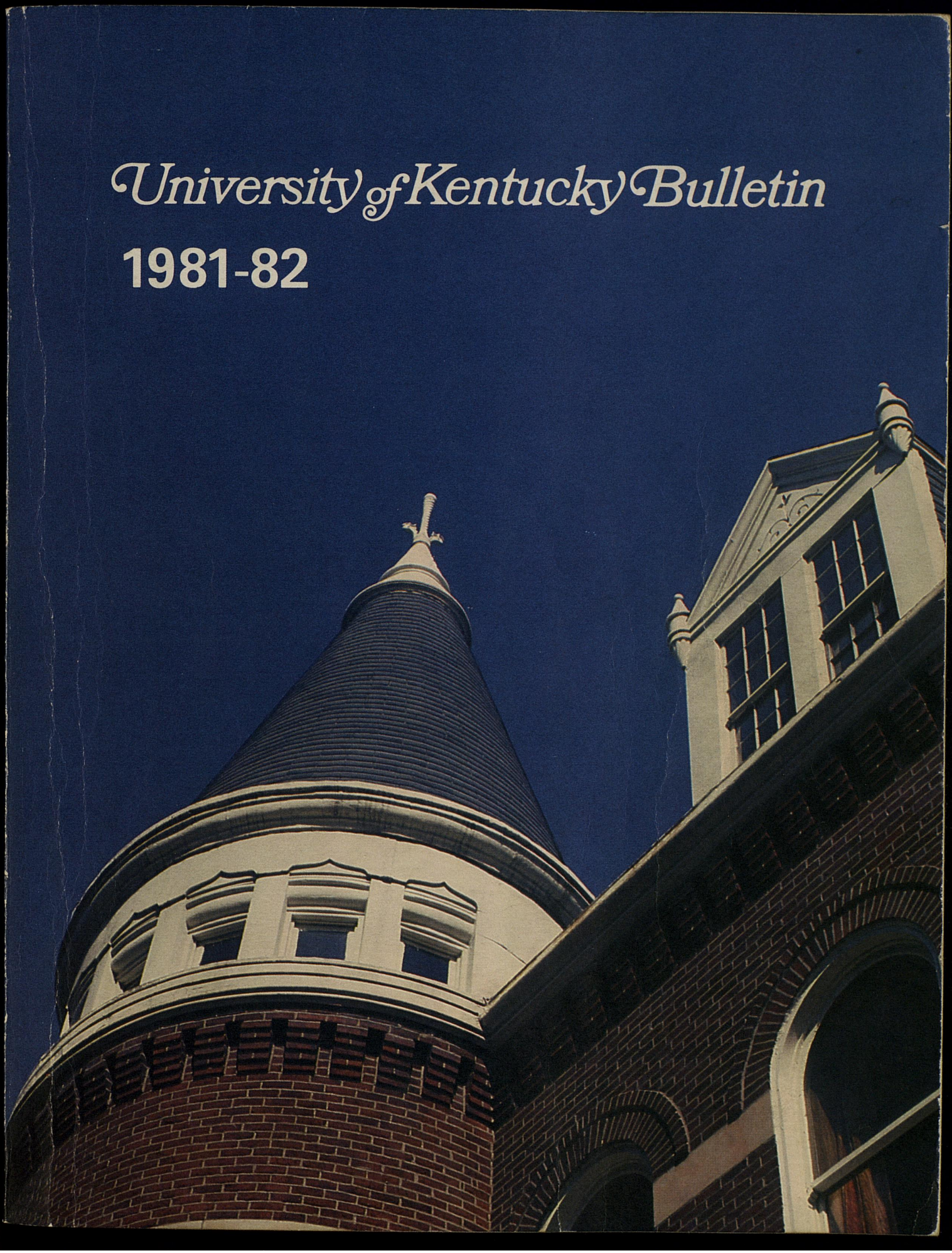
University of Kentucky Bulletin

1981-82



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1981-82

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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 and public libraries in the Commonwealth of Kentucky.

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

OTHER INFORMATION

Specific information about different parts of the University's program may be obtained by directing inquiries to members of the administrative staff. The post office address is: University of Kentucky, Lexington, Kentucky 40506. Tel: (606) 258-9000.

General information, admissions, transcripts of credits—
Dean of Admissions and Registrar
Student Affairs—Vice President for Student Affairs
Living Accommodations—
Housing—University Housing Office
Dining—University Food Services
A particular college and its program—
Dean of the College, Dean of Admissions
Community Colleges—Vice President for the Community College System
Graduate Work—Dean of The Graduate School
Student Financial Aid—Director of Student Financial Aid
General publications about the University—
Director of University Information Services
Placement Services—Director of Placement Services
Counseling and Testing Center—Director of Counseling and Testing
Extension, Evening and Correspondence Courses—
University Extension Office
Fort Knox Center, Fort Knox, Kentucky

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, 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, 202 Administration Building. Phone (606) 258-8927.

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, Department of Health, Education and Welfare, Washington, D.C.

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. It also insures that 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, 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. If you do not wish such information released without your consent you should notify the Registrar's Office prior to the first day of classes.

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.

1981 Fall Semester

June 1—Monday—Deadline for applying for admission or readmission for the 1981 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences

June 15—Monday—Earliest date to submit applications for regular and Early Decision Program admission, College of Medicine, for Fall 1982

July 24—Friday—Deadline for applying for admission or readmission to the Graduate School for the 1981 Fall Semester

August 1—Saturday—Deadline for applications for Early Decision Program, College of Medicine, for Fall 1982

August 24—Monday—Registration for new students who did not advance register

August 25—Tuesday—Centralized add-drop for Advance Registered Students

August 25—Tuesday—Last day a student may officially drop a course or cancel registration with the Registrar for a full refund of fees

August 26—Wednesday—Class work begins

August 26-September 1—Wednesday through Tuesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $20 late fee is assessed students who register late.

September 1—Tuesday—Last day to enter an organized class for the Fall Semester

September 1—Tuesday—Last day to officially withdraw from the University and receive an 80 percent refund

September 7—Monday—Labor Day—Academic Holiday

September 9—Wednesday—Last day for payment of registration fees in order to avoid cancellation of registration

September 9—Wednesday—Last day for new students to pick up ID cards from Photographic Services in order to avoid replacement fee

September 16—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)

September 16—Wednesday—Last day to drop a course without it appearing on the student's transcript

September 18—Friday—Last day for reinstatement of students cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee.

September 24—Thursday—Last day for filing an application for a December degree in College Dean's office

October 15—Thursday—Deadline for applying for admission or readmission for 1982 Spring Semester for all categories of undergraduate applicants wishing to be included in the November Advising Conferences for the Spring Semester

October 19—Monday—Last day to drop a course

October 19—Monday—Last day to withdraw from the University or reduce course schedule and receive any refund

October 26—Monday—Last day to pay thesis/dissertation fees for a December degree in Billings and Collections Office

November 5—Thursday—1982 Spring Semester Advising Conference for new freshmen

November 6—Friday—1982 Spring Semester Advising Conference for new advance standing (transfer) students, Community College transfer students, and readmission and nondegree students

November 9-18—Monday through Wednesday—Advance registration for 1982 Spring Semester

November 15—Sunday—Deadline for applications, College of Medicine, for Fall 1982

November 19—Thursday—Last day to schedule a final examination in The Graduate School for candidates for a December 1981 degree

November 26-28—Thursday through Saturday—Thanksgiving Holidays—Academic Holidays

December 1—Tuesday—Deadline for submission of application and receipt of all materials for admission, readmission or transfer to the College of Law for Spring Semester 1982

December 3—Thursday—Last day to sit for a final examination for candidates for a December 1981 graduate degree

December 11—Friday—Deadline for applying for admission or readmission to the Graduate School for the 1982 Spring Semester

December 11—Friday—End of class work

December 14-18—Monday through Friday—Final Examinations

December 18—Friday—Last day to submit a thesis/dissertation to the Graduate School for candidates for a December 1981 degree

December 18—Friday—End of Fall Semester

December 21—Monday—Final deadline for submission of grades to the Registrar's Office by 4 p.m.

1982 Spring Semester

January 11—Monday—Registration for new students who did not advance register

January 12—Tuesday—Centralized add-drop for Advance Registered Students

January 12—Tuesday—Last day a student may officially drop a course or cancel registration with the Registrar for a full refund of fees

January 13—Wednesday—Class work begins

January 13-19—Wednesday through Tuesday—Late registration for returning students who did not advance register

and new applicants cleared late for admission. A $20 late fee is assessed students who register late.

January 19—Tuesday—Last day to enter an organized class for Spring Semester

January 19—Tuesday—Last day to officially withdraw from the University and receive an 80 percent refund

January 26—Tuesday—Last day for new students to pick up ID cards from Photographic Services in order to avoid replacement fee

January 26—Tuesday—Last day for payment of registration fees in order to avoid cancellation of registration

February 1—Monday—Deadline for submitting application for admission to College of Dentistry for Fall 1982

February 2—Tuesday—Last day to drop a course without it appearing on the student's transcript

February 2—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)

February 4—Thursday—Last day for reinstatement of students cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee.

February 11—Thursday—Last day for filing an application for a May degree in College Dean's office

February 15—Monday—Last day for submission of application for admission to the College of Law for Fall Semester 1982

March 4—Thursday—Last day to drop a course

March 4—Thursday—Last day to withdraw from the University or reduce course schedule and receive any refund

March 15—Monday—Last day to pay thesis/dissertation fees for a May degree in Billings and Collections office

March 15-20—Monday through Saturday—Spring Vacation—Academic Holidays

March 31—Wednesday—Last day for receipt of all supporting credentials for Fall Semester 1982, College of Law

April 1—Thursday—Deadline for applying for admission or readmission for any 1982 summer term for all categories of undergraduate applicants wishing to be included in the April Advising Conferences for the Summer Sessions

April 8—Thursday—1982 Summer Session Advising Conference for new freshmen, advanced standing (transfer) students, readmission, and nondegree students

April 8—Thursday—Last day to schedule a final examination in The Graduate School for candidates for May 1982 degree

April 9—Friday—1982 Summer Session Advising Conference for Community College transfer students and Community College applicants cleared for the 1982 Fall Semester

April 10—Saturday—Last day to apply to Graduate Admissions Office for admission and readmission for all 1982 Summer Sessions

April 12-21—Monday through Wednesday—Advance registration for 1982 Fall Semester and both Summer Sessions

April 22—Thursday—Last day to sit for a final examination for candidates for a May 1982 graduate degree

April 29—Thursday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission to all 1982 Summer Sessions

April 30—Friday—Last day to submit dissertation to The Graduate School for doctoral candidates who wish to receive a diploma at Commencement

April 30—Friday—End of class work

May 3-7—Monday through Friday—Final Examinations

May 7—Friday—Last day to submit thesis/dissertation to The Graduate School for candidates for a May 1982 degree

May 7—Friday—End of 1982 Spring Semester

May 8—Saturday—Commencement Day

May 10-August 21—College of Pharmacy 15-Week Summer Term

May 10—Monday—Final deadline for submission of grades to the Registrar's Office by 4 p.m.

June 1—Tuesday—Deadline for applying for admission or readmission for 1982 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences

July 23—Friday—Last day to apply to the Graduate Admissions Office for admission and readmission to the 1982 Fall Semester

1982 Four-Week Intersession

April 1—Thursday—Deadline for applying for admission or readmission for any 1982 summer term for all categories of undergraduate applicants wishing to be included in the April Advising Conferences for the Summer Sessions

April 10—Saturday—Last day to apply to the Graduate Admissions Office for admission and readmission to all 1982 Summer Sessions

April 29—Thursday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission to all 1982 Summer Sessions

May 10—Monday—Beginning of College of Pharmacy 15-Week Summer Term

May 10—Monday—Registration for new students who did not advance register

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

May 11—Tuesday—Class work begins

May 11-14—Tuesday through Friday—Late registation for returning students who did not advance register and new applicants cleared late for admission. A $20 late fee is assessed students who register late.

May 14—Friday—Last day to enter an organized class for the Four-Week Intersession

May 14—Friday—Last day to officially withdraw from the University and receive an 80 percent refund

May 17—Monday—Last day to drop a course without a grade

May 17—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)

May 24—Monday—Last day to drop a course

May 24—Monday—Last day to withdraw from the University or reduce course schedule and receive any refund

May 24—Monday—Last day to pay registration fees in order to avoid cancellation of registration

May 31—Monday—Memorial Day—Academic Holiday

June 1—Tuesday—Deadline for applying for admission or readmission for 1982 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences

June 3—Thursday—Last day for reinstatement of students cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee.

June 8—Tuesday—Final Examinations
June 8—Tuesday—End of Four-Week Intersession
June 11—Friday—Final deadline for submission of grades to the Registrar's Office by 12 noon.
June 23—Friday—Last day to apply to the Graduate Admissions Office for admission and readmission to the 1982 Fall Semester

1982 Eight-Week Summer Session

April 1—Thursday—Deadline for applying for admission or readmission for any 1982 summer term for all categories of undergraduate applicants wishing to be included in the April Advising Conferences for the Summer Sessions
April 10—Saturday—Last day to apply to the Graduate Admissions Office for admission and readmission to all 1982 Summer Sessions
April 29—Thursday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission to all 1982 Summer Sessions
June 1—Tuesday—Deadline for applying for admission or readmission for 1982 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences
June 9—Wednesday—Registration for new students who did not advance register
June 9—Wednesday—Last day a student may officially drop a course or cancel registration with the Registrar for a full refund of fees
June 10—Thursday—Class work begins
June 10-14—Thursday through Monday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $20 late fee is assessed students who register late.
June 14—Monday—Last day to enter an organized class for the 1982 Eight-Week Summer Session
June 14—Monday—Last day to officially withdraw from the University and receive an 80 percent refund
June 21—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)
June 21—Monday—Last day to drop a course without it appearing on the student's transcript
June 23—Wednesday—Last day to pay registration fees in order to avoid cancellation of registration
June 24—Thursday—Last day for filing an application for an August degree in College Dean's office
June 29-July 30—Summer Advising Conferences for new freshmen, Community College transfers, advanced standing (transfer) students, auditors, nondegree, and readmission students enrolling in the 1982 Fall Semester
July 5—Monday—Independence Day—Academic Holiday
July 6—Tuesday—Last day for reinstatement of students cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee.
July 8—Thursday—Last day to drop a course
July 8—Thursday—Last day to withdraw from the University or reduce course schedule and receive any refund
July 9—Friday—Last day to pay thesis/dissertation fees for an August degree in Billings and Collections Office
July 14—Wednesday—Last day to schedule a final examination in The Graduate School for candidates for an August 1982 degree



July 23—Friday—Last day to apply to the Graduate Admissions Office for admission and readmission to the 1982 Fall Semester
July 28—Wednesday—Last day to sit for a final examination for candidates for an August 1982 degree
August 5—Thursday—Last day to submit thesis/dissertation to The Graduate School for candidates for an August 1982 degree
August 5—Thursday—Final Examinations
August 5—Thursday—End of Eight-Week Session
August 9—Monday—Final deadline for submission of grades to the Registrar's Office by 12 noon
August 21—Saturday—End of College of Pharmacy 15-Week Summer Term

COLLEGE OF LAW

1981 Fall Semester

August 24—Monday—Registration
August 25—Tuesday—Add/Drop
August 25—Tuesday—Last day a student may officially drop a course or cancel registration with the Registrar for a full refund of fees
August 26—Wednesday—Class work begins
September 1—Tuesday—Last day to add a class for the Fall Semester
September 1—Tuesday—Last day to officially withdraw from the University and receive an 80 percent refund
September 7—Monday—Labor Day—Academic Holiday
September 9—Wednesday—Last day for payment of registration fees in order to avoid cancellation of registration
September 16—Wednesday—Last day to change grading option (credit to audit or audit to credit)
September 16—Wednesday—Last day to drop a course without it appearing on the student's transcript
September 18—Friday—Last day for reinstatement of students cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee
September 24—Thursday—Last day to file an application for a December degree
October 19—Monday—Last day to drop a course
October 19—Monday—Last day to withdraw from the University or reduce course schedule and receive any refund
November 9-18—Monday through Wednesday—Advance Registration for the 1982 Spring Semester
November 26-28—Thursday through Saturday—Thanksgiving Holidays—Academic Holidays
December 1—Tuesday—Deadline for submission of application and receipt of all materials for admission, readmission or transfer into 1982 Spring Semester
December 3—Thursday—End of class work
December 4-7—Friday through Monday—Law Examination Reading Period
December 8-18—Tuesday through Friday—Law Final Examination Period
December 18—Friday—End of Fall Semester

1982 Spring Semester

January 11—Monday—Registration
January 12—Tuesday—Add/Drop
January 12—Tuesday—Last day a student may officially drop a course or cancel registration with the Registrar for a full refund of fees
January 13—Wednesday—Class work begins
January 19—Tuesday—Last day to add a class for the Spring Semester
January 19—Tuesday—Last day to officially withdraw from the University and receive an 80 percent refund
January 26—Tuesday—Last day for payment of registration fees in order to avoid cancellation of registration
February 2—Tuesday—Last day to change grading option (credit to audit or audit to credit)
February 2—Tuesday—Last day to drop a course without it appearing on the student's transcript
February 4—Thursday—Last day for reinstatement of students cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee
February 11—Thursday—Last day to file an application for a May degree
February 15—Monday—Last day for submission of application for admission for 1982 Fall Semester
March 4—Thursday—Last day to withdraw from the University or reduce course schedule and receive any refund
March 4—Thursday—Last day to drop a course
March 15-20—Monday through Saturday—Spring Vacation—Academic Holidays
March 31—Wednesday—Last day for receipt of all supporting credentials of applicants for Fall 1982 admission
April 12-21—Monday through Wednesday—Advanced Registration for 1982 Fall Semester
April 23—Friday—End of class work
April 24-27—Saturday through Tuesday—Law Examination Reading Period
April 28-May 8—Wednesday through Saturday—Law Final Examination Period
May 8—Saturday—End of Spring Semester
May 8—Saturday—115th Annual Commencement

1982 Summer Session

June 9—Wednesday—Registration
June 9—Wednesday—Last day a student may officially drop a course or cancel registration with the Registrar for a full refund of fees
June 10—Thursday—Class work begins
June 14—Monday—Last day to add a class for the Summer Session
June 14—Monday Last day to officially withdraw from the University and receive an 80 percent refund
June 21—Monday—Last day to change grading option (credit to audit or audit to credit)
June 21—Monday—Last day to drop a course without it appearing on the student's transcript
June 23—Wednesday—Last day for payment of registration fees in order to avoid cancellation of registration
June 24—Thursday—Last day to file an application for an August degree
July 1—Thursday—Deadline for application and submission of all materials for transfer from another law school for 1982 Fall Semester
July 5—Monday—Independence Day—Academic Holiday
July 6—Tuesday—Last day for reinstatement of students



cancelled for nonpayment of registration fees. Requires payment of registration fees plus $50 reinstatement fee
July 8—Thursday—Last day to withdraw from the University or reduce course schedule and receive any refund
July 8—Thursday—Last day to drop a course
July 30—Friday—End of class work
July 31-August 1—Saturday, Sunday—Law Examination Reading Period
August 2-5—Monday through Thursday—Law Final Examination Period
August 5—Thursday—End of Summer Session

