor, D.Engr., Yale, 1958
Calvin Grayson, adjunct associate professor, B.S., Kentucky, 1949
Bobby O. Hardin, professor, Ph.D., Florida, 1961
Issam E. Harik, associate professor, Ph.D., Wayne State, 1982
Barry House, adjunct assistant professor, M.S., Kentucky, 1975
Yang H. Huang, professor, D.Sc., Virginia, 1966
Ralph H. Huffsey, adjunct assistant professor, M.S., Mississippi, 1962
John W. Hutchinson, professor, Ph.D., Illinois, 1961
Alun Hwang, adjunct assistant professor, Ph.D., Kentucky, 1977
David T. Kao, professor, Ph.D., Duke, 1967
Robert A. Lauderdale, professor, Ph.D., Massachusetts Institute of Technology, 1958
Sam A. Mory, professor emeritus, C.E., Kentucky, 1946
Lindell Ormsbee, assistant professor, Ph.D., Purdue, 1983
Jerry G. Rose, professor, Ph.D., Texas A&M, 1971
Sergio Serrano, assistant professor, Ph.D., Waterloo, 1985
Shien T. Wang, professor, Ph.D., Cornell, 1969
Yi-Tin Wang, assistant professor, Ph.D., Illinois-Urbana, Champaign, 1984
Garey White, adjunct associate professor, B.S., Kentucky, 1951
Don J. Wood, professor, Ph.D., Carnegie Institute of Technology, 1961

ELECTRICAL ENGINEERING
Frederick C. Trutt, chairperson

Anders H. Andersen, assistant professor, Ph.D., Purdue, 1983
Lyle N. Back, assistant professor, M.S., Kentucky, 1962
Eugene B. Bradley, professor, Ph.D., Vanderbilt, 1964
Jimmie J. Cathey, associate professor, Ph.D., Texas A&M, 1972
William A. Chren, Jr., assistant professor, Ph.D., Ohio State, 1987
Tae-Sang Chung, assistant professor, Ph.D., Ohio State, 1985
Thyagaraju Damarla, assistant professor, Ph.D., Boston University, 1987
Raymond J. Distler, associate professor, Ph.D., Kentucky, 1964
William R. Grisé, assistant professor, Ph.D., Texas, 1980
William A. Gruver, research professor, Ph.D., University of Pennsylvania, 1970
J. Robert Heath, associate professor, Ph.D., Auburn, 1973
Hassan A.N. Hejase, assistant professor, Ph.D., Syracuse, 1987
John S. Jackson, Jr., associate professor, M.S., California Institute of Technology, 1954
Prasad K. Kadaba, professor, Ph.D., California-Los Angeles, 1949
Martin C. Krimm, assistant professor, M.S., Kentucky, 1962
Benjamin J. Leon, professor, Sc.D., Massachusetts Institute of Technology, 1959
Krishna Naishadham, assistant professor, Ph.D., Mississippi, 1986
Syed A. Nasar, professor, Ph.D., California-Berkeley, 1963
Clayton R. Paul, professor, Ph.D., Purdue, 1970
Sam S. Pyo, assistant professor, Ph.D., Carnegie-Mellon, 1984
Earl L. Steele, professor, Ph.D., Cornell, 1952
Lee T. Todd, Jr., adjunct associate professor, Ph.D., Massachusetts Institute of Technology, 1973
Frederick C. Trutt, professor, Ph.D., Delaware, 1964
Bruce L. Walcott, assistant professor, Ph.D., Purdue, 1987

ENGINEERING MECHANICS
Oscar W. Dillon, Jr., chairperson

Staley Fields Adams, professor, Ph.D., Colorado, 1965
Millard F. Beatty, Jr., professor, Ph.D., Johns Hopkins, 1964
Ray M. Bowen, professor, Ph.D., Texas A&M, 1961
Louis M. Brock, professor, Ph.D., Northwestern, 1972
Oscar W. Dillon, Jr., professor, D.Eng.Sci., Columbia, 1959
Graeme Fairweather, professor, Ph.D., St. Andrews, Scotland, 1966
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
Wei-Yang Lu, associate professor, Ph.D., Yale, 1981
David J. Shippy, professor, Ph.D., Iowa State, 1963
Theodore R. Tauchert, professor, D.Eng., Yale, 1964

MECHANICAL ENGINEERING
Robert A. Altenkirch, chairperson

Robert A. Altenkirch, professor, Ph.D., Purdue, 1975
Roy D. Burberry, assistant professor emeritus, M.A., Kentucky, 1958
Joseph C. Carter, visiting associate professor, M.S., Columbia, 1937
Willis Merle Carter, professor emeritus, Ph.D., Michigan, 1953
Louis C. Chow, associate professor, Ph.D., California, Berkeley, 1978
Clifford J. Cremers, professor, Ph.D., Minnesota, 1964
James E. Funk, professor, Ph.D., Pittsburgh, 1960
Ottfried J. Hahn, professor, Ph.D., Princeton, 1964
Maurice Keith Marshall, associate professor emeritus, M.S., Kentucky, 1956
Harry L. Mason, assistant professor, M.S., Kentucky, 1959
M. Pinar Mengüc, assistant professor, Ph.D., Purdue, 1985
Amir Nassirharand, assistant professor, Ph.D., Oklahoma State, 1986
Mihail C. Roco, professor, D.Eng., Bucharest, 1976
Keith E. Rouch, associate professor, Ph.D., Marquette, 1977
J. Peter Sadler, associate professor, D.Eng., Rensselaer, 1972
Kozo Saito, associate professor, D.Eng., Seikei, Tokyo, 1980
Andrew F. Seybert, associate professor, Ph.D., Purdue, 1975
Shiva N. Singh, professor, Ph.D., Indian Institute of Technology, Kharagpur, India, 1959
Orville W. Stewart, professor emeritus, M.S., Kentucky, 1955
Kaveh Taghavi, assistant professor, Ph.D., California, Los Angeles, 1982
H.S. Tzou, assistant professor, Ph.D., Purdue, 1983

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE
K. Okazaki, chairperson

Burton H. Davis, adjunct professor, Ph.D., Florida, 1965
Robert J. De Angelis, professor, Ph.D., Northwestern, 1965
H. Alan Fine, associate professor, Sc.D., Massachusetts Institute of Technology, 1973
Peter P. Gillis, professor, Ph.D., Brown, 1964
James G. Morris, associate professor, Ph.D., Purdue, 1956
Edward Muccio, adjunct assistant professor, M.S., Lowell, 1973
Kenji Okazaki, professor, Dr. Eng., Sci., Kyoto University, 1967
Phillip J. Reucroft, professor, Ph.D., London, England, 1959
Roy E. Swift, professor emeritus, D.Engr., Yale, 1949

MINING ENGINEERING
Lee W. Saperstein, chairperson

Joseph W. Leonard, professor, M.S., Penn State, 1958
G. T. Lineberry, assistant professor, Ph.D., West Virginia University, 1982
Richard S. Mateer, professor, Ph.D., Pittsburgh, 1950
Lee W. Saperstein, professor, D. Phil., Oxford, 1964
Richard J. Sweigard, associate professor, Ph.D., Penn State, 1984
Konstanty F. Unrug, professor, Ph.D., Krakow, 1966
Andrej Wala, associate professor, D.Tech. Sci., Mining and Metallurgical Academy, 1972
Frederick D. Wright, professor emeritus, M.A., Columbia, 1942
Jon C. Yingling, assistant professor, Ph.D., Pittsburgh, 1988

COLLEGE OF FINE ARTS

Richard C. Domek, Jr., dean

ART
Marilyn Hamann, chairperson

Dennis Carpenter, associate professor, M.F.A., University of Florida, 1979
Georgia Collins, associate professor, Ph.D., Ohio State, 1978
Gerald Ferstman, associate professor, M.F.A., University of Washington, 1965
Elizabeth Finkenstaedt, associate professor, Ph.D., Harvard, 1963
Joseph Fitzpatrick, associate professor, M.A., Louisville, 1958
Robert James Foose, associate professor, B.A., Kentucky, 1963
Deborah Frederick, associate professor, M.F.A., Rochester Institute of Tech., 1967
Jack Gron, associate professor, M.F.A., Washington University, 1976
Marilyn Hamann, associate professor, M.A., California, Berkeley, 1970
Christine Havice, associate professor, Ph.D., Penn State, 1978
Donald H. Hoffman, associate professor, Ed.D., Georgia, 1972
Arthur F. Jones, associate professor, Ph.D., Case-Western Reserve, 1974
Jane S. Peters, associate professor, Ph.D., Wisconsin-Madison, 1975
James S. Pierce, professor, Ph.D., Harvard, 1962
Arturo A. Sandoval, professor, M.F.A., Cranbrook, 1971
George Szekely, associate professor, Ed.D., Columbia, 1975
Robert Tharsing, associate professor, M.A., California, Berkeley, 1967
John R. Tuska, professor, M.F.A., Alfred, 1960
Bernard Young, associate professor, Ph.D., M.F.A., Cornell, 1982

SCHOOL OF MUSIC
Alan B. Hersh, director

Joseph W. Baber, professor, M.M., Rochester, 1965
Lance W. Brunner, associate professor, Ph.D., North Carolina, 1976
James B. Campbell, associate professor, M.M., Northern Illinois, 1978
Wm. Harry Clarke, associate professor, M.A., George Peabody, 1963
Gordon B. Cole, associate professor, M.M., New Hampshire, 1976
Kate R. Covington, associate professor, Ph.D., Indiana, 1982
Vincent A. DiMartino, professor, M.M., Rochester, 1978
Richard C. Domek, Jr., associate professor, Ph.D., Indiana, 1976
David Elliott, associate professor, M.M., Catholic University of America, 1968
Jonathan Glixon, associate professor, Ph.D., Princeton, 1979
Allen Goodwin, associate professor, Ph.D., North Texas State, 1977
Arthur Graham, professor, Ed.D., Columbia, 1960
Harold R. Gray, associate professor, M.M., Illinois, 1979
Hubert P. Henderson, professor, Ph.D., North Carolina, 1962
Alan B. Hersh, professor, D.Mus., Indiana, 1971
Samuel Stinson Holland, assistant professor, M.M., University of Houston, 1979
Phyllis Jenness, professor, M.A., Kentucky, 1958
Margaret Kennedy, associate professor, D.M., Indiana, 1984
Rey M. Longyear, professor, Ph.D., Cornell, 1957
Charles H. Lord, associate professor, Ph.D., Indiana, 1978
Daniel Mason, associate professor, M.M., Southern California, 1977
Suzanne McIntosh, associate professor, M.M., Indiana, 1973
Mina F. Miller, associate professor, Ph.D., New York University, 1978
Phillip Miller, associate professor, M.M.E., Boston, 1958
Ronald P. Monsen, associate professor, Ph.D., Wisconsin, 1978
Patricia Montgomery, associate professor, D.M.A., Indiana, 1979
Bruce N. Morrison, associate professor, M.M., Northwestern, 1960
William H. Ramsey, professor, Ph.D., Columbia University, 1963
Schuyler Robinson, associate professor, D.M.A., Illinois, 1972
Peter C. Simpson, associate professor, M.A., New Hampshire, 1975
Lucien P. Stark, professor, D.M.A., Michigan, 1968
Cecilia Hoi-Mee Chu Wang, associate professor, Ph.D., Texas Tech., 1975
Dale E. Warren, associate professor, M.M., University of N. Colorado, 1976
Wilson Dale Warren, instructor, B.S., Austin Peay State University, 1980