COLLEGE OF MEDICINE

Academic Year 1981-82

1981

August 3—Monday—Fourth-Year Students begin rotations
August 3-4—Monday and Tuesday—Third-Year Registration and Orientation
August 5—Wednesday—Third-Year Students begin rotations
August 24—Monday—First-Year Students—Orientation and Registration
August 24—Monday—Second-Year Students register and begin classes
August 25—Tuesday—First-Year Students begin classes
September 7—Monday—First- and Second-Year Students—Labor Day Holiday
October 24-November 8—Interviewing—Two-week break for Fourth-Year Students
November 26—Thursday—Third- and Fourth-Year Students—Thanksgiving Holiday
November 26-28—Thursday through Saturday—First- and Second-Year Students—Thanksgiving Holiday
December 17—Thursday—Second-Year Students begin Winter Break (after last exam)
December 18—Friday—First-year students begin Winter Break (after last exam)
December 19—Saturday—Third- and Fourth-Year Students begin Winter Break

1982

January 4—Monday—All students return to classes
March 15-20—Monday through Saturday—Spring Break for First-Year Students
March 22-27—Monday through Saturday—Spring Break for Second-Year Students
May 7—Friday—End of Academic Year for Fourth-Year Students
May 8—Saturday—End of Academic Year for First- and Second-Year Students
May 16—Sunday—College of Medicine Graduation
July 16—Friday—End of Academic Year for Third-Year Students

COLLEGE OF DENTISTRY

1981-82 Academic Year

Summer 1981

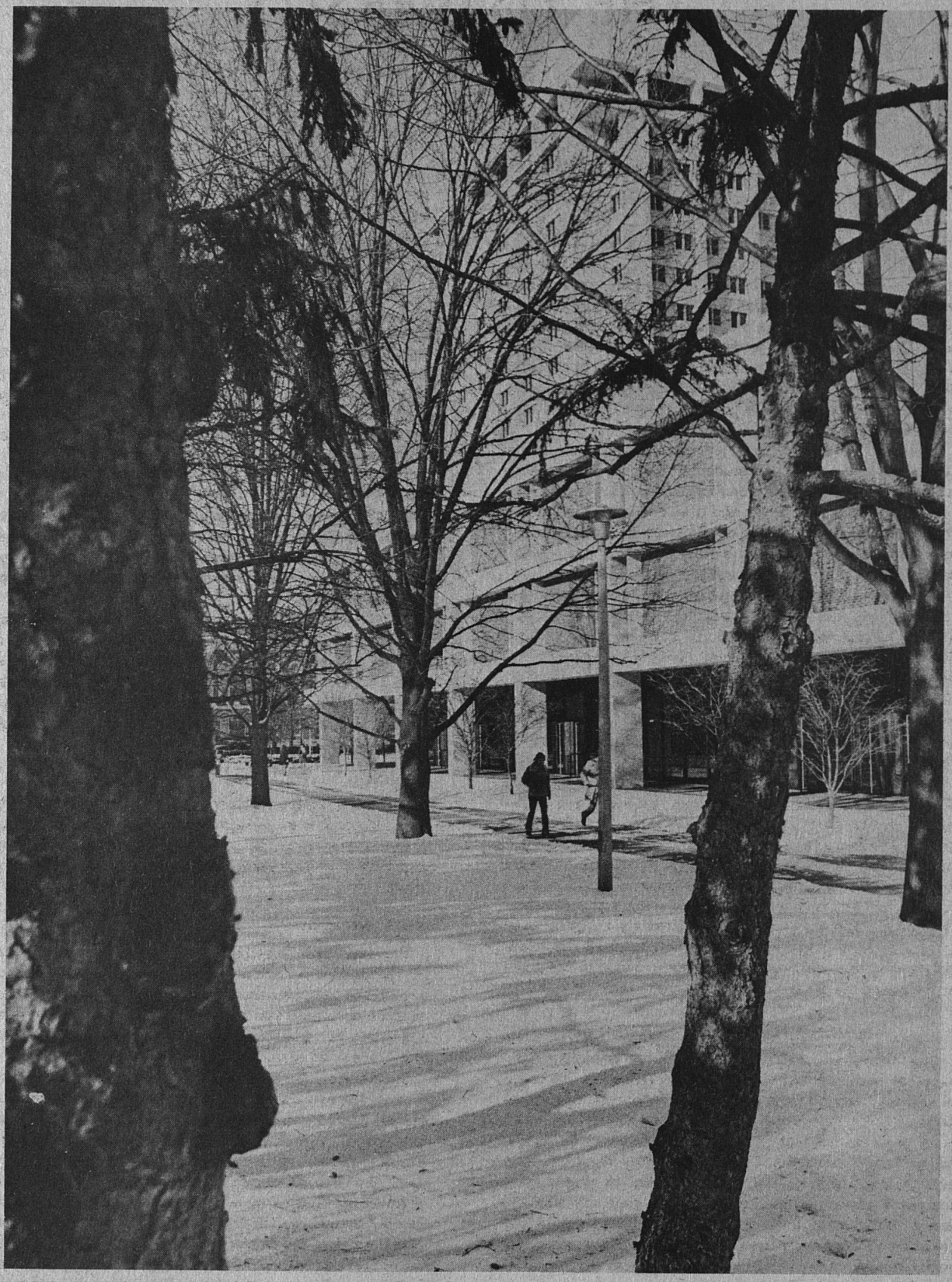
June 1-August 19—Extramural experiences for students who have completed the third year

Fall 1981

August 14—Friday—Orientation begins for all Third-Year Students
August 19—Wednesday—Orientation begins for all First-Year Students
August 20—Thursday—Orientation begins for Fourth-Year Students
August 21—Friday—Orientation begins for Second-Year Students
August 24—Monday—Classes begin for all students
September 7—Monday—Labor Day Holiday
November 26-28—Thursday-Saturday—Thanksgiving Holidays
December 23—Wednesday—Winter Vacation beings after last class

Spring 1982

January 11—Monday—Classes resume for all students
March 15-20—Monday through Saturday—Spring Vacation
April 30—Friday—ASDA Day—No classes
May 7—Friday—End of Academic Year for graduating students
May 8—Saturday—University Commencement and College of Dentistry Graduation Program
May 28—Friday—End of Academic Year for continuing students



THE UNIVERSITY

A university is a center of learning where new ideas arise and old ones take on new shapes and colors. It is a place of broad opportunity, where libraries, laboratories, and men and women of knowledge are gathered in one community. It is a place where students have the chance to learn the best that has been discovered and to develop fully their abilities. It is also a place of quiet meditation and shaded walks, of cheering crowds and lively debate, of people of many interests, and, most importantly, a place where the student can mature—mentally, physically, and emotionally.

The search for new knowledge is an unending adventure in which both the faculty and students take part. This seeking results in a continual expansion of information in every field of concern known to mankind, and develops leaders. It is thus that higher education carries out its purpose as the chief instrument designed by society to provide the leadership necessary to the upward march of civilization.

On the University campus students still learn in the classroom, but the other places of learning, particularly the libraries and laboratories, or workshops, become more familiar. The student may not decide upon a field of study during the first years, but as interests become stable and increase in depth, the student reaches out more and more. In advanced courses, undergraduate as well as graduate, he or she may work with a considerable degree of independence from the professor.

The University offers entering students an environment wherein they may achieve a genuine understanding of the world and find their place in it. In the University they should come to understand better their role as citizens who participate in decisions on issues and policies. They should develop a love for truth, and independence of judgment, and a respect for the convictions of others. These are some of the characteristics of a liberal education—the University's goal for all of its graduates. In addition, it offers many areas of specialization leading to a variety of career opportunities in the arts, the sciences and the professions.

FUNCTIONS OF THE UNIVERSITY

The primary responsibility of an institution of higher learning is the betterment of human welfare. 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.

Teaching

Out of the undergraduate colleges and the graduate schools of America come the greater portion of the nation's leaders and its better 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 man's knowing.

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.

Library

Without an adequate library collection, a university would find it impossible to perform its teaching and research functions properly. But over and above these requirements, the preservation of books and other materials is a vital function of society.

Extended Services

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 and bureaus within the University facilitate the institution's contributions to the citizens of the state. Among these are the Experiment Station and the Cooperative Extension Service of the College of Agriculture, the Center for Business Development, the Center for Professional Development, the University Placement Service, The University Press of Kentucky, Telecommunications Studios, the Independent Study Program, the Off-Campus Class Program, the Evening Class Program, the Community College System, the Audio-Visual Services, University Information Services, the Office of Engineering Services, the Kentucky Research Foundation,

the Child Guidance Service, the Survey Research Service, the University Hospital and related services, the Center for Public Administration, the Computing Center, Conferences and Institutes, the Council on Aging, the Donovan Senior Citizens Fellowship Program, the Kentucky High School Speech League, the Continuing Education Program, the University Center for the Handicapped, the Center for Learning Resources for Allied Health, 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 re-established 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, during the Civil War, had been utilized as a bivouac area for Union troops. 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.

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



Dr. Otis A. Singletary

From an enrollment of 273 students in 1876, the University has grown to a vibrant institution of more than 23,000 students and approximately 8000 faculty and staff. In the same time period, Lexington has evolved from a town of about 22,000 to a city of over 200,000 in a growing metropolitan area. The campus today includes more than 100 major buildings, some history-laden structures dating back to the 1800s with renovated interiors, others, ultra modern teaching and research facilities. In addition, the Lexington Technical Institute and 12 community colleges are part of the University of Kentucky system, advancing Bowman's dream of providing quality education for all citizens of the Commonwealth.

ADMISSION TO THE UNIVERSITY

The admission of all students into the University System of the University of Kentucky is under the authority of the Dean of Admissions and Registrar. However, the day-by-day handling of applications and other documents related to admission to certain programs is carried on by some units outside the main office of the Dean of Admissions and Registrar. These include: The Graduate School, The College of Medicine, The College of Dentistry, and the Fort Knox Center.

The Dean of Admissions and Registrar's Office, located in the Gillis Building, handles admission to all units of the University, except for those listed above. Inquiries concerning admission, requests for applications, completed applications, test results, and other required admissions documents should be addressed to this office.

All applicants for admission are considered equally, regardless of race, color, religion, sex, marital status, national origin, age, beliefs, or handicap.

Minimum academic conditions must be satisfied by an applicant for admission to the University. Meeting these conditions is sufficient for admission into some academic units, while other units specify additional conditions for admission, such as the completion of two or more years of college work, the completion of specific sequences of courses, or minimum ACT scores.

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 which the student may elect to follow.

Beginning freshmen and students transferring from other schools who meet general University admission requirements are accepted by the following colleges:

Arts and Sciences	Education*
Agriculture	Fine Arts
Communications	Home Economics
	Social Professions

*Students must apply to the Teacher Education Program at the end of their sophomore year.

In addition to the general University requirements, the following colleges have other conditions for admission:

Allied Health Professions	**Law**
Architecture	**Nursing**
Business and Economics	**Pharmacy**
Engineering	

The Landscape Architecture Program in the College of Agriculture also has special conditions for admission.

These explicit requirements are described in the sections of this Bulletin devoted to these colleges. If you wish to enroll in one of these colleges, please read the appropriate section carefully.

Taking the American College Test. The American College Test is required for all beginning freshmen and for transfer students who have earned less than 12 semester hours of credit at another school. Freshman applicants who took the ACT earlier than five years before the planned matriculation date must take it again as a part of the admissions procedure. Due to the nature of the information supplied through the ACT and its reporting format, other tests cannot be accepted as a substitute. Your high school should be able to provide ACT registration forms, information about deadlines for registration, testing dates, and the location of test centers. If your high school cannot provide this information, write directly to the ACT Registration Department, P.O. Box 414, Iowa City, Iowa 52243.

It is very important to be aware of the deadline to register with the ACT office in Iowa in order to take the test on one of the national test dates. Registration always falls about 30 days before a test date. Furthermore, you need to take into account in your plans the fact that ACT reports are not mailed to the University until approximately four weeks after the test is taken.

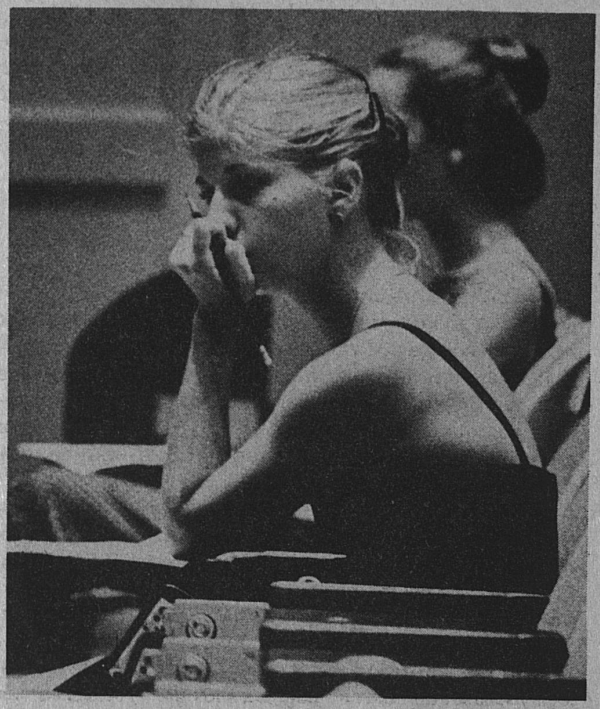
If you have taken the ACT but did not list the University of Kentucky as one of six colleges to receive the results, you must arrange to have an Additional Score Report sent. Information on the procedure for doing this is contained in your *ACT Assessment Results* and should be available at your high school. It will take at least 10 days for ACT Headquarters to send your report after they receive your request.

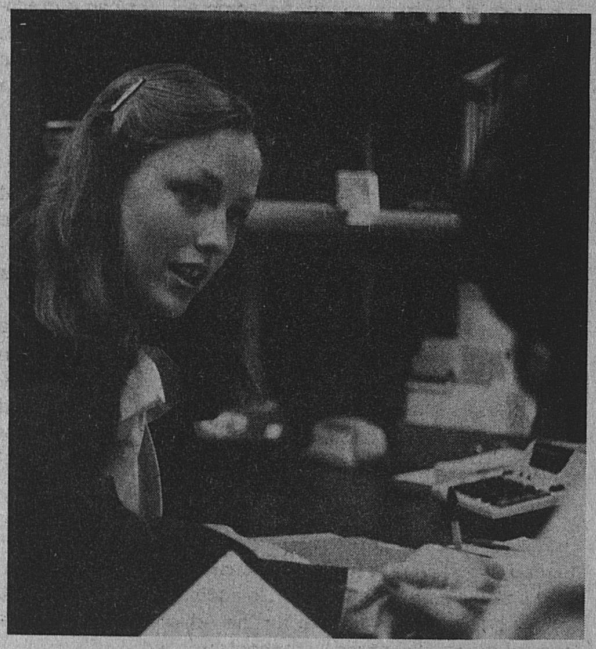
ELIGIBILITY FOR FRESHMAN ADMISSION

The Colleges of Allied Health, Architecture, and Engineering have requirements for freshman admission in addition to those described below. The College of Nursing admits only upper-division students who are already registered nurses.

Kentucky Residents. The University of Kentucky accepts as beginning freshmen all Kentucky residents who graduate from an accredited high school and have not attended another college. The required forms (usually only an application and/or the ACT report) must be received by the University's deadline dates for the semester in which you intend to enroll. Additional supportive documents may be needed in individual cases to clarify your status or to establish your eligibility. If these are required, you will be so informed. The University must also reserve the right to deny admission to anyone who falsely reports information on the application for admission, the required admission test report, or other documents.

Residents of Other States. The University is not able to accept all of the students from other states applying for admission to the freshman class. It must observe both a quota established by the Kentucky Council on Higher Education and





the practical limitation of available physical facilities. The selection of candidates from other states is made on the basis of probable academic success as it can be predicted from high school grades and performance on the American College Testing Program academic tests. An applicant whose test scores and high school grades indicate a high degree of probability that he or she can achieve a satisfactory grade standing in the freshman year will be considered for acceptance. Other non-resident applicants will not be considered for acceptance unless the Dean of Admissions and Registrar can determine that additional factors in the student's record make acceptance possible.

APPLYING FOR FRESHMAN ADMISSION

Enter-ACT. In order to simplify the admission process the University has a program called "Enter-ACT." High school students who list the University of Kentucky as their first college choice on the ACT profile are automatically given tentative acceptance without having to file an additional application form.

Within approximately six weeks after taking the ACT, Kentucky high school seniors and acceptable non-residents who indicate that UK is their first choice will receive notification of admissibility to the University and an Advising Conference date. At about the same time, applicants will receive financial aid and housing information if they requested it on the Student Profile Section of the ACT. Students who take the ACT as juniors will be notified early in the fall of their senior year.

Applicants who do not list the University of Kentucky as their first college choice, but who indicated the University as one of choices two through six, may convert their ACT report into an application for admission by submitting the ACTivate card, available through high school counselors.

Students may also apply for admission by submitting a traditional application, available from the Admissions Office, 206 Gillis Building.

Required documents must be received in the Admissions Office by the following deadlines:

For the Fall Semester . . . . . June 1
For a Summer Session . . . . . April 1
For the Spring Semester. . . . . October 15

However, applicants are urged to apply as early as possible at the beginning of their senior year in high school, for instance, or even in the preceding summer. Kentucky students and acceptable non-Kentucky applicants will be given a tentative acceptance and assigned an Advising Conference date as soon as the official report of the ACT and an application, if necessary, have been received. If you will take the ACT at an early date and apply early, this can be done long before your actual graduation from high school.

Please notice that you do not have to have your high school record sent, either when you apply or after you graduate, unless you are notified to do so. The University Admissions Office will confirm your high school graduation through a computer report sent to your high school.

OTHER FRESHMAN ADMISSIONS

Students of Unusual Ability. Students with exceptional academic ability may be considered for admission to the freshman class before graduation from high school. In general, the University believes that young people should complete the high school curriculum before attempting college work. In exceptional cases and only after a careful review of the student's record, ACT report, personal interviews, and letters of recommendation from the high school, some students may be admitted to the University before graduation from high school.

Summer Work after Graduation from High School. Some students, after acceptance by the University for the fall freshman class, may wish to take a class for college credit at another school near their home in the summer following high school graduation. This can usually be done, upon advance approval by the University, without adversely affecting the eligibility of the student for entry in the fall semester.

Nongraduates of High School. Students who are not high school graduates and have not attended college may be granted admission as freshmen on the basis of demonstration by test and other evidence that they are prepared to do the work required.

Students with High School Equivalency Certificates. An applicant for admission to the freshman class who is not a high school graduate but presents a valid High School Equivalency Certificate may be considered on the same basis as a high school graduate. The High School Equivalency Certificate must have been approved by a state Department of Education and issued by a local Board of Education. The basis for the issuance of an Equivalency Certificate by a Department of Education is usually the presentation of satisfactory GED (General Education Development) scores. Please notice that this University cannot accept GED score reports for admission—the applicant must present the scores directly to the Department of Education. UK can consider the applicant only after he or she has been issued the High School Equivalency Certificate. Local Boards of Education can usually tell the student how to apply for a certificate.

High School Junior Summer Program. High School juniors of superior ability may wish to begin their college career early. They may do so by enrolling for the Eight-Week Summer Term at the University of Kentucky. In order to be considered for admission the applicant must have a B average or better in high school academic courses. Applicants are considered for admission as beginning freshmen, and, if they are admitted, may take any courses open to freshmen.

The transcript of high school grades (B or better) and the results of the American College Test plus letters of recommendation from teachers must reach the Admissions Office by the deadline for applying for admission to the summer session.

Students interested in any of the above special freshman admissions procedures should contact the Director of Admissions.

ADMISSION FROM UNIVERSITY OF KENTUCKY COMMUNITY COLLEGES

Students enrolled in University of Kentucky Community Colleges (including the Lexington Technical Institute) are in general eligible to transfer to the Lexington campus provided that (1) they are not under suspension or financially delinquent to the University, and (2) meet the admission requirements of the individual colleges for which they apply. Some students may have been admitted to community colleges with academic records which would have prevented their admission to the Lexington campus. The applications of these students will be considered on an individual basis.

All courses taken at a community college campus are transferred with credit, grades, and quality points; however, the dean of each college decides how credits apply to the requirements for each degree.

Applying for Admission. The transfer procedure for community college students is handled by the Admissions or Registrar's Office at the community college in which the student is enrolled. For admission to a summer session or fall semester, the student should report to the community college Admissions or Registrar's Office on or soon after February 1, and for admission for a spring semester on or soon after September 1. If you plan to enroll in one of the colleges with a selective admissions policy, such as Allied Health, Architecture, Business and Economics, Engineering, Nursing, and Pharmacy, you should be aware that these colleges may also have earlier deadlines. It may be necessary, in this case, to contact the Lexington Admissions Office to obtain application materials early enough to meet these special deadlines.

ADVANCED STANDING (TRANSFER) ADMISSION

Eligibility for Admission. All applicants who have been enrolled at another college must submit an official transcript from each college attended, and must be able to meet University Senate requirements, whether or not they wish to have such work considered for transferability. University regulations do not permit the waiving of work at other colleges or the admission of such students as beginning freshmen. All transfer applicants must meet the following two conditions:

1. You must have an over-all grade-point average of 2.0 on a 4.0 quality point scale in all baccalaureate course work attempted, as computed by the University Admissions Office. The grade and credit for each course attempted is included in this computation, regardless of the practice of the offering institution in waiving a low grade for a repeated course; and
2. You should be in good standing in all respects at the college you last attended as a degree candidate. A student under academic suspension cannot be admitted, nor can a grade-point average below 2.0 be raised by subsequent enrollment, while a suspension is in effect, in a non-baccalaureate degree type of program or school, an unaccredited school, or in a category which another college may make available to suspended students for limited, non-degree purposes.

If you intend to enroll in the College of Nursing, Architecture, Allied Health, or Engineering, be aware that each of these colleges exercises a policy of selective admissions, and has admission requirements in addition to those of the University in general. Please consult the appropriate section of this bulletin.

Applying for Admission. To apply for admission as a transfer student you should write for or pick up an application packet from the Office of the Dean of Admissions and Registrar. (Law, Pharmacy, Nursing, Architecture and Allied Health applicants must also follow the procedures and meet the deadlines for those colleges.) Submit the following documents to the Admissions Office by the stated deadlines:

1. A completed application for admission to the University.
2. One official transcript from each college or school attended, containing a complete record of all courses completed at the time of application. In addition, transfer students should bring, when reporting for the Advising Conference, a copy of the catalog of the last school attended.
3. A roster of courses in which the student is currently enrolled.

Please include these three items in one envelope. This will ensure that the University receives them together, and will enable the Admissions Office to make an admission decision more quickly.

4. A final official transcript of any additional work completed before entering the University should be sent immediately after the end of that semester.

Applicants will be notified, upon receipt of the first three documents, of their admissibility at this time or of the rejection of their application. Acceptable applicants will be notified

of the Advising Conference Program and the date when they will be expected to attend, unless excused by permission in special circumstances and emergencies.

Candidates tentatively accepted at the time of application should be aware that the University will cancel the application or the early registration of an applicant whose final official record, after completion of a current semester, shows ineligibility because of the lowering of his or her grade-point average below the required 2.0, or suspension or dismissal. However, an applicant for admission to a fall semester whose admissibility has been established after completion of a spring semester may take summer work without losing this eligibility to attend the Summer Advising Conference. The applicant must, of course, maintain a satisfactory grade average for this summer work.

Although it is possible to enter most University programs in any semester or summer session, some students may find that the academic calendar of the school in which they are enrolled will make transfer impossible for a spring semester or summer session.

Transfer of Credit. The University accepts baccalaureate 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 Admissions Office. The Dean of the academic college or school in which you will be enrolled will determine the applicability of transferred work to each degree program. This is usually done during 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 you in choosing a program and in understanding the requirements for the completion of a degree program at the University.

Work at Two-year Colleges. Students transferring directly from a junior college or two-year branch may not transfer more than 67 semester hours of baccalaureate degree 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.

Work at Unaccredited Schools. 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.

Work at Technical Schools or in Terminal Programs. Only work which is demonstrably offered and acceptable by the offering institution as baccalaureate degree work can be accepted by the University directly or by validation.

Technical, terminal, or non-degree course work will not be accepted by the University to count toward a baccalaureate degree.

If an accredited two-year college conducts a two-year technical or terminal program in which part of the course work is also a part of a two-year baccalaureate degree transfer program, such work will be accepted by the University to the extent that it parallels baccalaureate degree work here, subject to the conditions normally applicable.

Credit by Examination. 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.

Minimum Residence Requirement for Graduation. 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 in residence at the University.

ADVISING CONFERENCES

All new undergraduate students attend an Advising Conference prior to entering the University of Kentucky, unless excused by written permission in very special circumstances and emergencies. At this time, 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 will be in late June or 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.

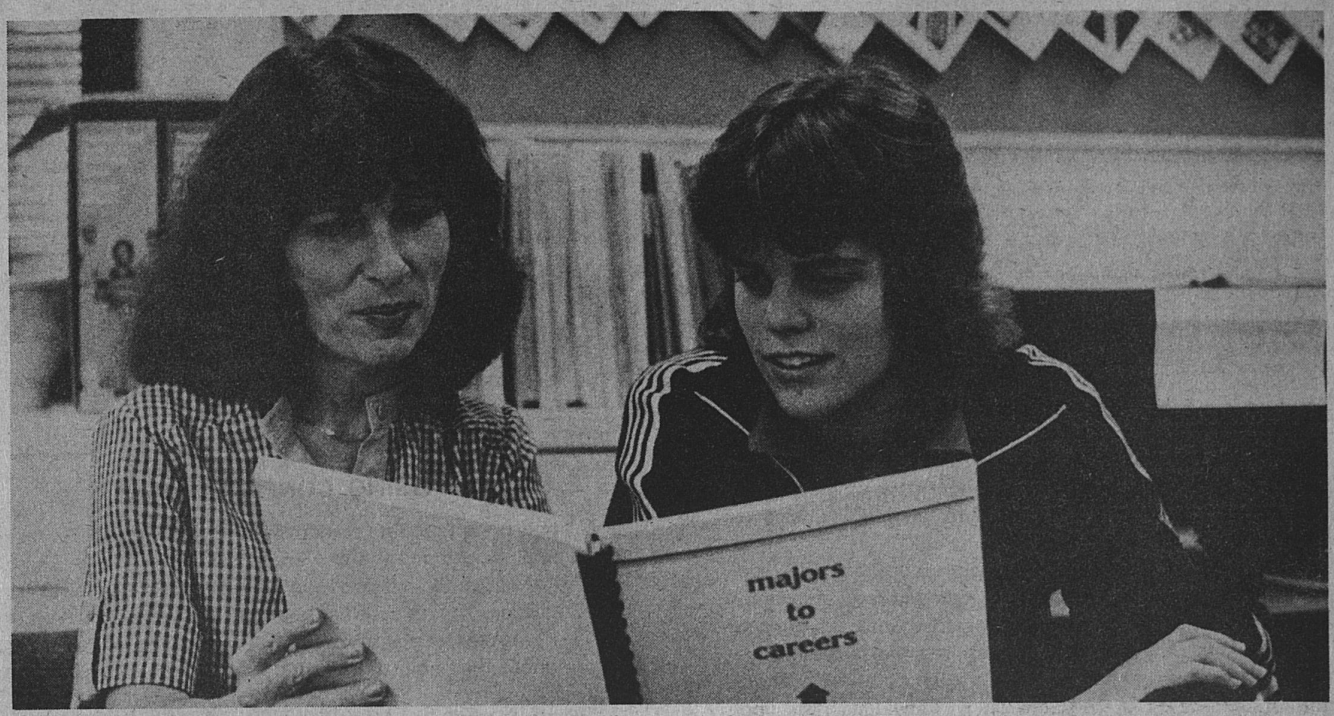
When accepted for admission to the University, the students will receive full information about the Advising Conference.

READMISSION TO THE UNIVERSITY

Former University students in good standing who have not attended another school since their last enrollment here are eligible for readmission. However, they must file an application for readmission by the stated deadlines. An exception to this is made on behalf of students who attend only University Summer Sessions. These students do not have to apply for readmission to a summer session if they were enrolled for the preceding summer session. Otherwise, an application for readmission must be filed.

Former University students who have been enrolled elsewhere since attending the University must, in addition to being in good standing at the University, also be eligible as a transfer student on the basis of the grade average earned and good standing at another school. They must have earned a 2.0 or better in work taken at another school or schools as computed separately from any grades or credits earned at the University, and should follow the directions given above and meet the deadlines for filing documents that apply to transfer students.

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 non-academic. If a student is reinstated, he or she must, in addition, file an application for readmission by the stated deadline.



Purpose of the Application for Readmission. It is only by the filing of an application for readmission in advance that the Registrar's Office can be alerted to the fact that a student intends to re-enter the University and prepare for him the necessary registration forms in time for registration.

OTHER CATEGORIES OF ADMISSION

Nondegree Students. Persons who desire University instruction without wishing to become undergraduate degree candidates may be admitted as nondegree students, provided they present satisfactory evidence that they are prepared to take the work desired. Before enrolling in a class, nondegree students must obtain the permission of the instructor and the dean of the college.

Nondegree students may apply later as advanced standing degree students by filing the necessary documents, provided that they meet the admission requirements described above for undergraduate applicants. However, work taken as a nondegree student cannot in itself qualify a person for admission as a degree candidate. Only credit earned after a student meets admission requirements will be counted toward a degree awarded by the University. The fees for attendance as a nondegree student are the same as those set for other undergraduate students. Nondegree enrollment is not available to persons under suspension by the University.

Auditors. By filing an application for admission by the stated deadline, one may enroll in the University as an auditor. Auditors do not receive grades or course credit. 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.

Students enrolled for credit may register to audit a course as part of their regular schedule by obtaining the permission of their adviser and the instructor.

Transient Students. A transient is a visiting student who has been attending another school. Transient students must meet the same admission requirements as transfer students, whether they seek admission for a regular semester, a summer session, or a short-term course. Admission as a transient is granted for only the semester or session for which the student applies. The student must apply again for admission as a transient for a subsequent semester or session and file all required documents by the proper deadline.

UK Students as Transients at Other Schools. 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 his or her adviser or dean, and with the Registrar's Office well in advance of enrollment at another institution. If such enrollment is concurrent with enrollment at the University, the student must have the specific approval of his dean for double enrollment. It is the student's responsibility to ascertain the acceptability of course work at another school, and of its applicability toward his degree program. Since the University Senate has established the conditions for the acceptance of credit earned at other schools which the Registrar's Office must follow, improper enrollment at other institutions will necessarily result in the loss to the student of credit earned elsewhere.

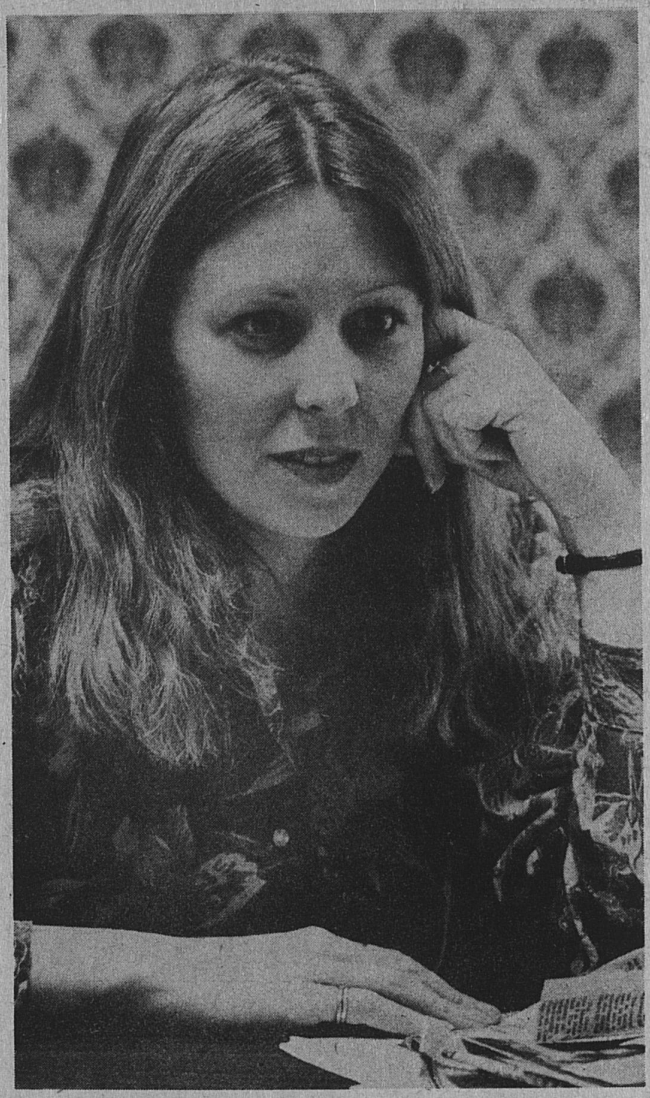
Re-entering the University. A University student who enrolls elsewhere for only a summer session between a spring enrollment at UK and the following fall semester does not need to reapply for admission for the fall semester. He or she must arrange for transcripts of summer work to be sent to the University Admissions Office immediately following the end of the summer session.

WHEN TO APPLY

For Admission To:	Submit	By Deadlines For Fall	Spring	Summer
UNIVERSITY OF KENTUCKY				
Freshmen	ACT, Application	June 1	Oct. 15	April 1
Auditors, Nondegree, Readmission (without additional work)	Application	June 1	Oct. 15	April 1
UK Community College Students	Application Packet	June 1	Oct. 15	April 1
Transfer Students (and former UK students with additional work)	Application, Transcript(s) and Courses in Progress	June 1	Oct. 15	April 1
COLLEGE OF AGRICULTURE—LANDSCAPE ARCHITECTURE				
Freshmen	ACT, Application	Feb. 1		
Transfers from non-Landscape Architecture Programs	Application and Transcript(s)	Feb. 1		
Transfers from other Landscape Architecture Programs	Application, Transcript(s) and 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 Research** UK and Professional Program Applications and all supporting credentials	June 1	Oct. 15	April 1
	Clinical Associate			
	UK and Professional Program Applications	Jan. 1		
	All supporting credentials	Feb. 15		
	Community Health			
	UK and Professional Program Applications	Feb. 1		
	All supporting credentials	Feb. 15		
	Medical Technology			
	UK and Professional Program Applications	Feb. 1	Sept. 1	
	All supporting credentials	Feb. 15	Sept. 15	
	Physical Therapy			
	UK and Professional Program Applications	Jan. 1		
	Transcript(s) and ACT Scores	Feb. 15		
COLLEGE OF ARCHITECTURE				
Freshmen	ACT, Application	Feb. 1		
	Project	March 6		
Transfers from non-Architecture Programs	Application and Transcript(s)	Feb. 1		
	Project	March 6		
Transfers from other Architecture Programs	Application and Transcript(s)	Feb. 1		
	Portfolio	March 6		
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) and Courses in Progress	June 1	Oct. 15	April 1
COLLEGE OF LAW				
First-year students	Law Application	Feb. 15		
	LSDAS Report	March 31		
Transfer Students	Law Application, Transcripts and Credentials	June 1	Dec. 1	May 15
COLLEGE OF NURSING				
RN's only	Application	June 1	Oct. 15	April 1
	Credentials	June 15	Nov. 1	April 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), and other required credentials	Feb. 1		

*Preprofessional Program Applicants see the "University of Kentucky" section at the top of the chart.





Students from Other Countries. This school is authorized under Federal law to enroll nonimmigrant alien 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 and assured that both academic and personal circumstances will be satisfactorily prepared for, 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 including graduation from high school 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.

At the undergraduate level, University financial aid funds are extremely limited and are available only to those accepted for admission who are approved for specific aid grants. Therefore, all applicants, in order to be considered for admission, must have at least $5700 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.

All applicants from non-English speaking countries are required to take the Test of English as a Foreign Language, offered by the Educational Testing Service, with headquarters in Princeton, New Jersey 98540, U.S.A. This test may be taken at various test centers throughout the world, but 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 (450-500) on (TOEFL) Test of English as a Foreign Language, the English Department offers an intensive eight-week summer program in English as a Foreign Language, designed to improve both oral and writing skills in English. The course is offered only during the regular eight-week session of summer school. Undergraduates may receive three hours credit for the first semester Freshman English requirement (ENG 101); graduates receive audit credit. Only instruction is included. Housing for the summer must be arranged by the student through the University Housing Office. For complete details about the program, write to English as a Foreign Language Program, Chairman, English Department, Patterson Office Tower.

In some cases, it may be necessary for a student in a non-English speaking country to provide, upon request from the University, an accurate translation into English of his official school records including the content of certain courses.

For additional information on services for students from other countries see the section of this bulletin titled, "International Student Affairs."



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.

If, for some reason, you are unsure of your residence status, it is your responsibility to check with the Dean of Admissions and Registrar's Office before applying for admission.

POLICY ON CLASSIFICATION OF STUDENTS FOR FEE ASSESSMENT PURPOSES AT STATE-SUPPORTED INSTITUTIONS OF HIGHER EDUCATION

(As adopted July 1, 1975 by the Commonwealth of Kentucky Council on Public Higher Education)

SECTION 1. INTENT. Under current law the Council on Public Higher Education as a matter of policy establishes a higher fee or tuition for non-resident students attending public institutions than that charged Kentuckians. It is the intent of the Council on Public Higher Education that the state institutions of higher education in the Commonwealth of Kentucky shall apply uniform interpretations, as described in this policy and not otherwise, in determining whether students shall be classified as residents or non-residents for fee assessment purposes.

SECTION 2. DEFINITIONS. Wherever used in this policy:

(1) The word "institution" shall mean a college, university, or community college supported by appropriations made by the General Assembly of Kentucky.

(2) The word "residence" or "reside" shall denote continuous presence within this State, provided that temporary absence for short periods of time shall not affect the establishment of a residence.

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

(4) The term "emancipated person" shall mean a person who has attained the age of 18 years, and whose parents: (a) have entirely surrendered the right to the care, custody, and earnings of such person; (b) who no longer are under any legal obligation to support or maintain such person; (c) who no longer, in fact, voluntarily contribute substantial financial assistance; and (d) whose parents' income is not taken into account by any private or governmental agency furnishing financial educational assistance to such person, including scholarships, loans, and other assistance. If *all* of the aforesaid dependency tests are not met, said person shall be deemed an "unemancipated person."

(5) The word "parent" shall mean a person's father or mother, or the parent having custody, or if there is a legal guardian or legal custodian of an unemancipated person, then such guardian or legal custodian; provided that such guardianship or custodianship was not created primarily for the purpose of conferring the status of resident on such unemancipated person.

(6) Attendance at a college or colleges in this State shall be deemed "continuous" if the person claiming continuous attendance has been enrolled at a college(s) in this state as a full-time student, as such term is defined by the governing body of said college(s), for two 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 attendance "continuous."