THEATRE
James W. Rodgers, chairperson

Russell Henderson, assistant professor, M.F.A, Trinity University-Dallas Theatre Center, 1979
David J. Herring, instructor, M.F.A., Trinity University, 1982
John Holloway, associate professor, M.F.A., Trinity University, 1980
Patrick Kagan-Moore, assistant professor, Ph.D., Ohio State, 1982
Geraldine Maschio, associate professor, Ph.D., Wisconsin-Madison, 1981
Charles Oates, assistant professor, M.F.A., University of Montana, 1983
James W. Rodgers, professor, Ph.D., Wayne State, 1968

Raymond A. Smith, associate professor, M.F.A., Western Reserve, 1955
Mary A. Stephenson, associate professor, M.A., Florida, 1963

COLLEGE OF HOME ECONOMICS

Peggy S. Meszaros, dean

FAMILY STUDIES

Gregory W. Brock, chairperson

Lisa K. Barclay, professor, Ph.D., Stanford, 1969
Darla R. Botkin, associate professor, Ph.D., Tennessee, 1983
Gregory W. Brock, associate professor, Ph.D., Penn State, 1978
John F. Crosby, professor, Ph.D., Syracuse, 1970
Ruth Ann Crum, associate professor, M.S., Kentucky, 1980
Mary Ellen Edmondson, associate professor, Ph.D., Tennessee, 1982
Robert H. Flashman, associate extension professor, Ph.D., Ohio State, 1976
Raymond E. Forgue, associate professor, Ph.D., Virginia Polytechnic Institute, 1980
Peggy S. Meszaros, professor, Ph.D., Maryland, 1977
David C. Payne, associate professor, Ed.D., Indiana, 1965
Karen L. Perch, assistant professor, Ph.D., Kansas State, 1983
Donna S. Quick, associate professor, M.S., Alabama, 1976
Samuel Quick, associate extension professor, Ph.D., Florida State, 1975
Mary Lou Routt, assistant professor, M.S., Kentucky, 1973
Kim F. Townley, assistant professor, Ph.D., Missouri-Columbia, 1984
M. O'Neal Weeks, professor, Ph.D., North Carolina, 1972

HUMAN ENVIRONMENT: DESIGN AND TEXTILES

Terry D. Rothgeb, chairperson

Bette Jo Dedic, extension specialist, M.S., Purdue, 1973
Elizabeth Easter, assistant professor, Ph.D., Tennessee, 1982
Linda Heaton, associate extension professor, Ph.D., Ohio State, 1980
G. Franklyn Hisel, assistant professor, B.Arch., Kentucky, 1978
Sharla Jean Hoskin, associate professor, Ph.D., Tennessee, 1978
Karen Ketch, associate professor, M.A., Michigan State, 1979
Linda Reece, extension specialist, M.A., Iowa State, 1972
Joseph A. Rey-Barreau, associate professor, M.S., Louisville, 1983
Terry D. Rothgeb, associate professor, M.A., Missouri, 1972
Patrick Snadon, associate professor, Ph.D., Cornell, 1988
Al Stone, assistant professor, M.S., Oklahoma, 1982
Ann Whiteside, associate professor, M.S., Florida State, 1976

NUTRITION AND FOOD SCIENCE

Peggy S. Meszaros, acting chairperson

Sue W. Burrier, extension specialist, M.S., Kentucky, 1953
Linda Huang Chen, professor, Ph.D., Louisville, 1964
Ching K. Chow, professor, Ph.D., Illinois, 1969
Darlene Forester, associate extension professor, Ph.D., R.D., Kentucky, 1977
Howard Glauert, assistant professor, Ph.D., Michigan State, 1982
Bernhard Hennig, assistant professor, Ph.D., R.D., Iowa State, 1982
Abby Marlatt, professor emeritus, Ph.D., R.D., California, 1947
Fudeko T. Maruyama, extension professor, Ph.D., R.D., California, 1955
Michael McCorkle, assistant professor, M.B.A., University of New Haven, 1986
Pam McMahon, associate professor, M.S., R.D., Framingham State College, 1975
Leonard V. Packett, professor emeritus, Ph.D., Texas A&M, 1959
Claire Schmelzer, assistant professor, M.S., R.D., South Carolina, 1983
Teresa Smith, clinical instructor, M.S., Kentucky, 1985
Mary Stuart, assistant professor, Ph.D., R.D., Purdue, 1983
Sharon Wallace, assistant professor, D.Sc., R.D., Harvard, 1982
Myrna Wesley, associate professor, M.S., R.D., Kentucky, 1975

COLLEGE OF LAW

Rutheford B Campbell, Jr., dean

Richard C. Ausness, professor, LL.M., Yale, 1973
John Randolph Batt, professor, LL.M., Yale, 1960
Carolyn Schmoll Bratt, professor, J.D., Syracuse, 1974
Rutheford B Campbell, Jr., professor, LL.M., Harvard, 1971
Todd B. Eberle, associate dean, director of Continuing Legal Education, J.D., Vanderbilt, 1972
William Hifner Fortune, professor, J.D., Kentucky, 1964
Eugene R. Gaetke, professor, J.D., Minnesota, 1974
John H. Garvey, professor, J.D., Harvard, 1974
Kenneth B. Germain, professor, J.D., New York, 1969
Alvin Lee Goldman, professor, LL.B., New York, 1962
Mary Louise Graham, professor, J.D., Texas, 1977
Willburt Dunn Ham, professor emeritus, LL.M., Harvard, 1941
Robert Gene Lawson, professor, J.D., Kentucky, 1963
John Robert Leathers, professor, LL.M., Columbia, 1973
Thomas P. Lewis, professor, S.J.D., Harvard, 1964
Paul Oberst, professor emeritus, LL.M., Michigan, 1942
John M. Rogers, professor, J.D., Michigan, 1974
Robert G. Schwemm, professor, J.D., Harvard, 1970
Emily L. Sherwin, assistant professor, J.D., Boston University, 1981
David C. Short, director of the Mineral Law Center and professor, J.D., Kentucky, 1966
Thomas J. Stipanowich, associate professor, J.D., Illinois, 1980
Richard H. Underwood, professor, J.D., Ohio State, 1976
Paul C. VanBooven, associate dean, J.D., Kentucky, 1976
Drusilla W. Vansant, associate dean, J.D., Harvard, 1977
Stephen James Vasek, associate professor, LL.M., Harvard, 1969
Harold R. Weinberg, professor, J.D., Case-Western Reserve, 1969
Sarah N. Welling, associate professor, J.D., Kentucky, 1978
Frederick William Whiteside, Jr., professor emeritus, LL.B., Cornell, 1936
Dwight Reginald Whitt, assistant professor, J.D., Duke, 1982
Paul Allen Willis, professor, J.D., Kentucky, 1969
Donald A. Winslow, assistant professor, J.D., Cornell, 1980

COLLEGE OF LIBRARY AND INFORMATION SCIENCE

Paul A. Willis, acting dean

Lawrence A. Allen, professor, Ph.D., Chicago, 1961
John Bryant,* instructor, M.S.L.S., Kentucky, 1965
Robert E. Cazden, professor, Ph.D., Chicago, 1965
Lois M. Chan, professor, Ph.D., Kentucky, 1970
George Cunha,* instructor
Stan Hannah, assistant professor, M.B.A., Indiana, 1978
Michael H. Harris, professor, Ph.D., Indiana, 1970
William Marshall,* instructor, M.L.S., Kent State, 1973
Laura K. Martin, professor emeritus, M.A., Stanford, 1940
Anne Y. McConnell, professor emeritus, C.A.S., Illinois, 1978
JoAnn V. Rogers, professor, Ph.D., Pittsburgh, 1977
Timothy W. Sineath, professor, Ph.D., Illinois, 1970
Joy Terhune, associate professor, Ed.S., George Peabody, 1977
Dan Twaddle, visiting assistant professor, Ph.D., Indiana, 1972
Thomas J. Waldhart, associate professor, Ph.D., Indiana, 1972
Lucinda Zoe,* instructor, M.S.L.S., Kentucky, 1985

*part-time

COLLEGE OF MEDICINE

Emery A. Wilson, interim dean

ANATOMY AND NEUROBIOLOGY

Miroslava B. Nikitovitch-Winer, chairperson

William B. Cotter, professor, Ph.D., Yale, 1956
Thomas E. Curry,* assistant research professor, Ph.D., East Carolina, 1983
Steven T. DeKosky,* associate professor, M.D., Florida, 1974
Leo S. Demski,* associate professor, Ph.D., Rochester, 1969
William K. Elwood, associate professor, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Kurt F. Hauser, assistant professor, Ph.D., University of Medicine and Dentistry of New Jersey, 1983
Bruce E. Maley, assistant professor, Ph.D., Ohio State, 1979
William R. Markesbery,* professor, M.D., Kentucky, 1964
Daniel H. Matulionis, associate professor, Ph.D., Tulane, 1970
Miroslava B. Nikitovitch-Winer, professor, Ph.D., Duke, 1957
Raymond E. Papka, professor, Ph.D., Tulane, 1971
David Peck, associate professor, Ph.D., Johns Hopkins, 1961
Stephen W. Scheff, associate professor, Ph.D., Missouri, 1974
Betty F. Sisken, associate professor, Ph.D., Kentucky, 1973
Stephen D. Smith, associate professor, Ph.D., Tulane, 1965
Harold H. Traurig, professor, Ph.D., Minnesota, 1963
Robert E. Watson, Jr., assistant professor, Ph.D., University of Medicine and Dentistry of New Jersey, 1982

*joint appointment

ANESTHESIOLOGY

William O. Witt, chairperson

Steve M. Audenaert, assistant professor, M.D., Mississippi, 1983
Robert B. Boettner, professor, M.D., Western Reserve, 1955
Peter P. Bosomworth, professor, M.D., Cincinnati, 1955
George W. Colclough, assistant professor, M.D., North Carolina, 1974
Jeffrey B. Dembo, assistant professor, D.D.S., Northwestern, 1981
M. Fredrica Godshalk, associate professor, M.D., Maryland, 1969
Thorold D. Harris, assistant professor, M.D., Utah, 1957
Steven R. Hays, assistant professor, M.D., Kentucky, 1984; Ph.D., Utah State, 1978
Eugene A. Hessel II, associate professor, M.D., California, San Francisco, 1960
John M. Hine, clinical instructor (part-time), M.D., Oregon, 1976
Richard Lock, assistant professor, M.D., Northeast Ohio, 1981
Manoocher Mazloomdoost, associate professor, M.D., Shiraz, Iran, 1964
Francis J. McDonnell, assistant professor, M.B., Dublin, Ireland, 1973
Eddie L. Owens, associate professor, M.D., Louisville, 1968
Norman W. Pedigo,* assistant professor, Ph.D., Virginia Commonwealth, 1977
John E. Plumlee, professor, M.D., Missouri, 1959
Paul N. Walmsley, associate professor, M.B., Birmingham, England, 1980
Julie Watson, clinical instructor (part-time), M.D., Texas, San Antonio, 1984
William O. Witt, associate professor, M.D., Minnesota, 1976

*joint appointment

BEHAVIORAL SCIENCE

Thomas F. Garrity, interim chairperson

Susan Abbott,* associate professor, Ph.D., North Carolina, 1974
Michael A. Andrykowski, assistant professor, Ph.D., Illinois, 1984
Carolyn B. Bacdayan, assistant professor, M.A., Yale, 1959
Carol A. Bryant,* assistant professor, Ph.D., Kentucky, 1978
Lawrence M. Busch,* professor, Ph.D., Cornell, 1974
Stephen J. Coons,* assistant professor, Ph.D., Arizona, 1986
Kathleen M. DeWalt, associate professor, Ph.D., Connecticut, 1979
Ronald C. Dillehay,* professor, Ph.D., California, Berkeley, 1962
Thomas R. Ford,* professor, Ph.D., Vanderbilt, 1951
Abe R. Fosson,* professor, M.D., Vanderbilt, 1964
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Art Gallaher, Jr.,* professor, Ph.D., Arizona, 1956
Thomas F. Garrity, professor, Ph.D., Duke, 1971
John V. Haley, professor, Ph.D., Loyola, 1964
Lynne A. Hall,* assistant professor, R.N., Dr.P.H., North Carolina, 1983
Jon Hendricks,* professor, Penn State, 1971
Roy K. Jarecky, professor, Ed.D., Columbia, 1958
Philip M. Moody, associate professor, Ph.D., Utah, 1967
Michael R. Nichols,* assistant professor, Ph.D., Kentucky, 1978
Garth L. Olde, professor, Ph.D., Western Ontario, 1960
Sara A. Quandt,* assistant professor, Ph.D., Michigan State, 1981
Gary Shannon,* professor, Ph.D., Michigan, 1970
Robert Straus, professor emeritus, Ph.D., Yale, 1947
John van Willigen,* associate professor, Ph.D., Arizona, 1971
Helen Jean Wiese, associate professor, Ph.D., North Carolina, 1971
Doris Y. Wilkinson,* professor, Ph.D., Case Western Reserve, 1968
John F. Wilson, associate professor, Ph.D., Michigan, 1977

*joint appointment

BIOCHEMISTRY

Thomas C. Vanaman, chairperson

Narayan P. Bhat, assistant research professor, Ph.D., Indian Institute of Science, Bagalore, India, 1978
Shung-Kai Chan, professor, Ph.D., Wisconsin, 1962
Mary Sue Coleman, professor, Ph.D., North Carolina, 1969
Giovanna Colombo, assistant professor, Ph.D., Wisconsin, 1978
Robert C. Dickson, associate professor, Ph.D., California-Los Angeles, 1970
Richard E. Galardy, associate professor, Ph.D., Rockefeller, 1973
Damian Grobelny, assistant research professor, Technical University of Wroclaw, 1977
Boyd E. Haley,* professor, Ph.D., Washington State, 1971
Alfred S. L. Hu, professor, Ph.D., Oregon, 1957
Phillip B.C. Jones, assistant professor, Ph.D., California, San Diego, 1982
Robert L. Lester, professor, Ph.D., California Institute of Technology, 1956
Edward Pavlik,* assistant research professor, Ph.D., Tennessee, 1975
Robert E. Rhoads, professor, Ph.D., George Washington, 1972
Judith Shelling, assistant professor, Ph.D., Alberta, Canada, 1984
S. J. Turco, associate professor, Ph.D., Pittsburgh, 1976
Thomas C. Vanaman, professor, Ph.D., Duke, 1968
Charles J. Waechter, professor, Ph.D., Kentucky, 1971
Alfred D. Winer, associate professor, Ph.D., Duke, 1957

*joint appointment

DIAGNOSTIC RADIOLOGY

Harold D. Rosenbaum, chairperson

Laurence R. Bean,* professor, D.D.S., Ohio State, 1966
Robert M. Beihn, clinical instructor (part-time), Ph.D., Kentucky, 1981
Denise E. Duff,** assistant professor, M.D., Vermont, 1974
Andrew M. Fried, professor, M.D., Alabama, 1968
Joseph G. King, assistant professor, M.D., Alabama, 1981
Thomas O. Larson,** assistant professor, M.D., Wisconsin, 1969
Charles Lee, assistant professor, M.D., Northwestern, 1976
Arthur Lieber, professor, M.D., Louisville, 1953
Fang Kum Loh, associate professor, M.D., Singapore, 1972
James G. Lorman, professor (part-time), M.D., Indiana, 1944
I. Roger Morehouse, assistant professor, M.D., Kentucky, 1971
Margaret H. Olson, assistant clinical instructor (part-time), M.D., Illinois, 1980
Calixto Pulmano,** assistant professor, M.D., Santo Tomas, 1962
Marguerite Purcell,** assistant professor, M.D., Pennsylvania, 1965

Christine N. Riley,** assistant professor, M.D., Kentucky, 1975
Harold D. Rosenbaum, professor, M.D., Harvard, 1944
U. Yun Ryo,* professor, M.D., Daegu, Korea, 1962; Ph.D., Daegu, Korea, 1966
Albert C. Selke, Jr., professor, M.D., Pennsylvania, 1959
Stanford L. Smith,* professor, Ph.D., Iowa State, 1961
Carol B. Stelling, associate professor, M.D., Northwestern, 1972
John H. Woodring, associate professor, M.D., Kentucky, 1976

*joint appointment
**adjunct series

EMERGENCY MEDICINE
H. David Robertson, chairperson

Charles A. Eckerline, assistant clinical professor (part-time), M.D., Kentucky, 1977
Marc L. Holbrook, assistant professor, M.D., Louisville, 1975
Daryl Pauly, assistant professor, M.D., Kentucky, 1982
Joseph W. Richardson, assistant professor, M.D., Kentucky, 1978
H. David Robertson, associate professor, M.D., Kentucky, 1977
Jeralyn S. Smith, assistant professor, M.D., Georgia, 1982
Sharon E. Wells, assistant professor, M.D., Kentucky, 1978
William E. Wooster, assistant clinical professor (part-time), M.D., Winnepeg, Manitoba, 1978
Robert E. Young, assistant clinical professor, (part-time), M.D., Albert Einstein, 1974

FAMILY PRACTICE
Alan K. David, chairperson

Kathleen L.B. Beine, assistant professor, M.D., Kentucky, 1978
Max A. Crocker, professor, M.D., Tennessee, 1963
Thomas Andrew Dale II, assistant professor adjunct, M.D., Kentucky, 1972
Alan K. David, associate professor, M.D., Missouri, 1971
J. Susan Griffith, assistant professor, M.D., Kentucky, 1982
Michael D. Hagen, associate professor, M.D., Missouri-Columbia, 1975
Jerry E. Jones, associate professor, M.D., Kentucky, 1976
Gary W. Kearl, assistant professor, M.D., Rush, 1982
Gary I. Levine, assistant professor, M.D., Wayne State, 1976
Martin B. Marx, professor, D.V.M., Texas A&M, 1951; M.P.H., Harvard, 1959; Ph.D., North Carolina, 1968
Benjamin F. Roach, clinical professor (part-time), M.D., Duke, 1943
Myron G. Sandifer,* professor emeritus, M.D., Harvard, 1947
E. C. Seeley, professor, M.D., Louisville, 1947
Allen L. Sklar, associate professor, M.D., Maryland, 1950
Robert C. Wesley,* associate professor, D.M.D., Louisville, 1964