(7) The word "his" shall apply to the female as well as to the male sex.

SECTION 3. GUIDELINES FOR DETERMINATION OF STATUS.

(1) The domicile of an unemancipated person is that of his parent.

(2) Upon moving to this State, an emancipated person who provides persuasive evidence of domicile may apply for resident classification for his unemancipated children; and provided that said person is not himself in this State primarily as a full-time student, his unemancipated children may at once be so classified.

(3) Any person who remains in this State when his parent(s), having theretofore been domiciled in this State, removes from this State, shall be entitled to classification as a resident *while in continuous attendance at the degree level which he is currently enrolled.*

(4) An unemancipated person whose parent is a member of the Armed Forces and stationed in this State pursuant to military orders shall be *classifed* as a resident. The student, while in continuous attendence at the degree level in which he is currently enrolled, shall not lose his resident status when his parent is thereafter transferred on military orders.

(5) An emancipated person who moves to the Commonwealth within six months from the date of discharge from the military service with the stated intent of becoming a 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 entered military service from the State of Kentucky or his home of record and permanent address at the time of discharge was Kentucky.

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

(1) Except as provided in Section 4 (2), every person remaining in this State in a non-student status for the twelve months immediately proceeding the last date for enrollment in the institution shall be presumed to be a resident student for fee assessment purposes. No person having his domicile elsewhere than in this State shall be classified as a resident for fee assessment purposes.

(2) No emancipated person shall be deemed to have gained residence while attending any educational institution (public or private) in this State as a full-time student, as such status is defined by the gov-

erning board of such institution, in the absence of a clear demonstration that he has established domicile in the State. However, attending college in a part-time status will not prevent such person who has bona fide full-time employment in the State from establishing domicile.

(3) The domicile of a married person shall be determined by the provisions of these regulations independent of the residency of the spouse.

(4) A person does not gain or lose resident status for reason of his presence in any state or country while a member of the Armed Forces of the United States stationed in Kentucky on military orders, except members of the Armed Forces specifically assigned for educational purposes to state-supported institutions of higher education is presumed to be domiciled in the State and shall be entitled to classification as a resident while on active duty in this State pursuant to such orders. Resident status is similarly granted to his unemancipated children.

(5) In the event an unemancipated person's parents should have separate domiciles, his domicile shall be that of the parent having legal custody. In the event neither parent has legal custody, his domicile shall be that of the parent furnishing him the greater financial assistance.

(6) Use of records. A student whose admissions records show him to be a graduate of an out-of-state high school and his residence to be outside of Kentucky will normally be classified as a non-resident.

(7) Aliens. Aliens lawfully admitted to the United States for permanent residence under a permanent visa may establish Kentucky residence in the same manner as any other non-resident. An alien who possesses a student visa cannot be classified as a resident.

SECTION 5. TYPES OF EVIDENCE TO BE CONSIDERED FOR ESTABLISHMENT OF DOMICILE. If a person asserts that he has established domicile in Kentucky for a period of twelve months immediately preceding the last date for enrollment in an institution, he has the burden of proving he has done so. The following statements pertain to the kinds of evidence that will be considered in reviewing an assertion by a person that he is domiciled in Kentucky.

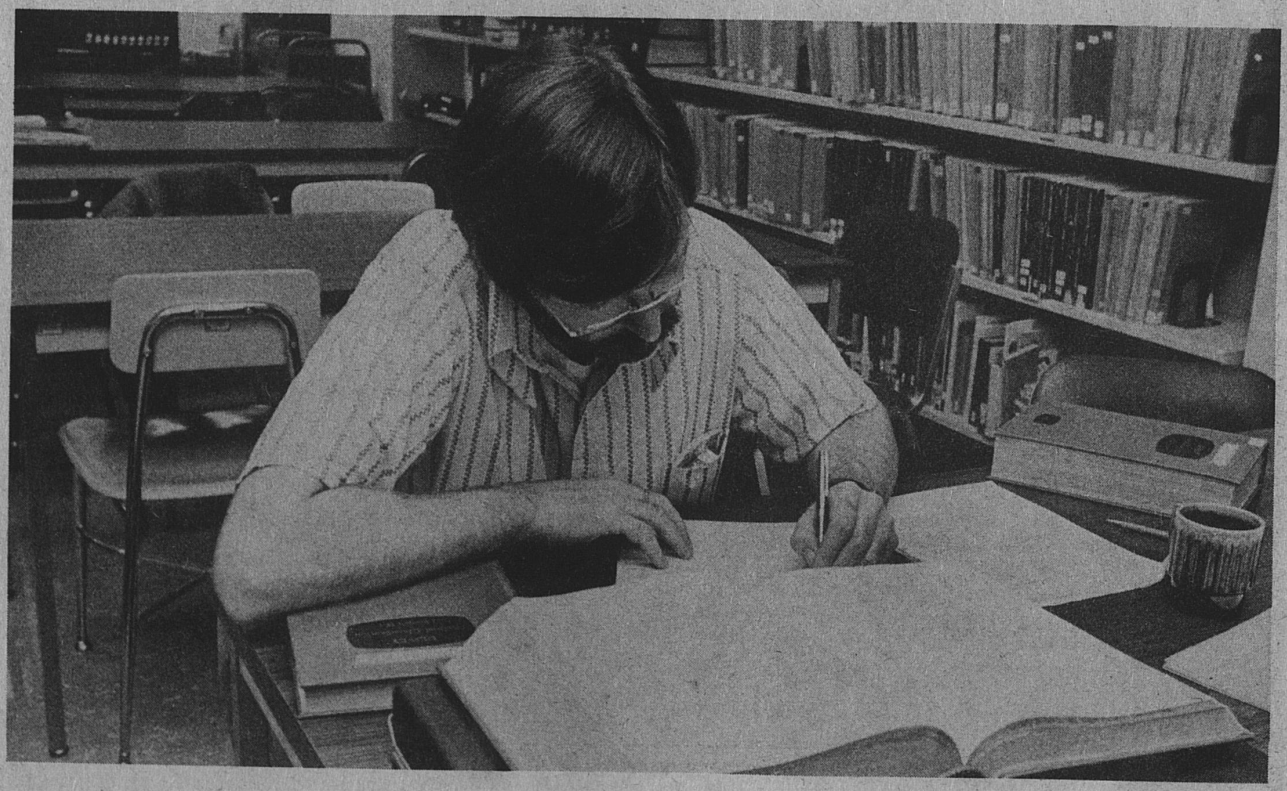
(1) The following facts, although not conclusive, have probative value in support of a claim for resident classification: acceptance of an offer of permanent employment in this State; former residence in the State and the maintenance of significant connections therein while absent; or abandonment of a former domicile and establishing domicile in the State with attendance at an institution following and only an incident to such domicile.

(2) The following facts are not necessarily sufficient evidence of domicile: employment by an institution as a fellow, scholar, assistant, or in any position normally filled by students; a statement of intention to acquire a domicile in this State; voting or registration for voting; the lease of living quarters; payment of local and state taxes; Kentucky automobile registration; Kentucky operator's license; continued presence in Kentucky during vacation periods; marriage to a Kentucky resident; or the owning of any real property.

SECTION 6. RESIDENCY CLASSIFICATION AND APPEAL PROCEDURES. Each institution shall establish a Nonresident Fee Committee to consider changes in resident status based on the above criteria. Application for change of resident classification shall be made in writing to the Dean of Admissions or the person who has been designated as the Chairman of the Nonresident Fee Committee. The Chairman may present each case to the Committee for a final decision, and the student will be notified in writing as to the disposition of his application.

In the event of a ruling by the Nonresident Fee Committee which is unsatisfactory to the student, the student may request that a copy of his file be submitted by the Dean of Admissions or the person designated by his institution to the Executive Director of the Council on Public Higher Education for referral to the Council's Committee on Residency Review for its recommendation to the institution.

SECTION 7. EFFECTIVE DATE. These revised guidelines become effective on July 1, 1975, and supersede all previous policies of the Council relating to classification of students for fee assessment purposes.



REGISTRATION FEES
School Year 1981-82

	Semester Fee (Full-time)	Eight-Week Summer Session Fee (Full-time)	Charge per credit hour (Part-time & Four-week Intersession)
All undergraduate colleges (including Lexington Technical Institute)			
Resident	$ 370	$186	$31
Nonresident	1159	582	97
Graduate School			
Resident	408	230	46
Nonresident	1206	670	134
College of Law			
Resident	579	290	58
Nonresident	1431	720	144
College of Pharmacy			
Resident	$ 537	$270	$ 45
Nonresident	1242	624	104
College of Dentistry (Annual Charges)			
Resident	1949		
Nonresident	3734		
College of Medicine (Annual Charges)			
Resident	2189		
Nonresident	4356		

Explanation of Full-time Status for Fee Payment Purposes

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 nine 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 six credit hours or equivalent constitutes a full-time load for undergraduate and pharmacy students. Registration in five hours constitutes a full-time load for graduate and law students.

HOUSING COSTS

ROOM AND BOARD

All undergraduate residence halls	**Per Year**
2 meals, 5 days (Monday through Friday)	$1814
3 meals, 5 days (Monday through Friday)	1918
2 meals, 7 days	1976
3 meals, 7 days	2090
Greg Page Stadium View Apartments (room only)	
Single undergraduate	1050

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

EIGHT WEEK SUMMER TERM (room only)

Double room occupancy	260
Single room occupancy	325

SEPARATE MEAL CONTRACT RATE

Full-time students living off-campus may also purchase a meal plan

1 meal, 5 days (Monday through Friday*	426

*Not offered to students living in University resident halls.

APARTMENTS AND FAMILY HOUSING

Single Graduate/Professional Apartments††	**Per Month**
Cooperstown	
efficiency—single occupancy	$145
one bedroom—single occupancy	185
Commonwealth Village, Linden Walk and Rose Lane	
efficiency—single occupancy	155
one bedroom—single occupancy	195
Family Housing**	**Per Month**
(one-year contract)	
Cooperstown and Shawneetown	
efficiency	145
one-bedroom apartment	185
two-bedroom apartment	200
Greg Page Stadium View Apartments	
two-bedroom apartment	300

**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 REGULATIONS

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

Registration Fees

REGISTRATION FEES ARE PAYABLE IN FULL AT THE BEGINNING OF CLASSES EACH SEMESTER. THERE IS NO PROVISION FOR PARTIAL OR DEFERRED PAYMENT FOR TUITION. SPECIFIC DATES WILL BE ANNOUNCED IN THE SCHEDULE OF CLASSES AND IN THE INSTRUCTIONS FOR FEE PAYMENT WHICH ADVANCE REGISTERED STUDENTS RECEIVE PRIOR TO THE BEGINNING OF THE SEMESTER. Students who have not paid their fees by the 10th day from the start of classes will have their registration cancelled. Between the 10th and 17th day students may be reinstated by paying their registration 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 re-enroll or receive a transcript until the delinquency is cleared. See the section on Delinquency below.

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 $20.

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, non-resident, 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 769 if the student is approved to take the 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	Refund
Regular Day Students	**Evening/Extension Students**	
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 within a year of the date they officially withdraw. Requests must be accompanied by evidence of complete withdrawal (withdrawal card, add/drop slip, ID and activity card) or evidence of change of status (add/drop slip, ID and activity card) and should be directed to the Registrar's Office, 107 Gillis Building. Illegal use of student ID or activity cards after date of withdrawal may result in forfeiture of refund.

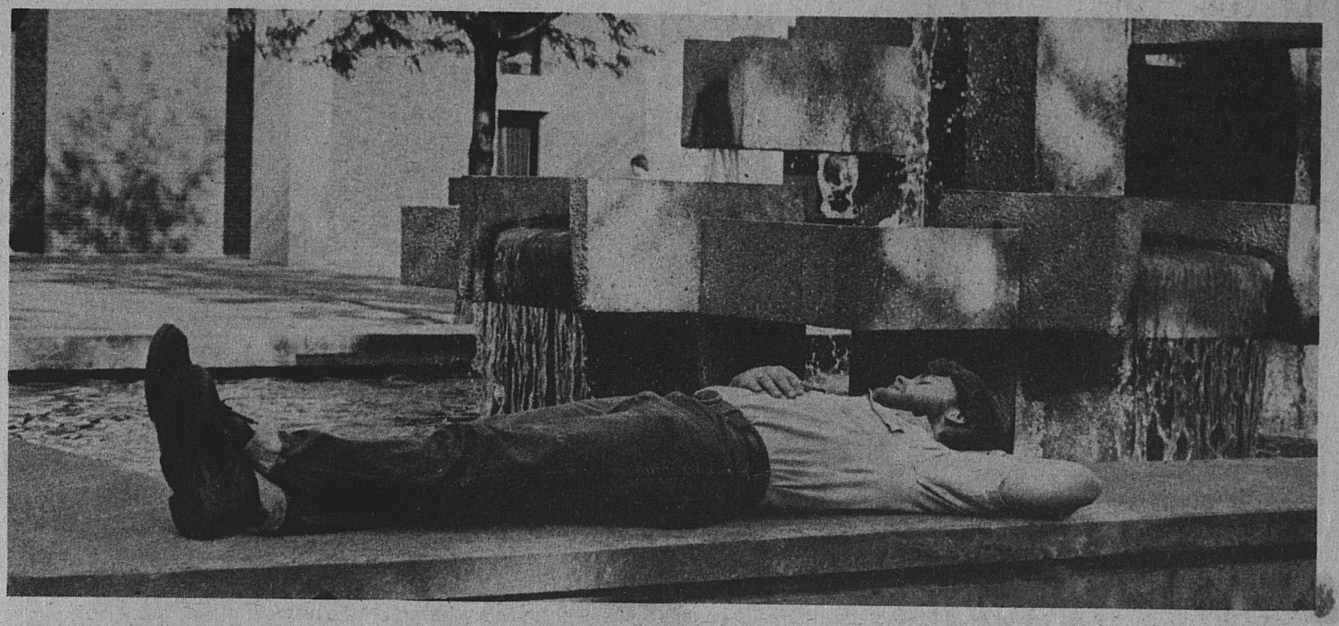
A student not paying tuition fees and subsequently leaving or officially withdrawing from school will be held liable for one half of those fees. In the case of nonpayment, he/she will be declared delinquent subject to the penalties imposed by the institution for financial delinquency.

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 his financial obligations to the University or to any department or division thereof, including room and board payments to sanctioned fraternal student organizations. Such obligations shall 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 shall be reported in writing to the proper office. Obligations to any division or department shall be reported to the office designated by the Vice President for Business Affairs and Treasurer of the University.



The appropriate business office shall notify the student of the financial obligation. If the student does not settle the obligation by the date designated on the notice, he shall, subject to regulations promulgated by the Vice President for Business Affairs and Treasurer, be considered delinquent, and that office shall notify the Registrar.

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

Additional fees and/or deposits may be assessed for certain courses or activities. All fees and housing costs are subject to change without notice.

HEALTH FEE

A health fee ($25 a semester) which is paid to the University with registration fees entitles any student (full-time or part-time) to most of the services provided through the Student Health Services. Most students pay the health fee, but those who do not may still obtain the services at the student clinic on a fee-for-service basis. Usually one visit to the clinic costs as much as the health fee which provides coverage for the entire semester. Information about the Health Service program and the services covered by the health fee is mailed to each advance registered student, or it can be obtained by calling the Student Health Service.

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.

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.

Identification Cards. All students, full- and part-time, are issued ID cards. Only full-time students are allowed to attend athletic events and the concert-lecture series. Full-time students will be given a student activity card at time of fee payment. Students should report lost or stolen ID cards to the Dean of Student's Office. It may be replaced, but a fee of $5 will be charged. Students who pay the health fee will be issued health ID cards that are good from the beginning of one academic session until the beginning of the next.

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.

Dry Cleaning. Both men and women students make their own arrangements for dry cleaning. The cost 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.

FINANCIAL AID

The University of Kentucky is particularly interested in students with strong motivation toward a university 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. Currently, about 35 percent of the undergraduates at the University receive some form of financial aid, along with 42 percent of the graduate students.

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

RETENTION

Among the concerns that many students entering college have is whether or not they are likely to achieve their academic goals and eventually earn a college degree. To help students assess this probability, many schools compute and report what is called a "retention rate," that is, the percentage of an entering class that eventually graduates from school. This figure alone may be misleading, since it seems to suggest that the remainder of the class either "flunked out" or simply dropped out of college. Actually, a number of these students will have transferred to another college or to a different program to continue their education and many of them will graduate elsewhere. Others will have "stopped out" temporarily, sometimes for several years, but will eventually resume their education. Some, of course do drop out of collegiate level education permanently. Unfortunately, statistics on these groups are difficult to obtain.

Studies of University of Kentucky students show that between 50 percent and 55 percent of an entering freshman class will graduate from the University within four to six years after entrance. This is about 10 percent higher than the graduation rate for students in the 1960s. Furthermore, nearly half of the students who do graduate here will receive their degrees from a different college within the University than the one they entered as freshmen. About 30 percent of the new undergraduate students coming to campus each fall are not new freshmen from high school, but advanced students who have transferred here from other colleges and universities, most of whom will complete their education and graduate here. These students have been brought to the University of Kentucky by the same kinds of changes in educational goals or personal circumstances that caused some of our students to transfer to other schools.

A somewhat different statistical view of the University student body may also be helpful: approximately 70 percent of each year's student body returns the following year. Approximately 20 percent will have received their degrees, and the remaining 10 percent will not return for other reasons.

The University's Counseling and Testing Center and Student Services offices in individual colleges can help prospective students assess the level of their academic readiness for various University academic programs.

APPLYING FOR FINANCIAL ASSISTANCE

By following the procedures outlined below, you will receive consideration for all types of aid administered by the University. Application procedures are divided into three categories: (1) entering freshmen, (2) returning students and transfers, and (3) health professions students in the College of Medicine and Dentistry.

Entering Freshmen

All freshman applicants for financial aid must:

1. Apply for admission to the University of Kentucky. Indicate on the ACT Profile or on the University Application for Admission that financial aid will be needed; and

2. Submit the Kentucky Financial Aid Form (KFAF) to the College Scholarship Service, designating the University of Kentucky to receive the analysis. The KFAF should be submitted by March 15 to insure full consideration for financial aid. The Kentucky Financial Aid Form will be available at most secondary schools and at the Office of Student Financial Aid. Out-of-state students may submit the Financial Aid Form (FAF).

All financial assistance is based on need and is conditional upon the applicant's enrolling at the University. Every effort is made to notify applicants of amounts and kinds of assistance by May 1. Along with notification of financial aid awards, students are instructed as to when and where to pick up checks or complete any other necessary procedures.

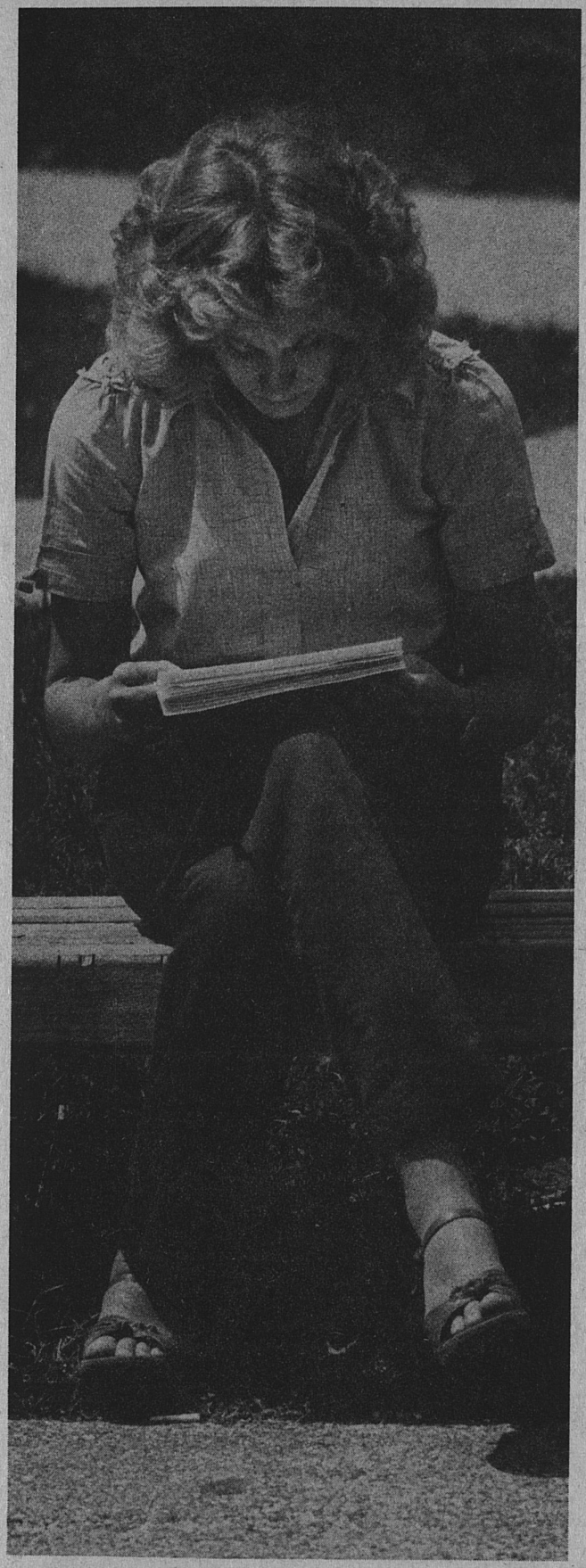
Continuing University Students and Transfers

Continuing University students and transfers must:

1. Secure a "University of Kentucky Application for Student Financial Aid" after January 1. Transfer students (except UK Community College transfers) must also obtain a Financial Aid Transcript from each institution where they have received financial assistance.

2. Return the completed application—and Financial Aid Transcript(s) for transfer students—to the Office of Student Financial Aid by April 15 to insure full consideration for assistance.

3. Submit the Kentucky Financial Aid Form to the College Scholarship Service, designating the University of Kentucky to receive the analysis by April 15. (The KFAF will be made available to all applicants requesting the "University of Kentucky Application for Financial Aid.")



Every effort will be made to notify applicants of the amounts and kinds of assistance awarded by June 15.

Health Professions Students Medicine and Dentistry

University of Kentucky Medical and Dental students and students accepted for admission in the Colleges of Medicine and Dentistry are offered an opportunity to apply for financial assistance. Medical students should apply for financial aid through the Office of Academic Affairs, College of Medicine, Room 106, A. B. Chandler Medical Center. Dental students may apply in the College of Dentistry Business Office, Room D131, A. B. Chandler Medical Center.

Pharmacy and Nursing

Pharmacy and Nursing students should follow the procedures for entering and returning students.

FINANCIAL AID PROGRAMS

Scholarships and Grants

Scholarships at the University of Kentucky are supported by gifts from friends and alumni of the University, and from funds provided by the University in support of its scholarship program. Consequently, the number of scholarships available at any one time depends upon the extent of private giving and the ability of the University to provide funds from other sources. The actual value of a scholarship can best be measured by the proportion of a student's expenses the award will actually defray. The actual dollar value of the award does not always reflect its true worth.

Freshman Scholarships

In the freshman awards program, students receive grants based on their outstanding academic ability and the need for financial assistance. The University uses the American College Test (ACT) to measure the scholastic aptitude and promise of scholarship applicants. Generally speaking, to receive consideration for a scholarship, you should rank in the top 10 percent of your graduating class and attain a composite standard (ACT) score of 24 or above.

Upperclass Scholarships

The scholarships awarded to upperclassmen are assigned on the basis of academic performance and the need for financial assistance.

Supplementary Educational Opportunity Grants

The Higher Education Act of 1972 provides Supplementary Educational Opportunity Grants for students who need financial aid to enter or remain in college. The maximum amount of the grant is $2000.

Basic Educational Opportunity Grants (Pell Grants)

The Basic Educational Opportunity Grant (Pell Grant) Program provides grants to eligible students attending approved post-secondary institutions. Basic Grants currently range in value from $200 to $1800 and are based on the financial circumstances of the family.

To apply for a Basic Grant, students may now use the KFAF. Students using the KFAF will have the advantage of having to complete only one form for Basic Grants, State Grants, and Institutional Aid. The "Basic Educational Oppor-

tunity Grant Application" will still be available for those who wish to use it.

Kentucky Higher Education Assistance Authority Grants

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 non-repayable one-year monetary awards based on financial need and may be renewed in subsequent years if financial need is established. The amount of the grant is related to the student's financial need.

To be eligible for a KHEAA Grant, a student must be 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.

To apply for a KHEAA Grant, students must submit the Kentucky Financial Aid Form (KFAF) to College Scholarship Service. (Since students applying for financial aid at the University of Kentucky also submit the Kentucky Financial Aid Form, the filing of a single financial statement will enable students to receive consideration for financial aid at the University, for a KHEAA Grant and for a Basic Grant.)

Student 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 and/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 after enrolling.

Short-term Emergency Loans

University student organizations and the University's Women's Club have provided funds from which a student may borrow up to $100 for 60 days. A limited number of smaller loan funds, all of which are restricted to a major field of study, are also available to eligible University students. Students in need of short-term emergency loans should contact the Office of Student Financial Aid. Usually four to five days are required for processing these loans.

Emergency loans are not available for payment of tuition. Only students who have paid their tuition are eligible for these loans.

National Direct Student Loans

The National Direct Student Loan fund is the largest part of the University's loan program. This is a cooperative loan program 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 ability to do acceptable work at the University. The amount of loan is determined primarily by the needs and resources of the student. However, by the terms of the Act, the aggregate loan over a number of years cannot exceed $6000 for undergraduates and an aggregate of $12,000 for graduate and professional school students.

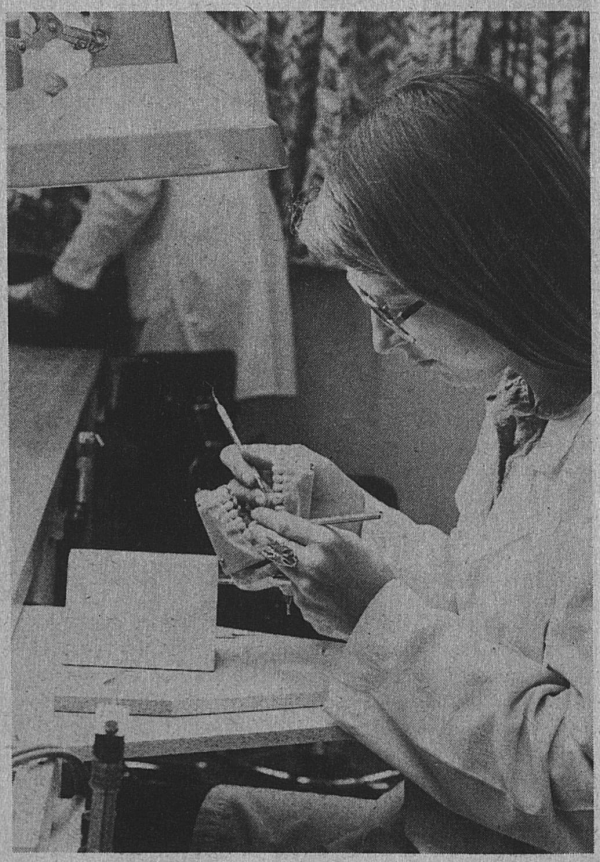
Interest does not accrue and payments are not required while a borrower is a half-time student. The interest rate is four percent per year, but does not begin to accrue until the beginning of the seventh month after the borrower ceases to be a half-time student. For this program, "half-time" means half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

Health Professions Loans

Health Professions Student Loan Programs 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 National Direct Student 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 professional education.

A student may borrow up to $2500 plus tuition in one academic year. Interest on the loan is seven 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 and Scholarships

The Nursing Student Loan Program for full-time students in the College of Nursing is established on the same basis as the National Direct and Health Professions Student Loan Programs. A full-time nursing student at the University may borrow up to $2500 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 second year a borrower is out of school, and is three percent per annum. The loan is cancelled upon receipt of proof of death or total, permanent disability of the borrower. Interest is four percent.

Related to the Nursing Loans are the Nursing Scholarships for students in the College of Nursing or Associate Degree Programs. An award cannot exceed $2000 a year and the recipient must have exceptional financial need.

State Guaranteed Loan Program

The State of Kentucky participates in the State Guaranteed Loan Program through an agreement with the Department of Education. Through this program, undergraduate dependent students may borrow up to $2500 a year; undergraduate independent students may borrow up to $3000 a year; graduate students may borrow up to $5000 a year. The amount of the loan may not exceed the cost of attending or the cost of attending less other aid received, whichever is the lesser. The aggregate loan limits are: undergraduate dependent students, $12,500; undergraduate independent students, $15,000; graduate students, $25,000.

For students borrowing for the first time after January 1, 1981, the interest rate will be nine 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 seven percent interest and will continue to have a nine-month grace period.

Application materials are available through participating banks, lending agencies, and the Office of Student Financial Aid. Interested students are encouraged to contact their local bank or lending agency.

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, 691 Teton Trail, Frankfort, Kentucky 40601.

STUDENT EMPLOYMENT

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 and 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. Students working full time under CWS while classes are not in session (summer, etc.) will be expected to save extensively from their earnings to meet the costs of the next enrollment period.

The amount a student will be permitted to earn will be determined by his financial need. Students will not be permitted to earn in excess of the amount specified on their Notice of Award. Students must be paid the minimum wage which is currently $3.35 per hour.

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 primarily indicating skills, interest, and class schedule. Students are asked to indicate whether or not work is needed to help meet college costs but no needs analysis is required.

Students seeking part-time employment should contact the Office of Student Financial Aid, Student Employment Service, regarding part-time employment other than College Work Study. Students should keep in contact until placed. It should be noted that the employer listing the job actually makes the decision regarding employment. A listing of available jobs is kept on file for students to review.

The student should promptly report any unsatisfactory work relationships and is welcome to discuss his work program with the Student Employment Service at any time.

VETERANS BENEFITS

Benefits for Veterans and Eligible Dependents

Federal and State benefit programs for veterans and eligible dependents are coordinated through Veteran Services, in the Dean of Admissions and Registrar's Office.

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, 206 Gillis Building, during advance registration or on the Advising Conference date. At that time, the applicant will be given information about enrolling for benefits.

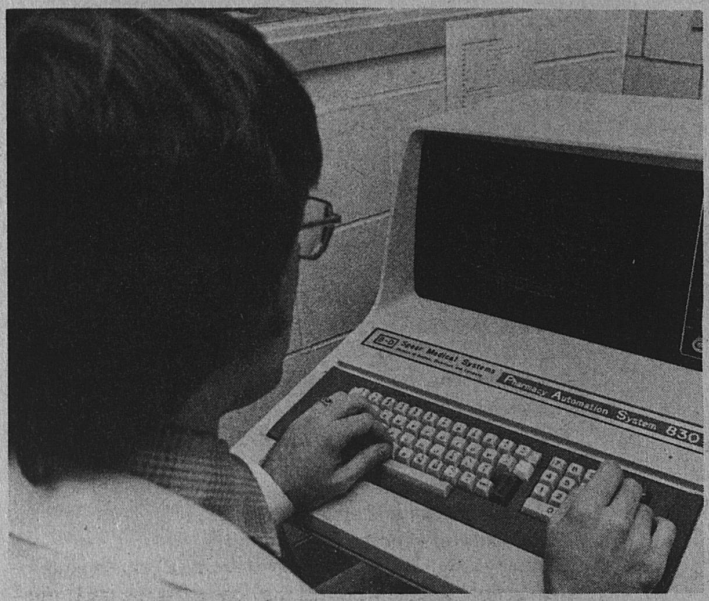
Those students who have already applied for federal or state benefit programs should bring with them certificates showing entitlement or eligibility.

Students who depend on these benefits to meet their living expenses should bring enough money to cover expenses for a period of six 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 through Public Law 94-502 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, 206 Gillis Building.

Children of Kentucky War Veterans Educational 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 exemption does not cover special fees or additional fees which are charged for certain courses.

SPECIAL ASSISTANCE AND BENEFITS

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 payment of fees. Students may work toward a graduate degree or undergraduate degree, audit classes for the sheer joy of learning or take individual courses for credit. The program is available at the main Lexington campus and at all community colleges.

Donovan Fellows participate in the many intellectual, social and cultural programs which characterize the University. They, together with retired University professors and staff form the Donovem Club. *The Pillars*, a monthly newsletter, a variety of social activities, and an educational forum concerned with the issues and problems of aging are some of the functions of the club.

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

Special Awards

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, Biological or Physical Sciences, 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 $100 for first place in each category, $50 for second and $25 for third. The Dean of Undergraduate Studies presents the awards and a certificate of achievement to each winner at the annual Awards Night program in the spring.

Any undergraduate (full- or part-time, enrolled for either semester) is eligible to enter. Students should contact the Office of the Dean of Undergraduate Studies, 321 Patterson Office Tower, for information and applications.

ROTC Financial Assistance

Army ROTC

Two-, three- and four-year scholarships are available through the Army Reserve Officer Training Corps program. These scholarships pay full tuition, laboratory fees, textbook costs and other related academic expenses. A $100 per month tax free subsistence allowance is also authorized during the 10-month academic year. The recipient increases his active-duty obligation from three to four years.

Length of scholarship, application deadline, where to apply:

1. Four years; December 15; senior year of high school, directly to: Commanding General, First US Army, ATTN: ARAAG-CE, Fort George G. Meade, Maryland 20755.
2. Three years; June 10, end of college ROTC freshman year; directly to: Professor of Military Science, Army ROTC, University of Kentucky, Lexington, Kentucky 40506.
3. Two years; March 5, sophomore ROTC year; directly to the Army ROTC Officer in 2 above.

Two-Year Program. A student already enrolled at the University of Kentucky or at another college may qualify for a commission through the two-year program. Applicants must apply at an Army ROTC Office in January preceding the year of desired enrollment. Applicants must have two years of undergraduate school or graduate school remaining. Qualified applicants will be enrolled in the Advanced Course upon successful completion of a Basic Summer Camp at Fort Knox, Kentucky. For further details, contact the Army ROTC office at the University of Kentucky.

Air Force ROTC

Four-year Scholarships. Scholarships are available to qualified male and female students who enroll in the four-year AFROTC cadet program. These scholarships provide for full repayment of tuition, laboratory fees, textbook costs, and a nontaxable subsistence allowance which is currently $100 a month.

Applicants interested in obtaining a four-year scholarship will be evaluated on the basis of:

1. Results of the American College Test (ACT) or CEEB Scholastic Aptitude Test.
2. High school academic record.
3. Extracurricular and athletic activities.
4. Personal references.
5. Ability to qualify on an Air Force medical examination.

High school seniors 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 AFROTC headquarters.

Where to Apply: High school seniors should contact their school guidance counselor or principal early in their senior year for applications. Applications may also be obtained from the Professor of Aerospace Studies, Barker Hall, University of Kentucky, or by writing directly to Air Force ROTC/O1, Maxwell AFB, Alabama 36112.

Two- or Three-Year Scholarships. Scholarships are also awarded to cadets in the AFROTC program on a competitive basis for two or three years at sophomore and junior levels. 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 two- or three-year scholarships should contact the Professor of Aerospace Studies early in their freshman year 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, or a combination of the two. Entry into the program is on a competitive basis. Applicants must qualify on a written exam (the Air Force Officer's Qualifying Test), have a grade-point average (GPA) of 2.0 or better, pass an Air Force medical evaluation, and be selected by an interview board of AFROTC officers.

Commission and Active Duty Requirements. All men and women students must successfully complete the professional officer course, usually taken during the junior and senior years, and a summer field training course.

For further details of eligibility and requirements contact the Department of Aerospace Studies, Barker Hall, University of Kentucky. Additional information may be found in this Bulletin under Aerospace Studies.



SPECIAL ACADEMIC PROGRAMS

ACCELERATED PROGRAMS

Accelerated programs enable superior students to complete their undergraduate college experience in less than the traditional four years. Inherent in the Accelerated Program concept is the opportunity to receive credit by examination on course material which you may have mastered by nontraditional educational means.

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 Unusual Ability prior to high school graduation. Both the High School Junior Summer Program and the Unusual Ability program are outlined in greater detail in the Admissions section of this Bulletin.

Another method by which students may begin their college careers while still in high school is through Independent Study Courses. If you have the written permission of your counselor or principal, you may register for University of Kentucky freshman level courses offered through the Independent Study Program at the same time you are engaging in high school work. For additional information on the Independent Study Program for high school students, you should contact:

Director
Independent Study Program
University of Kentucky
Lexington, Kentucky 40506

Special Examinations

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. Many students use credit earned by examination to accelerate progress toward a degree. Others prefer to use the time gained to explore areas outside their major or for more work in the major. Both uses of examination credit are appropriate.

Credit earned through any of the following examination procedures may be used in satisfying the University's General Studies requirement.

Advanced Placement Program (AP)

The University of Kentucky participates in the College Board Advanced Placement Program. A high school senior who wishes to be considered for advanced standing on the basis of performance on an Advanced Placement Examination should have his or her examinations referred to the University of Kentucky Admissions Office.

Academic departments have indicated the following current policy 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.

American History—Credit for HIS 108 and 109. Area VI of the General Studies requirements satisfied.

Art Studio*

Biology—Credit for BIO 103 and 104. Area III waived.

English Composition and Literature or **English Language and Composition**—Students who earn a score of 3 on either of these English AP examinations will receive a grade of A in ENG 101 and may complete the Freshman Composition requirement by taking ENG 102, ENG 103, ENG 104 or ENG 105. Students who earn a score of 4 or 5 will receive a grade of A in ENG 105 and thus satisfy the Freshman Composition requirement.

European History—Credit for HIS 104 and 105. Area VI satisfied.

French—Students who score a 3 will receive credit for FR 201. Students who score 4 or 5 will receive credit for FR 201 and credit for FR 202.

German Language—Students who score a 3 will receive credit for GER 201. Students who score a 4 will receive credit for GER 202 and Area IV of General Studies will be waived. Students who score a 5 will receive credit in GER 202 and GER 307.

German Literature—Students who score a 3 will receive credit for GER 201. Students who score a 4 will receive credit for GER 202 and Area IV of General Studies will be waived. Students who score a 5 will receive credit in GER 202 and GER 311.

Latin—Students who score 3 on the Latin AP test and successfully complete one University Latin course at the 300 level or above will receive six hours of credit at the 200 level, thus completing their University Area IV requirement, and three hours of credit and the appropriate grade points for the University course. (The three hours of 300-level or above credit may be applied to University Area V requirements by petition, to University Depth of Study requirements, and/or to Arts and Sciences Humanities requirements.) Students who score 4 or 5 on the Latin AP test and successfully complete one University Latin course at the 300 level or above will receive six hours of credit at the 200 level, thus completing their University Area IV requirements, three hours of credit at the 300 level, and three hours of credit and the appropriate grade points for the University course. (The six hours of 300 level or above credit may be applied to University Area V requirements by petition, to University Depth of Study requirements, and/or to Arts and Sciences Humanities requirements.)