*joint appointment

MEDICINE
John S. Thompson, chairperson

Linas J. Adams, assistant professor, M.D., Universidad Autonoma de Guadalajara, Mexico, 1978
Fekreya Aly, professor, M.S.S.W., Kent School of Social Work, Louisville, 1966
James W. Anderson, professor, M.D., Northwestern, 1961
Linda Bailey, assistant professor, M.S.S.W., Louisville, 1977
Michael P. Barron, clinical instructor (part-time), M.D., Vermont, 1967
Rolando Berger, assistant professor, M.D., San Carlos, 1974
David Booth, associate professor, M.D., Texas, 1974
Marcelo C. Branco, instructor, M.D., Federal University of Rio de Janeiro, 1978
N. K. Burki, professor, M.D., Pakistan, 1962; Ph.D., London, 1969
Frank G. Cascio, professor, M.D., Buffalo, 1954
Craig A. Chasen, assistant professor, M.D., SUNY, Syracuse, 1979
Luis Constantin, assistant professor, M.D., Indiana, 1980
Anne G. Cook, assistant professor, Medical University of South Carolina, 1982
J. Donald Coonrod, professor, M.D., Johns Hopkins, 1963
Anthony N. DeMaria, professor, M.D., New Jersey, 1968
Philip DeSimone, associate professor, M.D., Vermont, 1967
Michael Doukas, assistant professor, M.D., Johns Hopkins, 1976
Jonathan Lee Elion, assistant professor, M.D., Brown, 1975
James A. Flueck, associate professor, M.D., Minnesota, 1967
Robert French, associate professor, M.D., Ohio State, 1963
Robert M. Friedler, professor, M.D., Chile, 1960
Vincent Gallicchio,* associate professor, Ph.D., New York, 1986
Carole S. Gardner, assistant professor, MD., Bowman Gray, 1981
Norman Gilinsky, assistant professor, M.D., Capetown, 1973
Cindy L. Grines, assistant professor, M.D., Ohio State, 1980
Theodore N. Guiglia, associate professor, M.D., Louisville, 1956
Gordon P. Guthrie, professor, M.D., Columbia, 1970
Steven A. Haist, assistant professor, M.D., Kentucky, 1981
Michael R. Harrison, assistant professor, M.D., SUNY, Syracuse, 1981
Peggy Jean Henslee, assistant professor, M.D., Missouri-Kansas City, 1979
Shirley Hughes, associate professor, M.S.W., Pennsylvania, 1960
James Lee Jackson, assistant professor, M.D., Virginia, 1978
Marek Kacki, assistant professor, M.D., Katowice, Poland, 1980
Bann Kang, associate professor, M.D., Daegu, Korea, 1963
Craig Kaplan, associate professor, M.D., Illinois-Rockford, 1977
Ross Kerns, clinical instructor (part-time), M.D., East Tennessee, 1984
Joyce A. Korvick, assistant professor, M.D., Thomas Jefferson, 1980
Steve Kraman, associate professor, M.D., Puerto Rico, 1973
Chien-Suu Kuo, associate professor, M.D., National Taiwan University, 1963
Ullin W. Leavell, clinical professor (part-time), M.D., Duke, 1945
Steven B. Leichter, associate clinical professor (part-time), M.D., Virginia, 1970
Robert W. Lightfoot, professor, M.D., Vanderbilt, 1961
John S. MacDonald, professor, M.D., Harvard, 1969
Cheryl Mahony, assistant professor, M.D., Duke, 1976
Hartmut H. Malluche, professor, M.D., Goethe University, 1969
Paul Mandlestam, professor, M.D., Harvard, 1950; Ph.D., Harvard, 1953
Ewa Marciniak, professor, M.D., Wroclow, 1951; Ph.D., Wroclow, 1956
Manly E. Marshall, assistant professor, M.D., Medical College of Virginia, 1975
Clifford C. Matthews, assistant professor, M.D., Heidelberg, 1970
Lloyd D. Mayer, clinical professor (part-time), M.D., Louisville, 1944
Alberto Mazzoleni, associate professor, M.D., Milan, Italy, 1952
Craig J. McClain, professor, M.D., Tennessee, 1972
J. Wade McKeown, assistant professor, M.D., Tennessee, 1973
Ira F. Mersack, associate clinical professor (part-time), M.D., Kentucky, 1966
Michael J. Messino, assistant professor, M.D., Ohio State, 1979
Monty Metcalfe, assistant professor, M.D., Kentucky, 1978
Ralph Miller, clinical instructor (part-time), M.D., Harvard, 1961; Sc.D., Harvard, 1969
Thomas B. Montgomery, assistant professor, M.D., South Alabama, 1981
Rita Munn, clinical instructor (part-time), M.D., Kentucky, 1984
John R. Neefe, Jr., associate professor, M.D., Pennsylvania, 1969
Steven Nissen, assistant professor, M.D., Michigan, 1978
Robert C. Noble, professor, M.D., Duke, 1964
Barbara Phillips, assistant professor, M.D., Kentucky, 1977
E. Douglas Rees, professor emeritus, M.D., Yale, 1954
Stanley Rehm, associate professor, M.D., Southwestern-Dallas, 1972
John Robbins, assistant professor, M.D., Southwestern, Dallas, 1980
Edward Romond, assistant professor, M.D., Kentucky, 1977
Ronald J. Saykaly, associate clinical professor (part-time), M.D., California-Los Angeles, 1969
Eileen Scherl, associate clinical professor (part-time), M.D., Maryland, 1973
Jack Schmidt, assistant research professor, Ph.D., Pennsylvania, 1969
Samuel R. Scott, professor, M.D., Bowman Gray, 1969
Steven Shedlofsky, assistant professor, M.D., Michigan, 1974
Albert Smith, assistant professor, M.D., New Jersey, 1969
Mikel Smith, associate professor, M.D., Kentucky, 1977
John S. Thompson, professor, M.D., Chicago, 1953

Glen R. Van Loon, professor, M.D., Toronto, 1965; Ph.D., California, San Francisco, 1970
Thomas Waid, assistant professor, M.D., Kentucky, 1980
Timothy Winchester, clinical instructor (part-time), M.D., Kentucky, 1984
Thomas W. Wisenbaugh, associate professor, M.D., Ohio State, 1977

*joint appointment

MICROBIOLOGY AND IMMUNOLOGY
Alan M. Kaplan, chairperson

Charles T. Ambrose, professor, M.D., Johns Hopkins, 1955
Subbarao Bondada, assistant professor, Ph.D., Bombay, 1976
Raymond B. Bridges,* associate professor, Ph.D., Vanderbilt, 1969
Robert B. Calmes, Jr.,* associate professor, Ph.D., West Virginia, 1972
Jennie C. Chang, assistant research professor, Ph.D., Cornell, 1980
Donald A. Cohen, assistant professor, Ph.D., Cincinnati, 1979
Richard Cross, assistant research professor, Ph.D., Kentucky, 1981
Jeffrey Davidson, associate professor, Ph.D., Harvard, 1976
L. Edward DeMoll, assistant professor, Ph.D., Texas, Austin, 1982
James Freeman, assistant professor, Ph.D., Kentucky, 1983
Vincent Gallicchio,* associate professor, Ph.D., New York, 1986
Norman L. Goodman,* professor, Ph.D., Oklahoma, 1965
Robert J. Jacob, assistant professor, Ph.D., Syracuse, 1974
Alan M. Kaplan, professor, Ph.D., Purdue, 1969
Thomas T. Lillich,* professor, Ph.D., North Carolina, 1968
Carol L. Pickett, assistant professor, Ph.D., Texas, Austin, 1983
Thomas L. Roszman, professor, Ph.D., Michigan State, 1966
Jesse E. Sisken, professor, Ph.D., Columbia, 1957
E. Charles Snow, assistant professor, Ph.D., Iowa, 1978
Marion R. Steiner, associate professor, Ph.D., Kentucky, 1968
Susan C. Straley, associate professor, Ph.D., Cornell, 1972
H. Earle Swim, professor, Ph.D., Western Reserve, 1952
Jerold Woodward, assistant professor, Ph.D., Utah, 1979
Stephen G. Zimmer, associate professor, Ph.D., Colorado, 1973

*joint appointment

NEUROLOGY
Michael P. McQuillen, chairperson

Robert S. Baker,* assistant professor, M.D., McMaster, 1975
Robert J. Baumann, associate professor, M.D., Case Western Reserve, 1965
David B. Clark, professor emeritus, Ph.D., Chicago, 1940; M.D., Chicago, 1946
Yvette R. Cook, assistant professor, M.D., Kentucky, 1980
Steven T. DeKosky, associate professor, M.D., Florida, 1974
James P. Farrell, clinical instructor (part-time), M.D., Kentucky, 1983
William W. Green, professor, Ph.D., Case Western Reserve, 1970
Robin L. Gilmore, associate professor, M.D., Ohio State, 1975
Edgar J. Iwamoto,* associate professor, Ph.D., California, San Francisco, 1973
Edward J. Kasarskis, Jr., associate professor, M.D., Wisconsin, 1974; Ph.D., Wisconsin, 1975
Craig A. Knox, assistant professor, M.D., Minnesota, 1983; Ph.D., Tulane, 1979
Mary G. Leonidakis, professor emeritus, M.S.S.W., Columbia, 1949
William R. Markesbery,* professor, M.D., Kentucky, 1964
Andrew D. Massey, assistant professor, M.D., Kansas, 1977
Michael P. McQuillen, professor, M.D., Georgetown, 1957
Kevin R. Nelson, assistant professor, M.D., Michigan, 1979
James C. Norton,* associate professor, Ph.D., Arizona, 1970
Roy A. Patchell,* assistant professor, M.D., Kentucky, 1979
Stephen W. Scheff,* associate professor, Ph.D., Missouri, 1974
Frederick H. Schmitt, assistant professor, Ph.D., Akron, 1982
John T. Slevin, associate professor, M.D., West Virginia, 1975
David L. Sparks, assistant research professor, Ph.D., South Carolina, 1982
James M. Thompson, clinical instructor (part-time), M.D., Kentucky, 1982
Harold H. Traurig,* professor, Ph.D., Minnesota, 1963

*joint appointment

OBSTETRICS AND GYNECOLOGY
John W. Greene, Jr., chairperson

B. Blake Bradley, assistant professor, M.D., Indiana, 1983
Wayne B. Conover, assistant professor, M.D., California, San Diego, 1977
Thomas E. Curry, Jr., assistant research professor, Ph.D., East Carolina, 1983
Elvis S. Donaldson, associate professor, M.D., Kentucky, 1971
Holly H. Gallion, assistant professor, M.D., Kentucky, 1979
John W. Greene, Jr., professor, M.D., Pennsylvania, 1952
W. David Hager, associate clinical professor (part-time), M.D., Kentucky, 1972
Kathryn Dillon High, assistant professor, M.D., Kentucky, 1979
H. James Lambert, Jr., associate professor emeritus, M.D., Maryland, 1944
Kenneth N. Muse, Jr., assistant professor, M.D., Kentucky, 1978
Edward J. Pavlik, associate research professor, Ph.D., Tennessee, 1975
John R. van Nagell, Jr., professor, M.D., Pennsylvania, 1967
Michael W. Vernon, associate research professor, Ph.D., Florida, 1979
Emery A. Wilson, professor, M.D., Kentucky, 1968

OPHTHALMOLOGY
Robert S. Baker, chairperson

Jean Amrien, assistant professor, M.D., Eastern Virginia, 1983
Robert S. Baker, associate professor, M.D., McMaster, 1975
John W. Collins, assistant clinical professor (part-time), M.D., Kentucky, 1971
John W. Garden, clinical professor (part-time), M.D., North Carolina, 1961
Jack L. Hollins, assistant professor, M.D., Louisville, 1973
Richard A. Kielar, clinical professor (part-time), M.D., Cincinnati, 1962
Bruce H. Koffler, associate clinical professor (part-time), M.D., Georgetown, 1974
Elmar T. Schmeisser, assistant research professor, Ph.D., Florida, 1980
Thomas J. Smith, assistant professor, M.D., Toronto, 1975
Woodford S. Van Meter, assistant professor, M.D., Vanderbilt, 1979

PATHOLOGY
Abner Golden, chairperson

Gayle W. Appleby, instructor, M.D., Medicine University of South Carolina, 1983
Michael L. Cibull, associate professor, M.D., Illinois, 1973
Terry D. Clark, assistant professor, M.D., Michigan, 1980
Larry G. Dickson, professor, M.D., Wayne State, 1956
Gilbert H. Friedell, professor, M.D., Minnesota, 1950
Abner Golden, professor, M.D., Harvard, 1942
Norman L. Goodman, professor, Ph.D., Oklahoma, 1965
John C. Hunsaker III, assistant professor, M.D., Kentucky, 1977, J.D., Kentucky, 1967
C. Darrell Jennings, Jr., assistant professor, M.D., Kentucky, 1977
James E. Johnson, associate professor, Ph.D., Oklahoma, 1974
William R. Markesbery, professor, M.D., Kentucky, 1964
Bonnie L. Mitchell, associate professor, M.D., Washington University, St. Louis, 1976
William N. O'Connor, associate professor, M.D., National University of Ireland, Cork, Ireland, 1972
Peter R. Oeltgen, associate professor, Ph.D., Loyola, 1973
Timothy L. Overman, associate professor, Ph.D., Cincinnati, 1971
William H. Porter, professor, Ph.D., Vanderbilt, 1970
Deborah E. Powell, professor, M.D., Tufts, 1965

Ralph D. Powell, professor, M.D., Boston, 1958
Irene E. Roeckel, clinical professor (part-time), M.D., Heidelberg, West Germany, 1948
Robert R. Sloss, assistant professor, M.D., Louisville, 1974
Norbert W. Tietz, professor, Ph.D., Technical University of Stuttgart, Germany, 1950
Ronald J. Whitley, associate professor, Ph.D., Georgia Institute of Technology, 1975
Dianne Wilson, assistant clinical professor, M.D., Kentucky, 1977
Kokichi Yoneda, professor, M.D., Nara Medical College, Japan, 1968

PEDIATRICS

Jacqueline A. Noonan, chairperson

Robert S. Baker,* assistant professor, M.D., McMaster, 1975
Robert A. Beargie, associate professor, M.D., Ohio State, 1957
Robert A. Broughton, assistant professor, M.D., Bowman Gray, 1976
Carol M. Cottrill, professor, M.D., Cincinnati, 1971
M. Douglas Cunningham, professor, M.D., Cincinnati, 1965
Nirmala S. Desai, professor, M.B.B.S., Baroda, India, 1966
Robert P. Dillard, associate professor, M.D., Kentucky, 1967
Peggy B. Falace, assistant clinical professor (part-time), Kentucky, 1972
Gerald A. Ferretti,* assistant professor, D.D.S., Georgetown, 1976
Doane Fischer, professor, M.D., Temple, 1947
Abe R. Fosson, professor, M.D., Vanderbilt, 1964
John D. Geil, associate professor, M.D., Kentucky, 1976
Kenneth L. Gerson, associate clinical professor (part-time), M.D., Ohio State, 1958
Martha F. Greenwood, associate professor, M.D., Kentucky, 1968
Bryan D. Hall, professor, M.D., Louisville, 1965
Peggy J. Henslee,* assistant professor, M.D., Missouri, Kansas City, 1979
Nancy H. Holland, professor (part-time), M.D., Louisville, 1954
Elizabeth Jackson, assistant professor, M.D., Virginia, 1978
Randall D. Jenkins, assistant professor, M.D., Wright State, 1980
Gregory L. Johnson, associate professor, M.D., Washington University, St. Louis, 1971
Jamshed F. Kanga, assistant professor, M.B.B.S., Dow University of Karachi, Pakistan, 1976
C. Charlton Mabry, professor, M.D., Emory, 1954
Grace Maguire, assistant clinical professor (part-time), M.D., Vermont, 1974
Richard J. Mier, associate professor, M.D., Chicago, 1973
Jacqueline A. Noonan, professor, M.D., Vermont, 1954
Thomas H. Pauly, assistant professor, M.D., Kentucky, 1974
John J. Piecoro,* associate professor, Pharm.D., Kentucky, 1978
Janice Porter, assistant clinical professor (part-time), M.D., Kentucky, 1981
Kathleen Rotondo, clinical instructor (part-time), M.D., Vermont, 1984
Albert C. Selke, Jr.,* professor, M.D., Pennsylvania, 1959
Jeralyn S. Smith,* assistant professor, M.D., Georgia, 1982
Michael W. Stelling, associate professor, M.D., Northwestern, 1971
H. Mac Vandiviere, professor, M.D., North Carolina, 1960
John W. Walsh,* associate professor, M.D., California, Los Angeles, 1966; Ph.D., California, Los Angeles, 1969
Linda Walters, associate professor, M.D., Indiana, 1962
H. David Wilson, professor, M.D., St. Louis, 1966
Betty I. Wolf, associate clinical professor (part-time), M.D., Chicago, 1965
Peter Wong, associate professor, M.D., Burma, 1968

*joint appointment

PHARMACOLOGY

William R. Martin, chairperson

John M. Carney, associate professor, Ph.D., Michigan, 1976
T. Z. Csaky, professor emeritus, M.D., Budapest, 1939
Louis Diamond,* professor, Ph.D., Maryland, 1967
Donald F. Diedrich, professor, Ph.D., Wisconsin, 1959
John A. Dougherty,* associate professor, Ph.D., Minnesota, 1973
James W. Flesher, professor, Ph.D., Loyola, 1958
Helmut A. Gordon, professor emeritus, M.D., University of Budapest, Hungary, 1932
Joseph Holtman, Jr., assistant professor, Ph.D., Indiana, 1982
Harris Isbell, professor emeritus, M.D., Tulane, 1934
Edgar T. Iwamoto, associate professor, Ph.D., California, San Francisco, 1973
William R. Martin, professor, M.D., Illinois, 1953
Laura F. McNicholas, instructor (part-time), Ph.D., Kentucky, 1980
Steven R. Myers, assistant research professor, Ph.D., Kentucky, 1986
Norman W. Pedigo, assistant professor, Ph.D., Virginia Commonwealth, 1977
Michael T. Piascik, associate professor, Ph.D., Ohio State, 1978
E. Douglas Rees,* professor emeritus, M.D., Yale, 1954
John Slevin,* assistant professor, M.D., West Virginia, 1975
Glen R. Van Loon,* professor, M.D., Toronto, 1965; Ph.D., California, San Francisco, 1970
Mary Vore, professor, Ph.D., Vanderbilt, 1972

*joint appointment

PHYSIOLOGY AND BIOPHYSICS

Donald T. Frazier, chairperson

Kirk W. Barron, assistant research professor, Ph.D., Texas, San Antonio, 1980
Barbara A. Birge, instructor (part-time), M.S., Kentucky, 1969
Louis L. Boyarsky, professor, Ph.D., Chicago, 1948
Nausherwan K. Burki,* professor, M.D., Punjab, 1962; Ph.D., Charing Cross, 1969
Eugene C. Crawford, Jr.,* professor, Ph.D., Duke, 1965
John W. Diana, professor, Ph.D., Louisville, 1965
Joseph Engelberg, professor, Ph.D., Pennsylvania, 1958
Bernard P. Fleming, associate research professor, Ph.D., Iowa, 1976
Donald T. Frazier, professor, Ph.D., Kentucky, 1964
Cheryl M. Heesch, assistant research professor, Ph.D., Texas, San Antonio, 1981
Henry R. Hirsch, professor, Ph.D., Massachusetts Institute of Technology, 1960
Pamela S. Hollingshead, instructor (part-time), Ph.D., Indiana, 1983
Brian A. Jackson, associate professor, Ph.D., Sheffield, England, 1977
James F. Lafferty,* professor, Ph.D., Michigan, 1967
Lu-Yuan Lee, associate professor, Ph.D., Mississippi, 1975
Sandra J. Legan, associate professor, Ph.D., Michigan, 1974
Cobern E. Ott, associate professor, Ph.D., Mississippi, 1971
Bertram Peretz, professor, Ph.D., Iowa, 1968
David C. Randall, professor, Ph.D., Washington, 1972
W. Robert Revelette, assistant research professor, Ph.D., Miami University, 1983
Daniel R. Richardson, professor, Ph.D., Indiana, 1969
Jesse E. Sisken,* professor, Ph.D., Columbia, 1957
Dexter F. Speck, assistant research professor, Ph.D., Loyola, 1981
Paul A. Thornton,* professor, Ph.D., Michigan State, 1956
Edward H. Timmons, associate professor, D.V.M., M.M.S., Georgia, 1963
David R. Wekstein, professor, Ph.D., Rochester, 1962
Fred W. Zechman, Jr., professor, Ph.D., Duke, 1956
James F. Zolman, professor, Ph.D., California, Berkeley, 1963

*joint appointment

PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

Arthur L. Frank, chairperson

Arthur L. Frank, professor, M.D., Mt. Sinai, 1972; Ph.D., City University of New York, 1977
Keith Provan,* associate professor, Ph.D., SUNY at Buffalo, 1978
Ronald D. Ross, assistant professor, Ph.D., California, Davis, 1974; M.D., Universidad Autonoma de Cd. Juarez, 1980
Lorann Stallones, assistant professor, M.P.H.,1975; Ph.D., 1982, University of Texas School of Public Health

Thomas Tucker,* instructor, M.P.H., Michigan, 1982
Sharon Wallace,* assistant professor, R.D., M.P.H., California, Berkeley, 1970; D.Sc., Harvard, 1982

*joint appointment

PSYCHIATRY

Robert F. Kraus, chairperson

Susan Abbott,* associate professor, Ph.D., North Carolina, 1974
Billie S. Ables, professor, Ph.D., Purdue, 1954
Robert G. Aug, professor, M.D., Cincinnati, 1955
Cornelia Bingcamp, assistant clinical professor (part-time), M.D., Far Eastern University, Manila, Philippines, 1964
Fernando Z. Bendfeldt, associate professor, M.D., Universidad de San Carlos, Guatemala, C.A., 1969
John M. Carney,* associate professor, Ph.D., Michigan, 1976
Lesley R. Dickson, assistant professor, M.D., Kentucky, 1982
John A. Dougherty, associate professor, Ph.D., Minnesota, 1973
Abe R. Fosson,* professor, M.D., Vanderbilt, 1964
Stanley Hammons, clinical professor (part-time), M.D., Louisville, 1960
Lon R. Hays, assistant professor, M.D., Kentucky, 1982
William Heffron, assistant professor, M.D., Kentucky, 1972
Laurie L. Humphries, associate professor, M.D., Emory, 1973
Mark C. Hyatt, assistant professor, M.D., Mayo, 1981
H. Otto Kaak, associate professor, M.D., Michigan, 1964
Robert F. Kraus, professor, M.D., Wisconsin, 1955
Karley Y. Little, assistant professor, M.D., Georgia, 1980
Arnold M. Ludwig, professor, M.D., Pennsylvania, 1958
Catherine A. Martin, associate professor, M.D., Kentucky, 1976
Walter L. Martin, assistant clinical professor (part-time), M.D., Kentucky, 1982
Edward N. Maxwell, Jr., associate professor, M.D., Kentucky, 1971
Thomas H. Miller, professor, Ph.D., New York, 1971
Daniel D. Nahum, associate professor, M.D., Hacettepe, Ankara, Turkey, 1970
John R. Neill, associate professor, M.D., Maryland, 1973
James C. Norton, associate professor, Ph.D., Arizona, 1970
John D. Ranseen, assistant professor, Ph.D., Ohio University, 1982
Myron G. Sandifer, professor emeritus, M.D., Harvard, 1947
Verner Stillner, professor, M.D., Wayne State, 1963
Edward M. Stodola, assistant professor, Ph.D., Kentucky, 1986
Hugh A. Storrow, professor, M.D., Southern California, 1950
Lane J. Veltkamp, Jr., professor, M.S.W., Michigan State, 1964
Richard J. Welsh, professor, M.S.W., Iowa, 1966
Cornelia B. Wilbur, professor emeritus, M.D., Michigan, 1939