Calculus AB—Students who score a 3 will receive credit in MA 113. Students who score a 4 or 5 will receive a grade of A in MA 113. In both instances, Area I of General Studies is waived.

Calculus BC—Students who score a 3 will receive credit in MA 114. Students who score a 4 or 5 will receive a grade of A in MA 114. In both instances, Area I of General Studies is waived.

Music*

Physics—Physics B—Exempt from PHY 211 and 213. Area II satisfied. Physics C—Exempt from PHY 231,232,241 and 242. Area II satisfied.

Spanish Language—Students who score a 3 will receive three hours of credit for SPI 202 and Area IV of General Studies will be waived. Students who score a 4 will receive three hours of credit for SPI 210 and students who score a 5 will receive three hours of credit each for SPI 210 and SPI 310.

Spanish Literature—Students who score a 3 will receive three hours of credit for SPI 202 and Area IV of General Studies will be waived. Students who score 4 will receive three hours of credit for SPI 316 and students who score 5 will receive three hours of credit each for SPI 316 and SPI 319.

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.

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

Director of Pre-Admissions
Admissions and Registrar's Office
201 Gillis Building
University of Kentucky
Lexington, Kentucky 40506

Special Departmental Examinations

Almost any course in the University is available for credit by Special Examination, regardless of whether you have audited the course, are currently enrolled in it, or have 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 (1) enrolled in school, and (2) in good standing.

If you believe you are qualified to pass a Special Examination in a course, you must apply in writing to the chairman of the department. Graduate students' requests should be addressed to the Director of Graduate Study in the department offering the course. The application should include some evidence that you are, in fact, reasonably prepared for the examination.

If the department chairman believes you are reasonably prepared and if the course has been determined to be suitable, you will be examined within a reasonable time. Some departments give special examinations once or twice per semester and anyone who wishes to take an examination must do so at the scheduled time.

Credit for courses taken by special exam is considered residence credit.

English Exam: Credit can be earned by Special Examination in English 102. Entering freshmen with a standard ACT English Score of 25 or above qualify to take a special examination administered once each fall by the freshman English Office. For complete information contact the Director of Freshman English, 1219 Patterson Office Tower, University of Kentucky.

Self-Instruction Courses for Credit (Package Courses)

The University Senate defines package courses as "Independent or self-paced study which may require supervision by the UK faculty, but does not include extension or correspondence courses at other schools."

Courses offered by other accredited institutions which are available in package form may be used by University of Kentucky students and accepted for credit upon approval of the course by the appropriate academic unit.

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 University does not accept the General Examinations for credit.

The Subject Examinations cover specific material which is common to courses at many American universities. The level of proficiency required to earn credit through CLEP is approximately equivalent to that required to earn a grade of C in the corresponding course. The CLEP examinations are administered by the University's Counseling and Testing Center, in addition to the many other centers across the country.

By scoring at or above the 50th percentile (national sophomore norms) on the appropriate CLEP examination, you may earn credit in the following University courses.

	Hours
ACC 201, 202 Introductory Accounting	6
BA 330 Introductory Marketing	3
BA 335 Introduction to Business Management	3
BA 341 Introductory Business Law	3
BIO 103 Biology—scaled score of 50 to 59	3
BIO 103, 104 Biology—scaled score of 60 or above	6
CHE 105, 107 General College Chemistry —scaled score of 55 or above (no grade)	6
ECO 260 Macroeconomics	3
ECO 261 Microeconomics	3
FR 201 Intermediate French—scaled score 50-69	3
FR 201, 202—scaled score of 70 or above	6
GER 201—scaled score 50-69	3
GER 201, 202—scaled score of 70 or above	6
HIS 104-105 Western Civilization—scaled score above 48	6
HIS 108-109 American History	
—scaled score of 48-49 (credit only; no grade)	
—scaled score of 50-54 (grade C)	
—scaled score of 55-59 (grade B)	
—scaled score of 60 or above (grade A)	6
MA 109 College Algebra-Trigonometry —scaled score of 49	3
MA 113 Introductory Calculus	4
PS 101 American Government	
—scaled score of 50-59 (grade C)	
—scaled score of 60-64 (grade B)	
—scaled score of 65 or above (grade A)	3
PSY 100 Introduction to Psychology—scaled score of 51	4
SOC 101 Introductory Sociology—scaled score of 51 —(written essay required)	3
SPI 102 Spanish Levels 1 and 2	
—scaled score of 50-54 (credit only; no grade)	
—scaled score of 55-59 (grade B)	
—scaled score of 60 or above (grade A)	4
SPI 201 Spanish* —scaled score 50-55 (credit only; no grade)	
—scaled score 56-64 (grade B)	
—scaled score 65 or above (grade A)	3
SPI 202** —scaled score 55-60 (credit only; no grade)	
—scaled score 61-64 (grade B)	
—scaled score 65 or above (grade A)	3
STA 291 Statistics—scaled score of 49	3
STA 292—scaled score of 49	1
STA 293—scaled score of 49	1
STA 294—scaled score of 49	1

*Students who earn 201 scores also receive credit (and grade) for 102.
**Students who earn 202 scores also receive credit (and grade) for 201.

Additional information concerning CLEP may be obtained from the Dean of Undergraduate Studies, 321 Patterson Office Tower; The Counseling and Testing Center, 301 Mathews Building; or the Dean of Admissions and Registrar, Gillis Building.

INTERNATIONAL PROGRAMS

The activities of the Office for International Programs focus on helping faculty, students and staff of the University to pursue their interests in countries and peoples abroad. OIP seeks to integrate an international dimension into the University's academic programs as well as to help members of the UK community to experience other cultures and to become acquainted with others of similar experiences and interests.

To carry out its objectives, these are a few of OIP's activities of particular interest to students:

1. Advising students on opportunities for study/work/travel abroad.

2. Maintaining a Reading Room with current information on various countries and study programs abroad.

3. Selling the International Student Identity Card (available to *full-time* students; $6, photo, and proof of full-time status required).

4. Sponsoring annually a Study/Work/Travel Abroad Fair.

5. Coordinating specific programs for study abroad, such as the Heidelberg Exchange Program in Europe and the UK Summer Program in Monterrey, Mexico.

For further information, contact Dr. Willis Griffin, Director, at 257-1654, or Jane Leslie Newberry, Assistant Director, at 258-8908, or write to:

Office for International Programs
115 Bradley Hall
University of Kentucky
Lexington, Kentucky 40506

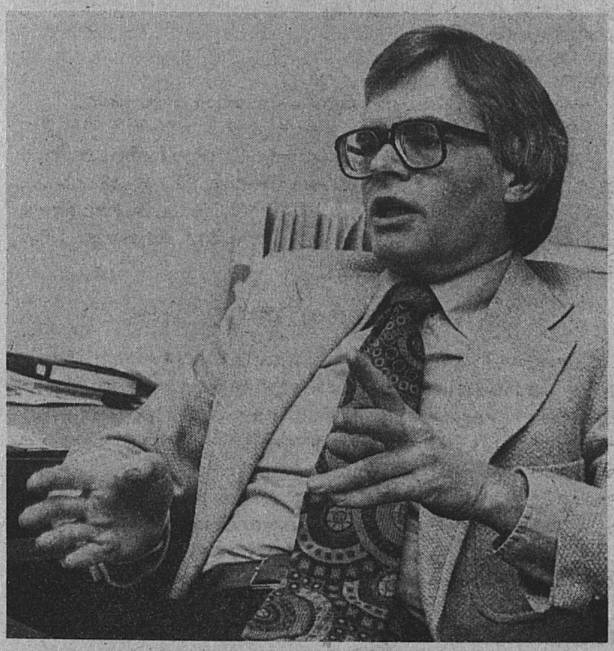
THE HONORS PROGRAM

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.

Honors Program students may also enroll in special Honors sections of regular classes. These sections are usually smaller, more rigorous, taught by some of the best professors, and more open for discussion than regular classes.

Freshmen may also request rooms in the honors areas of the dormitories, where people of similar abilities and interest often become lifelong friends.



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

EXPERIENTIAL EDUCATION

Experiential education includes all the planned learning experiences, such as field placements, internships, practicums and service-learning, which occur outside the classroom. The Office for Experiential Education assists students in developing individual credit-granting learning arrangements outside the classroom, and maintains a resource library of possibilities not only in Kentucky and the United States, but also in countries around the world.

The possibilities for experiential learning are as varied as the interests and imaginations of those who participate. Students have arranged independent internships ranging from work at the Smithsonian Institution in Washington, D.C., to summer stock theatre, research in Appalachia, and special studies in ecology. More information is available from the Office for Experiential Education, 303 Administration Building, University of Kentucky, Lexington, 40506. Generally these experiences last one semester and require from 10 to 40 hours a week. Students who can define their project or learning goals, and can arrange faculty supervision of the experience, are generally eligible to participate in this kind of educational experience. Usually participants of junior or senior standing find this experience most beneficial.

DEVELOPMENTAL STUDIES PROGRAM

Part of the University's philosophy as a state institution is that every Kentucky student who enrolls should have a chance to succeed at the University of Kentucky. Entering freshmen whose ACT scores indicate weaknesses in their preparation for college are eligible for the Developmental Studies Program. The purpose of the program is to help students strengthen skills in the major areas—English, speech, mathematics, and reading and study skills—necessary to complete any college degree program.

Students who enroll in the program carry the minimum full time academic load of 12 hours and attend a reading and study skills course. The basic courses in freshman composition, mathematics and speech are offered with tutoring. Study skills are specifically related to other freshman courses. The individualized classroom instruction, reading and writing labs, and study spaces for individuals and groups, help students make the transition from high school to college-level work more successfully.

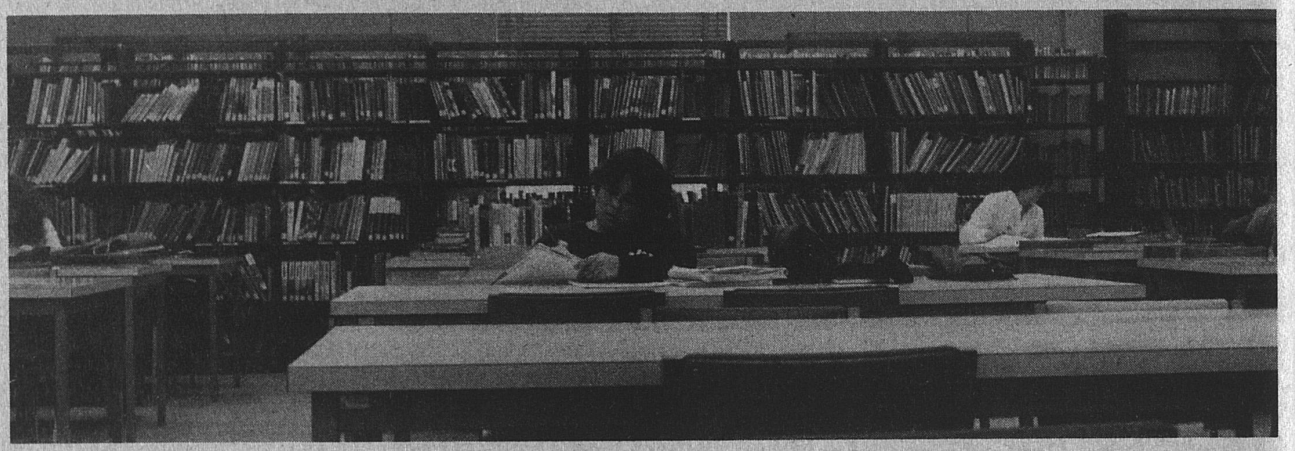
Students in the Developmental Studies Program benefit from the guarantee that they will not be dismissed from the University for academic reasons for three semesters, providing they maintain reasonable academic effort and progress. Any of the three basic courses can be continued into a second semester, if necessary, without penalty to the student.

Professional advisers work with students throughout the year in individual monthly conferences, assist them in making academic and career choices, and ultimately aid them in transferring to the program or college of their choice.

For further information, contact:

Dr. Mary Franke, Director
Developmental Studies Program
301 Frazee Hall
University of Kentucky
Lexington, Kentucky 40506

LIBRARIES



The University of Kentucky library system has a collection of more than 1.8 million volumes and receives more than 25,000 periodicals and serials annually. It serves the University community and citizens of the state by providing books, periodicals, and other information services, plus the expertise of professional librarians. The social sciences and humanities collections are housed in the main Margaret I. King Library. Specialized collections are housed separately in 13 branch libraries, serving the areas of agriculture, architecture, art, biological sciences, chemistry and physics, education, engineering, geology, law, mathematics, medicine, music and pharmacy.

The University of Kentucky has been a regional depository for federal government publications since 1907. Most of these are housed in the Government Publications Department of the King Library, along with official publications of Canada, the United Nations, European Economic Community, Kentucky, and selected states. The libraries have a substantial map collection. General interest maps are located in the King Library Map Room, and geological maps are in the Geology Library.

The Periodicals/Newspaper/Microform Department houses and services one of the largest microform collections in the country. The newspaper holdings include many U.S. and foreign titles in addition to a comprehensive collection of Kentucky newspapers.

Manuscripts, rare books, and a large collection of 20th century American political manuscripts are located in the Special Collections Department of King Library. Although emphasis is placed on Kentucky and Ohio Valley history and literature, this department has also acquired the Cortot collection of musicology and an important Milton collection.

In addition to the traditional library services such as reference, circulation, reserve book room, and inter-library loan, the system also offers programs designed to make the collection more accessible to the user. The Reference Department, through its instructional services unit offers introductory orientation to the library for beginning students, prepares in-depth presentations to classes of advanced students, serves as a liaison between students and appropriate campus units for study skills development and academic advising, and maintains and services media productions which have been placed on reserve by instructors. This department, as well as other library units and branches, publishes a library guide and a series of brochures on the use of various library tools. Also available from King Library Reference Department is information about a variety of academic programs, services and activities available on campus.

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 Inter-library 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 a microform catalog (COM) of their respective holdings and the ability to make inter-library loan requests online.

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

CULTURAL OPPORTUNITIES

Theatre

The Department of Theatre offers a large number of dramatic productions each year, and invites each interested student to become part of an organization which provides dramatic performances for the educational and regional community. Participation is possible as audience member, performer, stage worker or any of the other theatre related activities.

All University students are invited to audition for the plays presented. Similar opportunities are made available by 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 large number of student and faculty recitals, concerts by faculty ensembles, and concerts by student musical organizations. The faculty ensembles include the Heritage String Quartet, the Faculty Brass Quintet, and the Concord Trio.

Student musical organizations include the Symphony Orchestra, the Symphonic Band, the University Choristers, the University Chorus, and the Collegium Musicum. Faculty recitals, faculty ensemble concerts and concerts by student organizations are all offered free of charge to students as well as to the general public.

A music calendar, listing all concert and recital events, is published each semester for the convenience of students, faculty and the public. Inquiries may be directed to the School of Music of the College of Fine Arts.

Central Kentucky Concert and Lecture Series

Each year the Central Kentucky Concert and Lecture Series brings to the campus a number of outstanding soloists and large ensembles. These attractions are open, free of charge, to University students upon presentation of ID cards.

The Lexington Chamber Music Society

The Lexington Chamber Music Society annually presents a series of concerts featuring outstanding chamber music ensembles of national and international reputation. These concerts are open to University students upon presentation of ID cards.

The Lexington Philharmonic Orchestra

Composed of talented instrumentalists from throughout the central Kentucky area, the Lexington Philharmonic Orchestra gives performances on the University campus. A semiprofessional organization, the Orchestra features outstanding guest artists at each concert. Performances on the campus are open to students upon the presentation of ID cards.

Minority Student Affairs Cultural/Educational Program

The Office of Minority Student Affairs presents annually a calendar of cultural events based on the African and Afro-American Experience. Regular features in this program include an annual Afro-American Film Festival and the Spotlight Jazz Concert Series, cosponsored with the Student Center Board. Dramatic productions, dance performances, lectures, art exhibits and workshops are also offered throughout the year. The program has brought to campus a number of outstanding artists and personalities including Alex Haley, Maya Angelou and the Alvin Ailey Dance Company. Most of the activities are free of charge and are offered to the Lexington community as well as the University.

University Art Galleries

The University Art Gallery 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 student 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.

Center for the Arts

The University's new Center for the Arts is a major facility for the arts, serving the needs of both the campus and the state. Areas for performances in the Center include a large concert hall and a recital hall, each designed to be acoustically excellent for the performance of music. Outstanding arts events including concerts, plays and lectures are featured at the Center each week.

The University of Kentucky Art Museum, also housed in the Center, displays a permanent collection as well as special exhibitions throughout the year. The Art Museum is open to the public, 12 noon-5 p.m., Tuesday through Sunday.

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. Continued expansion of the exhibit area is planned for the coming year. Exhibits to be featured are: "Human Bio-Cultural Evolution," "Cultural Variations," and a diorama of Balinese Material Culture.

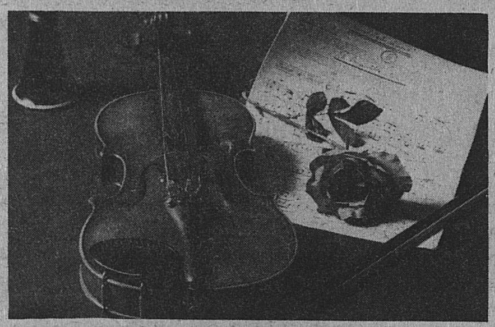
The collections are used for research by faculty members, graduate and undergraduate students and they are consulted by scholars from other institutions and countries.

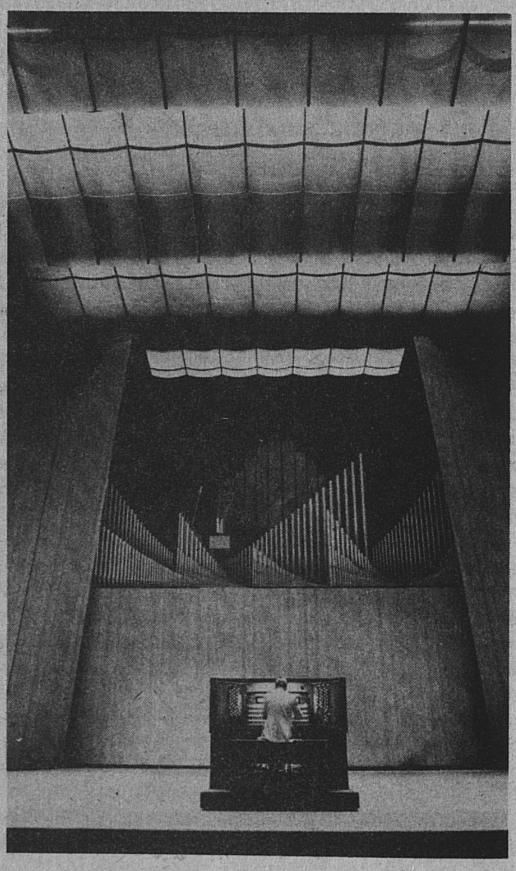
The Museum of Anthropology is open to the public, free of charge, from 8 a.m.-4:30 p.m., Monday through Friday, except holidays.

Lexington Community

University students can also take advantage of all the cultural events and activities of the Lexington community, often at student rates. These may include folklife festivals, art exhibits, performances of opera, Broadway plays, musical theatre, dance and drama, as well as several historic sites and small museums in the Lexington area.