*joint appointment

RADIATION MEDICINE

Yosh Maruyama, chairperson

Barry M. Berner, assistant professor, Ph.D., Purdue, 1986
John Calkins, professor, Ph.D., Texas, 1963
Ralph Christensen,* assistant clinical professor, Ph.D., California-Berkeley, 1971
Charles Coffey, associate professor, Ph.D., Purdue, 1975
George A. Digenis,* associate professor, Ph.D., Wisconsin, 1964
Peggy A. Domstad, associate professor, M.D., Baylor, 1964
Kevin J. Donohoe, assistant professor, M.D., Arizona, 1982
Jose M. Feola, associate research professor, Ph.D., Minnesota, 1974
De-Yan Hou, assistant research professor, M.D., Peking, China, 1958
Yosh Maruyama, professor, M.D., California-San Francisco, 1955
Pushpa M. Patel, assistant professor, M.D., Bombay University, India, 1974
U. Yun Ryo, professor, M.D., School of Medicine, Kyungpook National University, Daegu, Korea, 1962; Ph.D., Kyungpook National University, Korea, 1966
Joseph A. Sayeg, associate professor, Ph.D., California-Berkeley, 1954
Wei-Jen Shih, associate professor, M.D., Taiwan, 1963
Guy Simmons, associate professor, Ph.D., Cincinnati, 1972
Leonard Wilson, assistant professor, B.S., Eastern Kentucky, 1958
Robert J. Yaes, assistant professor, Sc.D., M.I.T., 1967; M.D., Newfoundland, Canada, 1980
Justine Yoneda, associate professor, M.D., SUNY-Downstate, 1975

*joint appointment

REHABILITATION MEDICINE

David L. Cowen, chairperson

Robert Baumann,* associate professor, M.D., Case Western Reserve, 1965
David L. Cowen, professor, M.D., Colorado, 1959
Virginia E. Garrett, assistant professor, M.D., Cincinnati, 1980
David L. Jackson, assistant professior, M.D., Georgia, 1984
Gerald V. Klim, assistant professor, D.O., Philadelphia, 1980
Noble T. MacFarlane, associate clinical professor (part-time), M.D., Virginia, 1953
Sharon M. Sedarat, assistant professor, M.D., Texas, San Antonio, 1984
Michael L. Spady, assistant professor, M.D., Pennsylvania, 1982
David L. Stevens,* professor, M.D., Northwestern, 1955
Sheng Tchou, assistant professor, M.D., Shanghai First Medicine College, Shanghai, China, 1970
Faren Williams, assistant professor, M.D., Wright State, 1983

*joint appointment

SURGERY

A. Byron Young, chairperson

Robert S. Baker,* associate professor, M.D., McMaster, 1975
Donald E. Barker, assistant professor, M.D., Tennessee, 1975
Thomas D. Brower, professor, M.D., Washington University, St. Louis, 1947
Ronald C. Burgess, assistant professor, M.D., Wayne State, 1978
David J. Combs, assistant research professor, Ph.D., Michigan, 1985
Phillip F. Corbett, assistant professor, M.D., Albany, 1968
Robert J. Dempsey, associate professor, M.D., Chicago, 1977
Marcus L. Dillon, professor, M.D., Duke, 1947
Gary F. Earle, associate professor, M.D., Kentucky, 1974
Joseph G. Fine, instructor, M.D., Michigan, 1982
James F. Glenn, clinical professor (part-time), M.D., Duke, 1952
Dennis G. Haack, associate clinical professor (part-time), Ph.D., Iowa, 1971
Patrick F. Hagihara, professor, M.D., Albany, 1960
Gordon L. Hyde, professor, M.D., Michigan, 1957
Robert C. Jaggers, assistant professor, M.D., Texas, 1979
Steve Johnson, assistant professor, M.D., Virginia, 1982
Daniel E. Kenady, associate professor, M.D., Georgetown, 1972
Jeffrey W. Lewis, associate professor, M.D., Nebraska, 1973
Bruce A. Lucas, associate professor, M.D., Duke, 1965
Edward A. Luce, professor, M.D., Kentucky, 1965
J. William McRoberts, professor, M.D., Cornell, 1959
Paul J. Nicholls, associate professor, M.D., Georgia, 1971
Linda G. Ott, assistant research professor, M.S., Kentucky, 1982
Michael T. Ott, instructor, M.D., Kentucky, 1979
Roy A. Patchell, assistant professor, M.D., Kentucky, 1979
Renee M. Phillips, assistant research professor, M.S., Kentucky, 1977
Andrew R. Pulito, associate professor, M.D., Columbia, 1969
Sufan Qian, assistant research professor, M.D., Shanghai First Medicine College, Shanghai, China, 1962
Madhira D. Ram, professor, M.D., Andhra University, 1957; Ph.D., Case Western Reserve, 1975
Robert P. Rapp,* associate professor, Pharm.D., Kentucky, 1970
James Michael Ray, assistant professor, M.D., Louisiana State, 1979
Richard C. Sadove, assistant professor, M.D., Rush, 1978
Richard W. Schwartz, assistant professor, M.D., Virginia, 1979
Donald E. Slagel, associate professor, Ph.D., Wisconsin, 1961
David B. Stevens, professor, M.D., Northwestern, 1955
William E. Strodel, professor, M.D., Michigan, 1973

Phillip Tibbs, associate professor, M.D., Kentucky, 1973
Keith D. VandenBrink, assistant professor, M.D., Iowa, 1961
H. Mac Vandiviere,* professor, M.D., Michigan, 1946
Henry C. Vasconez, assistant professor, M.D., Central University Medical School, Quito, Ecuador, 1978
John W. Walsh, associate professor, M.D., California-Los Angeles, 1966; Ph.D., California-Los Angeles, 1969
A. Byron Young, professor, M.D., Kentucky, 1965
Stephen G. Zimmer,* associate professor, Ph.D., Colorado, 1973

*joint appointment

COLLEGE OF NURSING

Carolyn A. Williams, dean

Margaret Antenucci, instructor, M.S.N., Kentucky, 1987
Ruth Assell, associate professor, M.S., Colorado, 1966
Janis Bellack, associate professor, M.N., Florida, 1971
Ruth D. Berry, assistant professor, M.S.N., Wayne State, 1964
Kathleen Blomquist, assistant professor, Ph.D., Kentucky, 1985
Dorothy Brockopp, associate professor, Ph.D., SUNY at Buffalo, 1981
Sandra G. Brown, instructor, M.S.N., Alabama, Birmingham, 1978
Norma J. Christman, associate professor, Ph.D., Wayne State, 1980
Mary B. Cooper, instructor, M.S.N., North Carolina, 1985
Ruth Davis, instructor, M.S.N., Indiana, 1972
Juanita Fleming, professor, Ph.D., Catholic University, 1969
Carolyn Fore, associate professor, M.S.N., Kentucky, 1979
Elizabeth Gale, assistant professor, D.N.S., Indiana, 1983
Beatrice Gaunder, associate professor, M.S.N., New York at Buffalo, 1973
Evelyn Geller, associate professor, M.S.N., Catholic University, 1963; M.Ed., Columbia, 1972
Margaret R. Grier, professor, Ph.D., Texas Woman's University, 1975
Lynne A. Hall, assistant professor, Dr.P.H., North Carolina, 1983
Kathleen Heaphy, assistant professor, M.S.N., Kentucky, 1979
Melva Jo Hendrix, professor, D.N.Sc., Boston, 1971
Beth Hicks, associate professor, M.S., Maryland, 1961
Margaret Hunt, assistant professor, M.S., Maryland, 1980
Delwin Jacoby, instructor, M.S.N., Kentucky, 1984
Paula Kral, instructor, M.S.N., Kentucky, 1986
Gretchen LaGodna, associate professor, Ph.D., Kentucky, 1975
Gwendolen Lee, associate professor, Ed.D., Tennessee, Memphis, 1973
Shirley Lewis, associate professor, M.S.N., Kentucky, 1976
Peggy Littrell, instructor, M.S.N., Kentucky, 1986
Dorothy Luther, associate professor, Ph.D., Texas, Austin, 1986
Terry McCarty, assistant professor, M.P.H., Michigan, 1974
Patricia Miller, assistant professor, M.S.N., Kentucky, 1978
Therese Moseley, instructor, M.S.N., Kentucky, 1984
Marilyn Musacchio, associate professor, M.S.N., Kentucky, 1972
Ann Peden, instructor, M.S.N., Kentucky, 1978
Mary Alice Pratt, associate professor, M.Ed., Columbia, 1970
Elizabeth Presler, assistant professor, Ph.D., Kentucky, 1984
Carol Riker, associate professor, M.S.N., Kentucky, 1974
Kay Robinson, associate professor, M.S.N., Kentucky, 1975
Barbara Sachs, associate professor, Ph.D., Wayne State, 1981
Kathryn Sallee, associate professor, M.N., Emory, 1971
Linda Salyer, assistant professor, M.S.N., Kentucky, 1973
Julie Sebastian, associate professor, M.S.N., Kentucky, 1977
Sharon L. Sheahan, associate professor, M.S.N., Kentucky, 1974
Nancy P. Sisler, associate professor, M.S.N., Kentucky, 1976
Marcia K. Stanhope, associate professor, D.Sc.N., Alabama-Birmingham, 1981
Betty Storat, instructor, M.S.N., Kentucky, 1982
Barbara Teague, instructor, M.S.N., Kentucky, 1980
Mary K. Walker, associate professor, Ph.D., Illinois, 1980
Sherry Warden, associate professor, M.S.N., Kentucky, 1977
Jo Ann Wever, associate professor, M.S.N., Kentucky, 1976
Carolyn A. Williams, professor, Ph.D., North Carolina, 1969
Louise Zegeer, professor, M.S.N., Case Western Reserve, 1959

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Ann Amerson, professor, Pharm.D., Kentucky, 1971
James T. Arnold,* instructor, B.S., Kentucky, 1958
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Robert A. Blouin,** associate professor, Pharm.D., Kentucky, 1978
Ralph E. Bouvette, assistant professor, Ph.D., Kentucky, 1986
James B. Brown,* instructor, Pharm.D., Mercer, 1980
Peter R. Byron, assistant professor, Ph.D., United Kingdom, 1973
Lisa A. Cassis, assistant professor, Ph.D., West Virginia, 1984
Mary H. Chandler, assistant professor, Pharm.D., Kentucky, 1985
Thomas R. Clarkson,* instructor, B.S., Kentucky, 1950
G. Dennis Clifton, assistant professor, Pharm.D., Kentucky, 1984
Ronald David Cobb, associate professor, Pharm.D., Kentucky, 1973
Jordan L. Cohen, professor, Ph.D., Wisconsin, 1969
Henry Cole,** professor, Ed.D., New York-Buffalo, 1968
Stephen J. Coons, assistant professor, Ph.D., Arizona, 1986
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Ted A. Cummings,* instructor, B.S., Kentucky, 1977
Melinda Cummins,* instructor, Pharm.D., Kentucky, 1983
Patrick P. DeLuca, professor, Ph.D., Temple, 1962
George A. Digenis,** professor, Ph.D., Wisconsin, 1964
Lewis W. Dittert, professor, Ph.D., Wisconsin, 1961
Richard M. Doughty, associate professor emeritus, M.S., Pittsburgh, 1953
Jane Dunbar,* instructor, B.S., Kentucky, 1978
Linda P. Dwoskin, assistant professor, Ph.D., Minnesota, 1983
Joseph Fink III,** professor, J.D., Georgetown, 1973
Thomas S. Foster,** professor, Pharm.D., Kentucky, 1973
Richard A. Galardy,** associate professor, Ph.D., New York, 1973
Mark N. Gillespie, associate professor, Ph.D., Kentucky, 1981
Tracey Goldsmith, assistant professor, Pharm.D., Kentucky, 1982
Robert B. Griffith, professor emeritus, Ph.D., California, Berkeley, 1953
Boyd E. Haley, professor, Ph.D., Washington State, 1971
Howard Hopkins, professor emeritus, Ph.D., Nebraska, 1959
Tom Houchens,* instructor, B.S., Samford, 1972
Anwar Hussain, professor, Ph.D., Wisconsin, 1965
Clifford E. Hynniman, associate professor, M.S., Maryland, 1967
Michael Jay, assistant professor, Ph.D., Kentucky, 1980
Pankaja Kadaba,* associate research professor, Ph.D., India, 1954
Edward Kifer,** associate professor, Ph.D., Illinois, 1973
Martha King,* instructor, Pharm.D., Kentucky, 1985
Milton J. Kornet, associate professor, Ph.D., Illinois, 1962
Harry B. Kostenbauder, professor, Ph.D., Wisconsin, 1956
Robert J. Kuhn, assistant professor, Pharm.D., Texas at Austin, 1984
Yih-Loong Lai, associate research professor, Ph.D., Kansas, 1972
Charles T. Lesshafft, Jr., professor emeritus, Ph.D., Purdue, 1955
William C. Lubawy,** professor, Ph.D., Ohio State, 1972
Mark M. Luckens, associate professor emeritus, Ph.D., Connecticut, 1963
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Ricky C. Pahl,* assistant professor, Pharm.D., Kentucky, 1973
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Paul F. Parker, professor emeritus, M.S., Michigan, 1951
Michael Parr, assistant professor, Pharm.D., Kentucky, 1982
K. Ann Patterson, assistant adjunct professor, Pharm.D., Kentucky, 1971
Mary W. Piascik, assistant professor, Ph.D., Ohio State, 1978
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Joseph V. Swintosky, professor, Ph.D., Wisconsin, 1948
Hsin-Hsiung Tai, professor, Ph.D., Wisconsin, 1970
Herbert N. Terry,* assistant professor, B.S., Ohio, 1951

John M. Tiggelaar,* assistant professor, Pharm.D., Kentucky, 1980
Dean Warden,* assistant professor, Ph.D., Kentucky, 1981
Peter J. Wedlund, assistant professor, Ph.D., Washington, 1981
Robert A. Yokel, assistant professor, Ph.D., Minnesota, 1973

*part-time
**joint appointment

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Joanne I. Bell, associate professor, M.S.W., Pennsylvania, 1954
Richard K. Brautigam, associate professor, Ph.D., Wisconsin, 1971
Lauretta F. Byars, associate professor, Ed.D., Kentucky, 1982
Lucky Jones Collins,* assistant professor, M.S.W., Virginia, 1972
Ronda S. Connaway, professor, D.S.W., Washington University, 1964
Hugh F. Daly, Jr.,* assistant professor, M.S.S.W., Boston, 1950
Anna Grace Day,* associate professor, M.S.W., Kentucky, 1974
Surjit Singh Dhooper, assistant professor, Ph.D., Case Western Reserve, 1982
Rebecca M. Epperson,* assistant professor, M.S.W., Kentucky, 1975
Anne B. Erwin,* assistant professor, M.S.W., Kentucky, 1973; J.D., Chase School of Law, 1981
Martha E. Gentry, associate professor, Ph.D., Washington, 1974
Patricia E. Griffin,* adjunct assistant professor, Ph.D., Kentucky, 1985
S. Zafar Hasan, professor, D.S.W., Columbia, 1958
Chester A. Holmquist, associate professor, M.S., Ohio State, 1947
Paul F. Isaacs,* assistant professor, J.D., Kentucky, 1969
Lenora Isenhour,* assistant professor, M.S.W., Kentucky, 1978
John F. Kilner,* adjunct associate professor, Ph.D., Harvard, 1983
Kris W. Kimel,* assistant professor, M.S.W., Kentucky, 1975
Elizabeth A. Kirlin, professor emeritus, Ed.D., Kentucky, 1974
Robert L. Krause, adjunct assistant professor, M.S.W., Maryland, 1970
Patrick Lampton,* assistant professor, M.S.S.W., Louisville, 1968
John W. Landon, professor, Ph.D., Ball State, 1972
Dorothy A. Miller, professor emeritus, M.S.S.W., Minnesota, 1947
Maryrhea M. Morelock, associate professor, M.S.S.W., Louisville, 1964
Bennie C. Robinson, assistant professor, M.S.W., Indiana, 1969
Beth Rompf,* assistant professor, M.S.W., Kentucky, 1977
David D. Royce, assistant professor, Ph.D., Ohio State, 1980
Nathan R. Sullivan, associate professor, M.S.W., Kentucky, 1972
Gerald J. Talsky,* assistant professor, M.A., Chicago, 1970
Thanh Van Tran, assistant professor, Ph.D., Texas-Arlington, 1985
Ivan R. Weir,* assistant professor, M.S.W., Kentucky, 1977
Myra B. Weir,* assistant professor, M.S.W., Kentucky, 1983
David R. Wekstein,* professor, Ph.D., Rochester, 1962
Kennard W. Wellons, associate professor, D.S.W., California-Berkeley, 1973
Ronald F. White,* assistant professor, Ph.D., Kentucky, 1984
Vernon R. Wiehe, professor, Ph.D., Washington University, 1972
Constance P. Wilson, professor, M.S.S.S., Boston, 1950
Barbara L. Worful, adjunct assistant professor, M.S.S.W., Louisville, 1963

*part-time

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Wimberly C. Royster, dean

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Michael Baer,* professor, Ph.D., Oregon, 1968
Philip K. Berger,* professor, Ph.D., Texas Christian, 1969
William D. Berry,* associate professor, Ph.D., Minnesota, 1979
Glenn C. Blomquist,* associate professor, Ph.D., Chicago, 1977
Richard W. Furst,* professor, D.B.A., Washington, 1968
Merlin M. Hackbart,* professor, Ph.D., Kansas State, 1968
Donald L. Hochstrasser,* professor, Ph.D., Oregon, 1963
James Leigland,* assistant professor, Ph.D., Columbia, 1981
William E. Lyons,* professor, Ph.D., Pennsylvania State, 1965
Keith G. Provan,* associate professor, Ph.D., State University of New York, 1978
Robert C. Rodgers,* associate professor, Ph.D., Michigan State, 1981
Phillip W. Roeder,* associate professor, Ph.D., Florida State, 1973
William J. Stober,* professor, Ph.D., Duke, 1965
Eugenia F. Toma,* associate professor, Ph.D., Virginia Polytechnic Institute, 1977
Bruce A. Williams,* associate professor, Ph.D., Minnesota, 1980

*joint appointment

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Gerald A. Rosenthal, director

Wesley J. Birge, professor, Ph.D., Oregon State, 1955
Jeffrey A. Black, assistant professor, Ph.D., Michigan, 1974
Jerry W. Blake, professor, Ph.D., Ohio State, 1968
Robert Blouin, associate professor, Ph.D., Kentucky, 1978
Gil Boissonneault, assistant professor, Ph.D., Illinois, 1982
Raymond B. Bridges, professor, Ph.D., Vanderbilt, 1969
Geza G. Bruckner, associate professor, Ph.D., Kentucky, 1979
S.K. Chan, professor, Ph.D., Wisconsin, 1962
Ching K. Chow, professor, Ph.D., Illinois, 1959
Donald Cohen, assistant professor, Ph.D., Cincinnati, 1979
Peter A. Crooks, professor, Ph.D., University of Manchester, England, 1970
Douglas Dahlman, professor, Ph.D., Iowa State, 1965
Donald F. Diedrich, professor, Ph.D., Wisconsin, 1959
George Digenis, professor, Ph.D., Wisconsin, 1964
Daniel R. Dolan, adjunct assistant professor, J.D., Kentucky
John A. Dougherty, associate professor, Ph.D., Minnesota, 1973
Harry G. Enoch, adjunct assistant professor, Ph.D., Kentucky, 1975
James W. Flesher, professor, Ph.D., Loyola, 1958
Arthur Frank, professor, Ph.D., City University of New York, 1977
Gary Gairola, adjunct associate professor, Ph.D., Illinois, 1969
Vincent S. Gallicchio, associate professor, Ph.D., New York University, 1976
Mark Gillespie, associate professor, Ph.D., Kentucky, 1981
Howard P. Glauert, assistant professor, Ph.D., Michigan State, 1982
Scott R. Hamann, adjunct assistant professor, Ph.D., Kentucky, 1984
Bernhard Hennig, assistant professor, Ph.D., Iowa, 1982
Joseph R. Holtman, Jr., assistant professor, Ph.D., Indiana, 1982
Edgar T. Iwamoto, associate professor, Ph.D., California, 1973
Phillip Jones, assistant professor, Ph.D., California, 1982
Alan M. Kaplan, professor, Ph.D., Purdue, 1969
Edward J. Kasarskis, Jr., associate professor, Ph.D., Wisconsin, 1974
Yih-Loong Lai, associate research professor, Ph.D., Kansas, 1972
Lowell J. Lawrence, adjunct assistant professor, Ph.D., California, 1983
William C. Lubawy, professor, Ph.D., Ohio State, 1972
Craig McClain, professor, M.D., Tennessee, 1972
Patrick McNamara, associate professor, New York State at Buffalo, 1979
Peter R. Oeltgen, associate professor, Ph.D., Loyola, 1973
Larry W. Robertson, associate professor, Michigan, 1981
George C. Rodgers, adjunct associate professor, Ph.D., Yale, 1964; M.D., SUNY-Syracuse, 1975
Gerald Rosenthal, professor, Ph.D., Duke, 1966
Steven Shedlofsky, associate professor, M.D., Michigan, 1974
Malcolm Siegel, professor, Ph.D., Maryland, 1962
John Slevin, associate professor, Ph.D., Maryland, 1962
Thomas Tobin, professor, D.V.M., Dublin, 1964; Ph.D., Toronto, 1969
Thomas Vanaman, professor, Ph.D., North Carolina, 1968
Mary Vore, professor, Ph.D., Vanderbilt, 1972
Peter Wedlund, assistant professor, Ph.D., Washington, 1981
Robert A. Yokel, associate professor, Ph.D., Minnesota, 1973