LIVING ACCOMMODATIONS

The University of Kentucky offers a high standard of residence hall living surpassed by few other institutions. 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 dormitories 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 receipt of housing applications and deposits, the establishment of consideration lists, the assignment of rooms and apartments, the notification of room or apartment assignments, and the payment of refunds (where applicable) for married and single student housing. Questions about any of these areas should be directed to:

University Housing Office
218-L Service Building
University of Kentucky
Lexington, Kentucky 40506

Who Must Apply for Housing

In order to insure a reasonable cost to those students living on campus, occupancy of residence halls must be kept near capacity, otherwise the distribution of fixed costs (debt service, operational and maintenance costs) would make both room and board fees prohibitively high. 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 at the time they apply for admission to the University or even earlier in order to establish an early consideration date.*

Please note that application for admission to the University (and acceptance) and application for University Housing (and acceptance) are two distinct 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 him a room. Usually beginning freshmen who apply for housing early (before Christmas) can be reasonably sure that housing will be available when they enter the following fall.

How to Apply for Housing

If you would like to live in University housing, indicate this in the appropriate section of the ACT student profile, if you plan to apply for admission by Enter-ACT. Or, indicate that you want University housing on your application for admission. In either case, you will receive more complete information about the residence halls along with a housing contract and application. These should be completed and returned to the University Housing Office as soon as possible, along with a $100 deposit.

If you decide after you have applied for admission that you would like to live in University housing you should write directly to the Housing Office to request an application.

Food Services

All undergraduates who live in residence halls will have a room and board contract for the full academic year, however, you may choose any one of the four available plans:

1. **21 meals per week.** This plan offers three meals per day, seven days a week.
2. **14 meals per week.** This option provides any two meals per day, six days per week, and breakfast and noon meal on Sundays.
3. **10 meals per week.** This option provides any two meals Monday through Friday.
4. **15 meals per week.** This option provides three meals per day Monday through Friday.

The students with the three-meal, seven-day option may eat all their meals in any of the University food service operations on campus. Students electing the two-meal per day contract may eat the third meal on a cash basis at the K-Lair grill, the Student Center cafeteria, the Student Center grill, or may purchase a guest ticket to eat single meals in the residence hall cafeterias (Blazer, Donovan, or Commons cafeteria).

Meal cards will be distributed in the Student Center after you have made your second payment for room and board. By making the second payment by mail to the Housing Office **prior to August 15** (or December 15 for spring semester), it will be necessary to submit only the receipt in order to receive the meal card—thus avoiding the long payment lines. Contracts for board only are available to students who live in the Greg Page Stadium View Apartments or off campus.

Single Undergraduate Residence Halls

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

Jewell Hall accommodates only freshman women. It is the smallest of the units, housing 108 students. Patterson Hall houses 122 freshman women, and while the rooms in Patterson are not as spacious as those in some of the newer units, this hall is highly regarded by all who live there because of its friendly atmosphere and traditional air. Boyd Hall, situated between Patterson and Jewell, houses 138 freshman women.



Holmes Hall, a modern, four-story building housing 300 freshman men, provides double rooms, each containing a sink, closets, desks, etc. A vending area, laundry room, and library are located on the ground floor.

Keeneland Hall accommodates 307 upperclass men and women as a coed hall. The rooms in Keeneland are arranged as suites—with double rooms, connected by a full bath. The building contains a formal reception room, library, and corridor study rooms.

Blazer Hall houses 188 upperclasswomen. This air-conditioned residence hall has corridor study rooms, a library and a music room. A cafeteria, designed to serve students on the north side of the campus, is also located in Blazer Hall.

On the south side of the campus is Donovan Hall, a residence unit for freshman women with a capacity of 338 students. This residence hall contains a lounge for the comfort of the students. One of the University's three main dining facilities, serving both men and women, is located on the ground floor of Donovan Hall.

Haggin Hall, with a capacity for 576 freshman men, is located on the south side of campus. Constructed in the shape of a square with a large open courtyard, this four-story facility encourages small-group living with each corridor opening to the outside and locked to all but the occupants of that corridor. Haggin Hall has a central lounge and recreation room, and is completely air-conditioned.

Located on the southeast side of the campus is the University's 2664-bed Blanding-Kirwan Complex. The complex is composed of eight three-story halls and two 23-story buildings, housing both men and women. These buildings are air-conditioned and have wall-to-wall carpeting throughout. The Blanding-Kirwan Commons Cafeteria is designed to serve those students who live in the complex.

Also on the southeast side of campus are the Greg Page Stadium View apartments. There are 176 furnished, carpeted and air-conditioned apartments for upperclass men and women. Each apartment has two bedrooms, kitchen-dining area, living room, and bath. Students may have meal contracts if desired. Four students occupy each apartment.

Single Graduate Student Housing

A little farther to the southeast are residence units with apartment facilities. This housing area, known as Cooperstown, provides separate facilities for single graduate or advanced men and women students. Two additional buildings (123 apartments) on the southwest corner of campus, Com-

monwealth Village, also house graduate students.

Students living in these facilities may prepare their own meals or have University board contracts. A choice of meal contracts is available to graduate students who wish to dine in University residence hall cafeterias.

Family Housing

Apartments for married students and families are available in the Shawneetown housing area on the south side of campus. Further information may be obtained from:

Apartment Housing Office
Building C, Cooperstown 01321
University of Kentucky
Lexington, Kentucky 40506.

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. **Filing an application does not guarantee an assignment, nor does it in any way coincide with or affect admission to the University of Kentucky.** Receipt of the residence hall/apartment assignment will be confirmation of housing for the student.

Students of the same sex may select their own roommate by indicating their choice on the application. To obtain this assignment, two actions are necessary. First, each student must select the other as the roommate preferred, and, second, both applications must arrive in the Housing Office in the same envelope. Within the limits of academic classification, residence halls may be selected, provided space is available. The only limitation is that only freshmen can be assigned to residence halls designated for freshmen.

Roommate selections are randomly made, by date of application. Assignments are mailed between June and August. Notice of an assignment will contain the name of the residence hall, the room number and telephone number.

Late applicants may be temporarily assigned three to a room. However, these students will be reassigned as soon as possible. Vacancies become available through students who decide not to come, or come but do not stay.

Damages

Occupants of the rooms are personally responsible for the care of furnishings. Assessments will be made for damage to the residence hall or its furnishings. Each student should note all damage or needed repairs on the room inventory sheet upon checking into his room.

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 Housing Office, 00052, University of Kentucky, Lexington, Kentucky 40506. 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.

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, 1981 for fall applicants, or December 1, 1981 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, $90 will be refunded.

No refund will be made for applications submitted and cancelled after June 1, 1981 for the fall semester, or after December 1, 1981 for the spring semester.

Kentucky students who are accepted by the University, but who are advised to attend another school, may receive a $90 refund if they cancel prior to the cancellation deadline. After the cancellation deadline, there will be no refund of the $100 first installment.

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

After the semester begins:

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 12th 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.

STUDENT PARKING

Parking on the campus is restricted to permit parking between hours of 7 a.m. and 5 p.m., Monday through Friday, whether or not the University is in official session. A very limited number of parking permits are available to juniors, seniors, graduate and professional students. All freshman and most sophomore students are asked to park in the Commonwealth Stadium lots and ride the shuttle bus to and from the campus. Handicapped students and others with special needs will be considered in first priority in so far as space is available.

Upperclass students who reside on campus may purchase parking permits for specific areas. All students are discouraged from bringing cars to the University unless necessary, due to the limited amount of available parking space.

Information concerning student parking is available at any time from the Parking Department of the Public Safety Division, 305 Euclid Avenue. Students are expected to become familiar with University parking and traffic regulations.



STUDENT SERVICES AND ACTIVITIES

The important experiences of a college education occur in all dimensions of student life. Many of them occur outside the formal academic life of the classroom, library and laboratory. In the University community, students encounter a wide range of new people, new life-styles, interests and values. All of these add a richness and depth to individual intellectual, social and personal growth.

DEAN OF STUDENTS OFFICE

The Dean of Students' staff is available to assist students in expanding their responsibilities as citizens of both the University community and the larger Lexington community. Members of the staff are available at any time to discuss personal, academic, and extracurricular concerns with individuals and groups of students.

Staff members advise many student organizations and assist individuals and groups in developing varied programs of campus and community recreation and service. Professional and student staff members live in the residence halls to assist residents in their adjustment to group living and in the development of meaningful programs.

The Dean of Students 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.

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, 1980, 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 25 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, 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.

Residence Hall Programs

The residence halls provide experience in government, social planning and group living. Trained personnel and selected student advisers aid residents with educational and personal development. With this guidance available, students are enabled to develop social skills in an atmosphere conducive to academic pursuits. The residence halls encourage student participation both within residence halls and in the total campus community. The head residents, receptionists, and resident advisers who staff these undergraduate living units help develop hall government and plan programs of interest for hall residents.

HUMAN RELATIONS CENTER

The Human Relations Center located in Bradley Hall serves UK students, faculty, and staff who have special physical, cultural, and educational needs. The Center also promotes activities which are designed to facilitate contact among diverse groups of students and which otherwise address the current needs of UK students. The Center consists of the Director's Office, the International Student Office, Handicapped Student Services, Student Volunteer Programs, Bureau for the Blind Recording Unit, and the Attendant Care Program.

Director's Office

Programming made available through the Director's Office includes Freshman Weekend, the NEXUS telephone informa-

tion service, alcohol awareness programs, and the Stray Cats organization for off-campus students. The Director also serves as Coordinator of Religious Affairs and in this capacity assists the work of many diverse religious organizations which, through a campus ministry and student organizations, include Ba'Hai, Baptist, Campus Crusade for Christ, Church of Christ/Advance for Christ, Episcopal, Christian Student Fellowship, Christian Science, Hillel Foundation, Maranatha, Navigators, Roman Catholic, United Campus Ministry (Presbyterian, Christian Church—Disciples and United Church of Christ), and Methodist.

International Student Affairs

As the primary contact point for internationals attending UK the staff assists these students, faculty and staff with immigration and visa matters, housing, finances, employment, and personal/social concerns. A comprehensive orientation program is provided for new students twice each year. English as a Second Language classes are provided free of charge, and a Host Family program provides important contact with the Lexington community. Annual publications of this office include a Student Handbook and Directory. Programming is conducted through the Cosmopolitan Club, and International Week is a highlight each year at UK.

Volunteer Programs

The Office of Volunteer Programs is responsible for coordinating the services rendered to the community by University of Kentucky students on a volunteer basis. The Program assistant works with students and community personnel in order to insure, as nearly as possible, that the extension of the student's talents and resources into the community is a viable broadening of his or her educational and personal experience. Staff is available for continual assistance. The office specifically acts as a clearing house for persons seeking volunteer jobs and agencies and individuals needing volunteer help; canvasses community and campus resources; advises student groups on the areas and possibilities of new programs; and formulates, in cooperation with students, workshops to increase the skills and relate the volunteer experience to a total education.

Handicapped Student Services

Special assistance is made available to handicapped students through Handicapped Student Services.

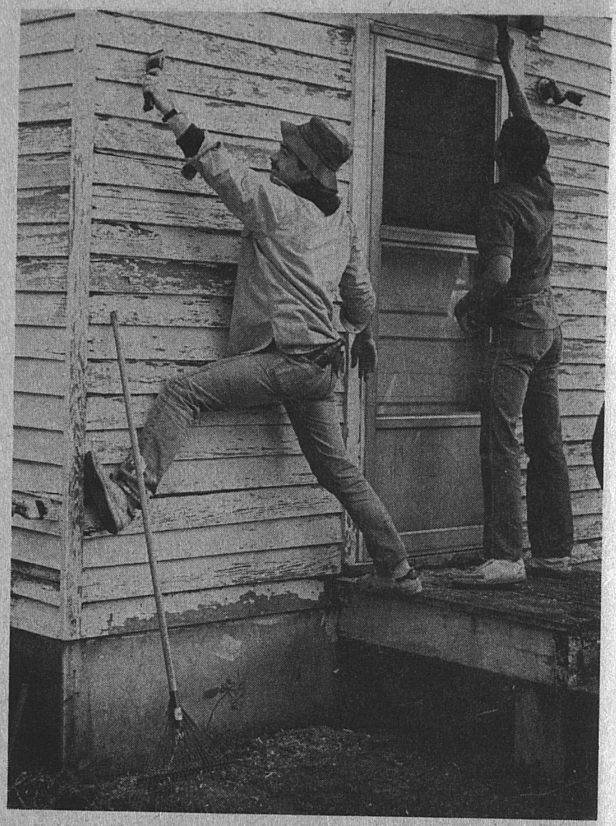
Handicapped Student Services provides disabled students the following types of services: academic advising with special emphasis on architectural barriers, time necessary to travel to class, and academic needs; orientation counseling; recruitment of volunteers; liaison with the Bureau of Rehabilitation Services, faculty, students and staff; screening applicants for handicapped parking permits; and supervising the reading room for the handicapped. A new program of Attendant Care offers the training and scheduling of attendants for students who need this kind of service. These students live on campus.

All handicapped students are urged to register with the Director of Handicapped Services and obtain information on the various types of assistance available to them.

This office is located in Alumni Gym.

Bureau for the Blind

This office provides assistance to blind and visually impaired students attending the University of Kentucky. The pri-





mary service provided is the reproduction of printed text books and material onto cassette tapes. The recording program is composed of volunteers who provide a minimum of three hours per week to record printed materials for the blind.

Persons interested in volunteer recording for the blind and visually impaired should contact the Coordinator, Bureau for the Blind in Alumni Gym.

MINORITY AFFAIRS

Minority Student Affairs

The Office of Minority Student Affairs is now part of the University's Division of Minority Affairs, under the administration of Vice President John T. Smith. The Office of Minority Student Affairs assists both students and University staff in the development of coordinated programs and supportive services for minority students when specific needs cannot be met effectively through the use of existing resources. Minority students are provided information regarding 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 Office also works closely with minority students in assisting with the organization and planning of special events, programs, and social functions of particular interest to black students. Each year the Office of Minority Student Affairs develops a series of cultural, educational and social programs which reflects the Afro-American experience, including outstanding concerts, speakers, and dramatic productions which attract a wide variety of students.

Recruitment and Learning Services

The Office of Recruitment and Learning Services has recently been established. The Director of Recruitment is available to explore possible career opportunities, consideration in choice of an occupation and significant specifics about the many opportunities the University has available. 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, exam-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.

Minority students, either currently enrolled or those seeking future admission to the University, should register with the Office of Minority Student Affairs (located in Room 1 of Miller Hall) or the Office of Recruitment and Learning Services (located at 147 Washington Avenue) or contact either office for further information.

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 retain them through health professional curricula.

Minority or disadvantaged students, either currently enrolled in a preprofessional health program or those interested in becoming a health professional, should contact the Health Careers Opportunity Program, in Room 203 of the Medical Center Annex 2.



CAMPUS RECREATION

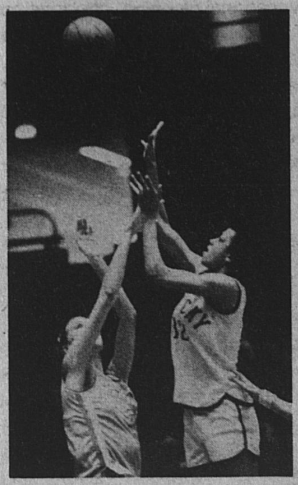
The Department of Campus Recreation is organized with the belief that it is an educational responsibility of a modern university to promote a complete and intelligently conducted intramural, extramural and recreation program for the large mass of its students who are unable to compete on varsity teams. Opportunities are provided for recreation and relaxation from strenuous school work and the rapid pace of modern living. The Department tries to provide every student in the University with the opportunity to participate in the activity of his or her choice as often as time, space and inclination permit. Students are invited to participate in as many activities as deemed advisable. Some sports in the program are organized for team competition and others for individual participation. Noncompetitive recreational outlets are also available. In the case of team competition, groups or teams may be organized by residence halls, fraternities, clubs, a department or a group of individuals.

Students, faculty, and staff of the University are offered a wide variety of leisure-time pursuits through the following programs: aquatics, intramurals for men, intramurals for women, and sports clubs for men and women, entertainment dance clubs, co-recreation—faculty and staff, and free play. Facilities for swimming, tennis, basketball, handball, softball, track, and football are available. Club activities are designed to serve individual interests and are student-oriented. These club activities include archery, Blue Marlins (synchronized swimming), fencing, judo, rugby, soccer, Tau Sigma (UK Dance Company), UK Troupers (singing, dancing, novelty acts and gymnastics) and weightlifting.

The Office of Campus Recreation is located in the Seaton Center Building.

THE STUDENT CENTER

The University of Kentucky Student Center is owned and operated by the University of Kentucky as a service to all students, faculty, and staff of the academic community. Open approximately 120 hours a week during the academic year, the Center is where students, faculty and staff members and their friends can get together in an informal atmosphere. Since the Student Center's major source of income is derived from activity fees, it seems fitting that the policies governing the building be made by a Student Center Board, composed of students, with faculty and staff advisers. With over 133,000 square feet of floor space, the Student Center is equipped to offer many facilities and services for the enrichment of campus life. Included in these facilities and services are an art gallery, ballroom, barber shop, bookstore, browsing and music







rooms, cafeteria and grill, card room, game room, information desk, lockers, lost and found office, offices and meeting rooms, patio, sweet shop, theatre, travel map, and TV lounges. Currently, a 50,000 square foot addition to the Student Center is under construction.

STUDENT PARTICIPATION

Students are encouraged not only to attend but to take part in the programs and activities of extracurricular campus life. Many will enjoy participating in the activities provided by the musical organizations on campus, including bands, orchestras, choruses, and smaller ensembles. Others become interested in working with the various student publications including the *Kentucky Kernel,* an independent newspaper published by students and the yearbook, *The Kentuckian.* Both publications are open to all interested students. The Department of Theatre invites students to take part in the many phases of dramatic productions. Student Government participation is open to all students. As the official voice of students within the University community, Student Government is challenged with the responsibility of recommending policy considerations in the areas of academic affairs and student life, and provides numerous student services. Students are urged to take part in activities ranging from those of their living units to those of the all-campus student government represented by the executive, legislative, and judicial branches. The Student Center Board provides a wide variety of activities in its program of social, cultural, and recreational events. Traditional events, such as Wildcat Welcome, Little Kentucky Derby, and Homecoming, are planned by the Student Center Board. A variety of speakers and concerts are also sponsored during the year by this group. Several honorary organizations each year confer awards and membership on selected students who exhibit outstanding qualities of scholastic achievement, leadership, and character.

The Intercollegiate Debate Program provides instruction and experiences in competitive debate. Opportunities are available for both the beginner and the experienced student. The debaters engage in inter-school tournaments at selected institutions throughout the nation. The ultimate aim is the development of the skilled advocate who is well-grounded in the use of sound reasoning, sound research, and ethical aims of persuasion.

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 nearly 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 Black Student Union, Cosmopolitan Club, religious, athletic and military groups.

ATHLETICS

The University of Kentucky sponsors athletic teams in both men's and women's sports. The men are members of the NCAA and affiliated with the Southeastern Conference. The women hold membership in the AIAW, Southern Region II and the KWIC. The University fields representative teams in a variety of varsity sports which includes: basketball, football, baseball, tennis, golf, track, swimming, wrestling, and riflery for men; and basketball, golf, gymnastics, tennis, track and cross country and volleyball for women. These various teams provide wholesome entertainment for the entire student body, the faculty, staff, alumni and general public.