PATTERSON SCHOOL OF DIPLOMACY AND INTERNATIONAL COMMERCE

Vincent Davis, director

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Kurt Ramon Anschel, Department of Agricultural Economics
Albert S. Bacdayan, Department of Anthropology
Raymond F. Betts, Department of History
Wilford A. Bladen, Department of Geography
Michael Carpenter, Department of Finance
Billie DeWalt, Department of Anthropology
George H. Gadbois, Department of Political Science
Curtis E. Harvey, Department of Economics
George C. Herring, Department of History
Thomas Leinbach, Department of Geography
Chung-in Moon, Department of Political Science
Gerard E. Silberstein, Department of History
Wimberly Royster, The Graduate School

HONORS PROGRAM

Raymond F. Betts, director

James C. Albisetti, associate professor, Ph.D., Yale, 1976
Raymond F. Betts, professor, Ph.D., Columbia, 1958; D.d'U., Grenoble, France, 1955
James E. Force, associate professor, Ph.D., Washington University, 1977
John L. Greenway, associate professor, Ph.D., Wisconsin, 1969
Anna P. Kremer, assistant professor, Ph.D., Kentucky, 1973
David M. Olster, assistant professor, Ph.D., Chicago, 1985
Jane G. Vance, associate professor, Ph.D., North Carolina, 1975

UNIVERSITY OF KENTUCKY LIBRARIES

Paul A. Willis, director

James Birchfield, librarian II, M.A., Florida, 1969; Ph.D., Florida, 1976; M.S.L.S., Florida, 1977
Terry Birdwhistell, librarian I, M.A., Kentucky, 1974; M.A.L.S., Kentucky, 1978
Katherine J. Black, librarian IV, M.S.L.S., Kentucky, 1978
John Bryant, librarian I, M.S.L.S., Kentucky, 1965
Teresa Burgett, librarian III, M.S.L.S., Kentucky, 1978
Anne Campbell, librarian II, M.L.S., Kentucky, 1970; M.A., Kentucky, 1982
Cindy D. Cline, librarian IV, M.S.L.S., Ohio, 1987
William Cooper, Jr., librarian II, M.A.T., Indiana, 1957
Bonnie J. Cox, librarian IV, M.A., Kentucky, 1969; M.S.L.S., Kentucky, 1986
Charles Czarski, librarian IV, M.A., Maryland, 1975; Ph.D., Kentucky, 1983; M.L.S., Maryland, 1985
Norma Jean Gibson, librarian II, B.A., Kentucky, 1954
Joanne Goode, librarian III, M.L.S., Kentucky, 1985
Bradley Grissom, librarian II, M.S.L.S., Kentucky, 1976
Barbara Hale, librarian III, M.S., Kentucky, 1982
William James, librarian I, J.D., Howard, 1972; M.S.L.S., Atlanta, 1973
Cheryl Jones, librarian I, M.S.L.S., Kentucky, 1971
Roxanna Jones, librarian III, M.S.L.S., Kentucky, 1978
Tari Keller, librarian I, M.Ed., Miami, 1975; M.L.S., Indiana, 1977
Gail Kennedy, librarian I, M.S.L.S., Kentucky, 1974
Michael Lach, Jr., librarian I, M.S.L.S., Simmons, 1973
Michael Markiw, librarian II, M.L.S., Western Ontario, 1976
William Marshall, Jr., librarian I, M.A., Kent, 1972; M.L.S., Kent, 1973
Katherine Martin, librarian IV, M.L.S., Indiana, 1985
Sandra McAninch, librarian II, M.S.L.S., North Carolina, 1973
Claire McCann, librarian I, M.S.L.S., Kentucky, 1963
Agnes McDowell, librarian II, M.S.L.S., Kentucky, 1959
Mary McLaren, librarian III, M.L.S., Pittsburgh, 1969
Lillian Mesner, librarian II, M.L.S., Maryland, 1970
Mildred Moore, librarian II, B.S.L.S., Peabody, 1947
Antoinette Powell, librarian I, M.A.L.S., Kentucky, 1973
Patricia Powell, librarian III, M.S.L.S., North Carolina-Chapel Hill, 1976
Russell Powell, librarian II, M.L.S., Pittsburgh, 1966
Adil Razeeq, librarian III, M.S.L.S., Case-Western Reserve, 1976
Judy Sackett, librarian II, M.S.L.S., Denver, 1969
Katherine Seago, librarian IV, M.A., Kentucky, 1985
Ebba Sexton, librarian II, M.S.L.S., Kentucky, 1978
Margaret Shaw, librarian III, M.L.S., Kentucky, 1979
Phil Stoffer, librarian IV, M.A., Colorado, 1984
Gary Stottlemyer, librarian IV, M.S.L.S., Kentucky, 1987
Paul Thompson, librarian III, M.A., Michigan, 1958; M.A.L.S., Michigan, 1964
Jeanne Trimble, librarian IV, M.S.L.S., Kentucky, 1986
Mary Vass, librarian IV, M.A., Virginia Polytechnic Institute, 1979; M.S.L.S., North Carolina-Chapel Hill, 1984
Terry Warth, librarian III, B.A., Kentucky, 1944
Geraldine Webb, librarian II, M.S.L.S., Kentucky, 1976
Mary Welch, librarian I, M.S.L.S., Kentucky, 1970
Paul Willis, librarian I, M.L.S., Maryland, 1966; J.D., Kentucky, 1969
Judith Wiza, librarian II, M.S.L.S., Wisconsin-Madison, 1977; M.A., Wisconsin-Madison, 1978

MEDICAL CENTER LIBRARY

Omer Hamlin, Jr., director

Stephanie Allen, librarian II, M.S.L.S., Kentucky, 1975
Bernadette Baldini, librarian I, M.S.L.S., Kentucky, 1974
Karl-heinz Boewe, librarian I, Ph.D., Rice, 1969; M.A., Missouri, 1974
Lynne Bowman, librarian II, M.S.L.S., Kentucky, 1978
Omer Hamlin, Jr., librarian I, M.S.L.S., Kentucky, 1960
Beverly Hilton, librarian II, M.S.L.S., Maryland, 1975
Mark Ingram, librarian IV, M.S.L.S., Kentucky, 1979
Janet Stith, librarian I, M.S.L.S., Kentucky, 1971
Edwinal Theirl, librarian IV, M.S.L.S., Kentucky, 1985

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Randall W. Dahl, University Registrar
Director of Admissions (to be announced)
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David H. Stockham, Director of Student Financial Aid
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Frank S. Cascio, Director of University Health Service

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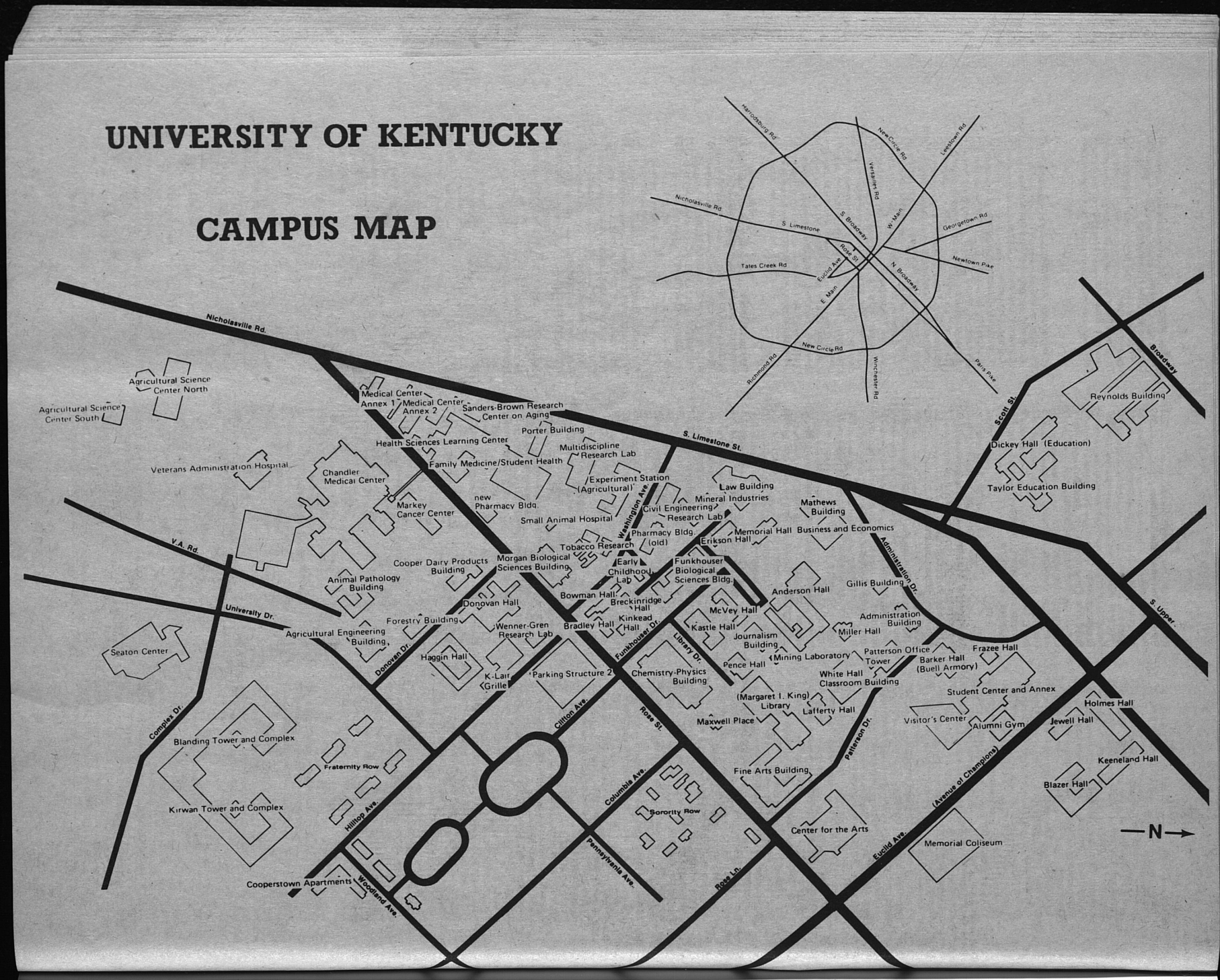
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