The Athletics Association helps support the band, cheerleaders, Kentucky Belles 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 eight 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. 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 Medical Center Annex 4 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.

There is a walk-in clinic to handle acute problems or students may elect to be seen by appointment for less urgent problems or those that require a more extensive evaluation. Health Service records are strictly confidential and can be released only with the student's signed authorization. After hours, urgent care is available at the University Hospital Emergency Room.

Clinic Hours: Monday-Friday 8 a.m. to 4:30 p.m., Saturday 8 a.m. to 11 a.m.

Financing the cost of health services. There are no free health services at UK. Students must arrange for their health care just as they do for their housing and meals. The University has a prepayment plan whereby students pay a health fee with their registration fees. Students who pay the health fee are issued a special ID card that entitles them to most outpatient services at the Student Health Service at no additional cost. Students who do not pay the health fee are billed for all on-campus medical services.

Information concerning payment of the health fee is sent to all registered students before the beginning of each semester, or it can be obtained by writing to the Student Health Service or calling (606) 233-5823.

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 one of the best student group plans in the country. Information concerning the cost, coverage, enrollment policies and procedures for this plan can be obtained by writing to the Student Health Service Insurance Office.

A history-only Health Report Form, mailed to each entering student, provides a record of his or her health history and immunization status.

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 intelligence, aptitude, achievement, personality, vocational interests, study skills, and many others may be used, if the student wishes, 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 remedial reading and learning skill acquisition is offered by the Center on a noncredit basis.

Many 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 University Counseling and Testing Center is certified by the International Association of Counseling Services as an agency providing approved counseling services. The services of the Center are available by appointment to all who are enrolled in the University as well as to faculty and staff. There are no fees for the testing or counseling of University-connected clients. Appointments may be made by calling 258-8701; referral from another campus agency is not necessary.

Placement Service

Established for the purpose of assisting undergraduates, graduate students, alumni, and community college students with employment opportunities, the Service has several functions. First, it provides employment counseling by providing information regarding immediate and future employment opportunities. Second, it sends credentials to prospective employers and recommends possible candidates to these employers. Third, the Service is a repository for resumes, records, and recommendations.

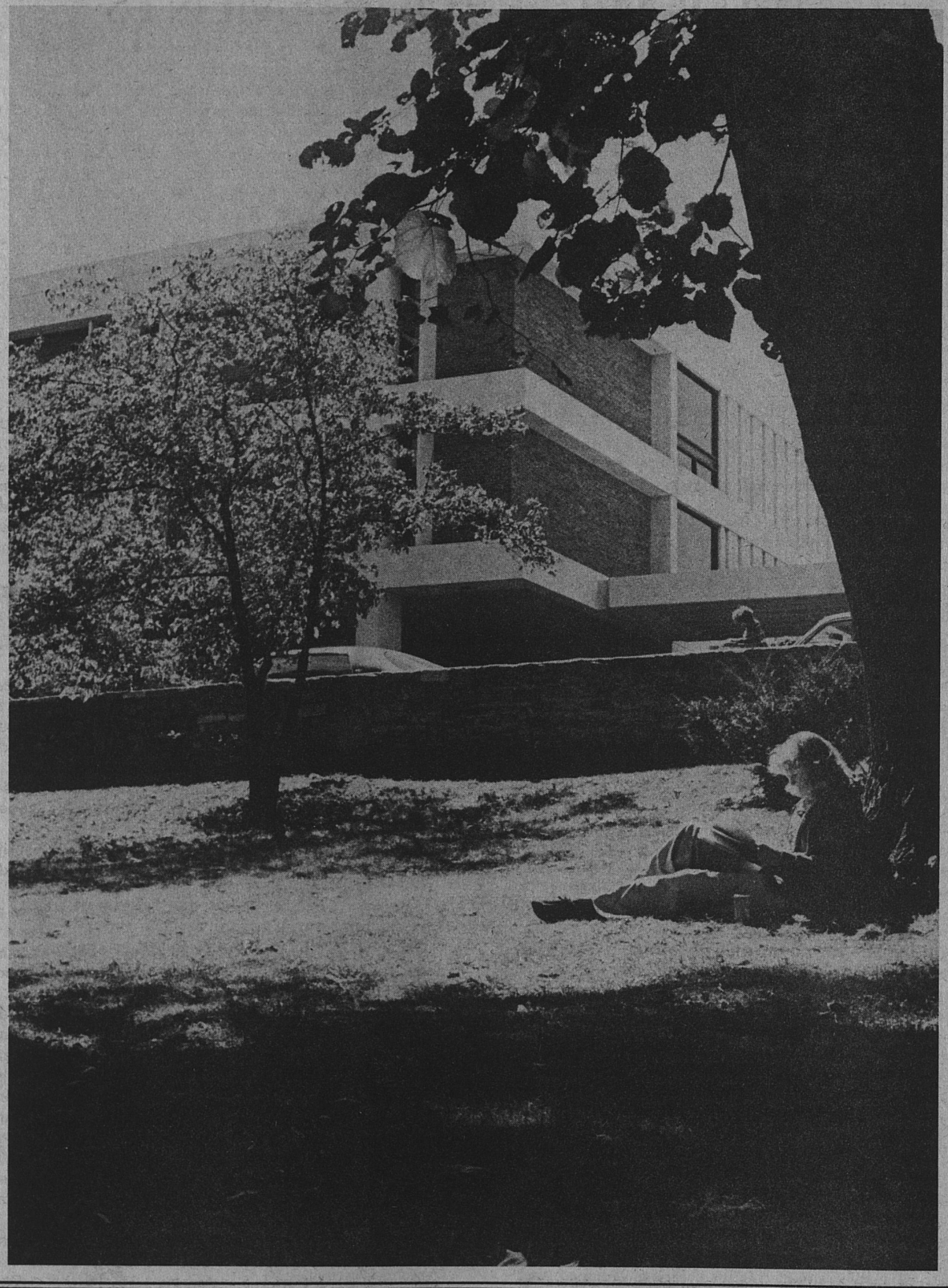
The Career Library, available to all University students, contains materials to assist students in their career planning. Seminars to help students evaluate and develop skills, determine their values and make decisions, as well as seminars on resume writing and interviewing techniques are also available.

Through the Placement Service, all students and alumni seeking employment have an opportunity to schedule on-campus interviews with representatives of business, industries, government agencies, school systems, colleges, and other employers.

The Placement Service has a summer career employment program. Under this program, University of Kentucky students are informed of summer employment opportunities which could lead to career employment after graduation. These opportunities are generally found in businesses, government agencies, and other professions.

Undergraduate and postgraduate students are encouraged to register for full-time employment opportunities at the beginning of their final year at the University. Students seeking career summer employment should register during the fall semester of their sophomore and junior years.

The Placement Service strongly urges each of you to become acquainted with the many job opportunities available through the Service.



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, correspondence, and extension courses) is 19 credit hours or the amount specified in the curriculum for the particular semester, whichever is larger.

The minimum load for a full-time student in an undergraduate college is 12 credit hours in a semester and six credit hours in the eight-week summer session.

The maximum allowable load to be carried during any summer term for undergraduate students (including residence, correspondence and extension courses) is nine credit hours in the eight-week summer session and four credit hours in the four-week intersession. The maximum load for undergraduate students for the summer term and intersession is 13 credit hours. The limits on maximum loads are waived in cases where the excess is due to special examination credits.

A student who has attained a grade-point average of 3.0 on a load of at least 15 credit hours for the preceding semester may be permitted by the dean of his college to carry extra credit hours provided the total does not exceed:

22 hours for a semester or

10 hours for the eight-week summer session.

A student on academic probation may take no more than 15 credit hours in a semester, three credit hours in the four-week intersession or seven credit hours in the eight-week summer session.

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

The Graduate School has established the maximum allowable load for graduate students for the summer sessions to be nine credit hours for the eight-week summer session and four credit hours for the four-week intersession. The maximum load for summer and intersessions for graduate students is 12 credit hours.

A student may be registered simultaneously at the University and at another educational institution only with the approval of the dean of the college in which he is registered at the University of Kentucky; the credit hours obtained at the other institution are considered a part of his 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 Registrar as a sophomore when he has completed 30 credit hours, a junior when he has completed 60 credit hours, and a senior when he has completed 90 credit hours.

A Law student is classified as a second-year student when he has completed 24 credit hours and as a third-year student when he has completed 53 credit hours. He is not, however, classified as a second-year student until he has been in residence at least two semesters, nor as a third-year student until he has been in residence at least three semesters.

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

MARKING SYSTEM

The marking system (except for the Colleges of Architecture, Law, Medicine and Dentistry) 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 credit hours and zero grade points. 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 work of the course remains undone at the time that grades are due. It is given only when there is a reasonable possibility that a pass-

ing grade will result from completion of the work. The instructor will not give an **I** grade when the reason for incompleteness is unsatisfactory to him.

An undergraduate student has the option of having the **I** grade as a permanent part of his record. If the student elects to complete the course in order to change the **I** grade to a letter grade, he must do so before graduation, but in no event after a lapse of two years from the date the **I** grade was awarded. If the student does complete the course under this condition, the instructor shall forward to the Registrar the appropriate letter grade to replace the **I**. If the student elects to retain the **I** grade in a course required for graduation, or is unable to complete such a course because of the two-year limitation or for any other reason, he must retake it and satisfactorily complete it with a letter grade in order to graduate.

Each department, school or college maintains a file record of incomplete grades recorded in courses of that department, school or college. This record, completed by the instructor, includes (1) the name of the student, (2) the course number and hours of credit, (3) semester and year of enrollment, (4) signature of the instructor, (5) a brief statement of the reason for recording the incomplete, and (6) an adequate guide for removal of the incomplete grade (with a suggested final grade).

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—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 session. 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 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 Registrar. Any student withdrawing during the first three weeks of the course 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 reasons including but not limited to: illness or injury of the student; serious personal or family problems; serious financial difficulties.

The petition must be approved by the dean of the student's college. The instructor must assign a grade of **W**.

Students who miss the first two class periods of a course without notifying the department of their intention to attend may be reported by the department to the dean who shall drop the student from the course and notify the Registrar that the student has been removed from the class roll. This allows departments to make class spaces available to other students during Add/Drop.

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 of his classes unless the auditor has registered as such.

Repeat Option. A student has the option to repeat once as many as three different courses which have been completed with a grade of C, D, or E 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. (Note: The repeat option cannot be used to raise the student's standing for admission to the University of Kentucky Graduate School.) A student exercising his repeat option must notify in writing the dean of the college in which he is enrolled and his adviser. 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.

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 he were 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 Office of the Registrar 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 credits attempted, W, P, S, and I being ignored.

MARKING SYSTEMS FOR THE COLLEGES OF ARCHITECTURE, LAW, MEDICINE AND DENTISTRY

COLLEGE OF ARCHITECTURE

The College of Architecture has the same grading system used by the College of Law. The only difference is that NO A+ grade exists in the Architecture grading system. See the explanation of the grading system for the College of Law, below.

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

Grade	Achievement Level	Numerical Scale Where Appropriate
A	Represents exceptionally high achievement	90-100
B	Represents a high achievement	80-89
C	Represents satisfactory achievement	70-79
U	Represents unsatisfactory performance	60-69
E	Represents failure in a course	Below 60
I	Incomplete*	

*Means that part of the work of the course remains undone at the time that grades are due. It is given only when there is reasonable possibility that a passing grade will result from completion of the work. The instructor will not give an "I" when the reason given for incompleteness is unsatisfactory or when it is not possible to complete the work. An "I" grade must be completed within one calendar year.

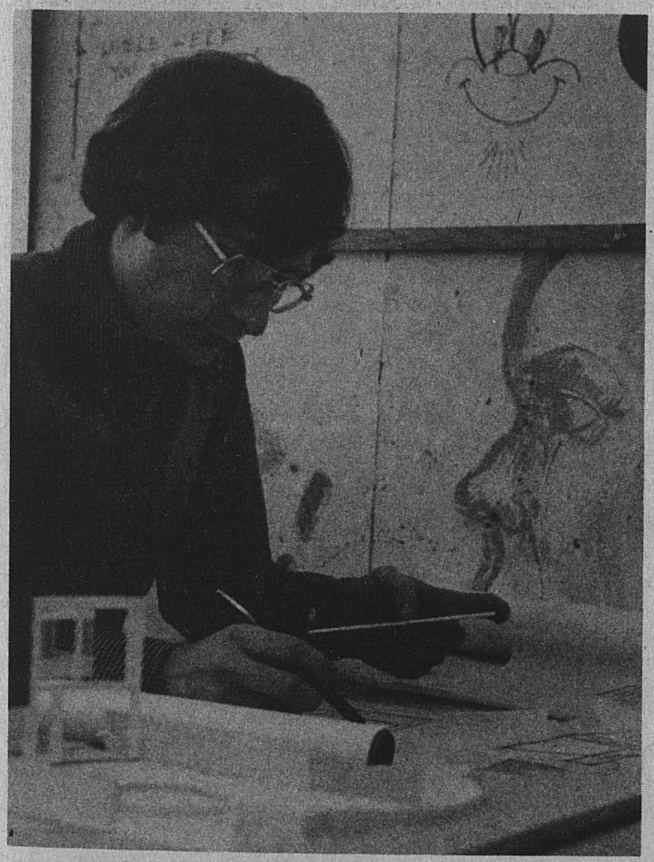
COLLEGE OF DENTISTRY

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 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.

Entrance Examination

Any undergraduate student applying for admission to the University who has less than 12 hours of previously earned college credit is required to take the University classification test (currently, the ACT is used). An individual academic unit may require, in addition to the freshman classification test, with the approval of the Senate, entrance or classification tests to be taken by its applicants for admission to its programs.

Special Examinations

Any full-time or part-time student enrolled in the University, and in good academic standing, may request a special examination for credit in any course offered in the University System, regardless of whether he has audited the course, is currently enrolled in it, or has studied for it independently. The request for special examination may be denied if the student has not furnished evidence that he is reasonably prepared to take the examination, or if the course is of such a nature that credit by examination is inappropriate.

Application for a special examination must be made in writing. Undergraduates should address requests to the chairman of the department in which the course is given, or to the office of the academic unit responsible. Graduate students' requests should be addressed to the Director of Graduate Study in the department in which the course is given.

Credit for courses taken by special examination is considered residence credit. There is no fee for taking a special examination. The limits on maximum loads are waived in cases where the excess is due to special examination credit.

With the department chairman's approval, a student may take the special examinations on a Pass-Fail basis. This includes any course not available under the Pass-Fail option. Credit derived in this manner shall not reduce the number of courses permitted under the Pass-Fail rules.

A student whose native language is other than English and who has had formal instruction in schools of his own country shall not be permitted to take elementary, intermediate, or conversation courses or examinations for credit in that language.

Credit for Students Who Withdraw To Enter Military Service

A student who, after completing the eighth week and before completing the 12th week of the semester, withdraws and within 10 days enters the Armed Services of the United States is entitled to receive credit and residence for one-half of each course in which he is passing at the time of his withdrawal. The grade reported will be that attained in the course up to the time of withdrawal. When such withdrawal occurs after the 12th week of the semester, or later, such students are entitled to receive full credit and residence. For the summer session the minimum attendance requirements are four and six weeks respectively. If, with the credit and residence time granted, the student has fulfilled all requirements for a degree, he will be recommended for that degree by the Senate of the University. If a comprehensive examination is required for graduation, this requirement will be waived.

SCHOLASTIC PROBATION, ACADEMIC SUSPENSION AND REINSTATEMENT

Undergraduate Colleges

General Regulations for Undergraduate Students

The scholastic probation and academic suspension systems 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. The deficit is the difference, if any, between this base and the number of quality points earned.

Courses which have been completed with a grade of B or better may not be repeated for credit hours or quality points, except for those courses for which repeated registration is provided in the official course description.

Scholastic Probation

The academic record of each freshman student will be reviewed after his first full semester. If a student has incurred a deficit of five or more quality points at the end of his first full semester, the dean shall place him on scholastic probation or warn him that he is making unsatisfactory progress. If he has demonstrated that he cannot or will not do satisfactory work, he 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 his 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 his 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 his 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 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 he plans to enroll and approval of the University Senate Council.

Reinstatement

After he has remained out of the University for at least a semester and a summer session (a semester for a student academically suspended at the end of a summer session), a student who has been academically suspended may be reinstated by the dean of the college in which he plans to enroll when he presents evidence that he is capable of performing at the level required to prevent being suspended a second time.

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:

He acquires any additional deficit during any semester or session while he is on scholastic probation;

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

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

Once a reinstated student has been removed from scholastic probation, he will be subject to the same conditions for subsequent academic suspension as a student who has not previously been academically suspended.

Readmission After Two or More Years (Academic Bankruptcy)

An undergraduate student who has been readmitted through the usual channels after an interruption of two or more years, and who has completed at least one semester with a grade-point standing of 2.0 or better after readmission may choose to have all or none of his previous University of Kentucky course work counted toward graduation and toward the computation of his grade-point standing.

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

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.

Professional Programs

College of Allied Health Professions

Any student having a grade-point average below 2.0 for any semester after admission to a professional program, shall be reviewed for dismissal from the program by the Dean of the College.

Any student enrolled in a professional program of the College of Allied Health Professions with two Es in one* or more courses required by the professional program shall be subject to review for dismissal from the program by the Dean of the College.

The fair and equitable administration of this policy will be a responsibility of the College of Allied Health Profession's Ac-

*The second E may result when repeating a course previously failed.

ademic Performance Committee (APC). In the interest of its implementation the APC will establish specific procedures for the review process.

Conscious, directed effort will be made to avoid arbitrary action in cases where extenuating circumstances exist, as well as to avoid inconsistent treatment of any student. The APC will incorporate the following parameters as part of its operational guidelines:

1. A review will be undertaken prior to action by the Dean.
2. The College of Allied Health Professions' Office of Student Services shall have the responsibility for establishing a system for screening student records to determine those individuals who fail to meet the criteria of the Academic Performance Policy.
3. The records of students identified by the Office of Student Services as failing to meet performance criteria will be sent to the APC for review. The APC shall notify the students of their opportunity to submit documents to the APC and to appear in person.
4. Recommendations for action shall be contingent upon supporting documentation from the department involved and/or from the student. For a recommendation of dismissal there shall be documented evidence that the student does not perform at an acceptable level. For a recommendation of retention there shall be evidence of a temporary condition such as an emotional or physical crisis which has resulted in poor performance.
5. Following the APC's decision, its advisory recommendation shall be sent to the Dean for action.
6. A decision by the Dean for dismissal of a student from the program may be appealed by the student through existing University procedure.

The APC functions as an advisory committee appointed by the Dean of the College of Allied Health Professions. Its membership is selected in a manner which strives to assure objective and equal treatment of all cases within its purview.

Professional Colleges

Pharmacy

Definition: Pharmacy standing is the over- all 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 University 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 record reviewed by the College of Pharmacy faculty and may be dropped from the University without a preliminary probationary semester.

Any student who, at the end of his first probationary semester, fails to have achieved a semester standing of 2.0 at the end of this semester shall be dropped from the University.

Any student who, at the end of his first probationary semester, achieves a 2.0 standing for that semester but fails to bring his pharmacy standing up to 2.0 will be continued on probation or be dropped from the University.

Any student who, at the end of his second consecutive probationary semester, fails to have achieved a 2.0 pharmacy standing shall be dropped from the University.

A student who has been dropped for academic deficiency may be readmitted on probation according to University regulations except that his 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 1.0 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, the repetition of courses, limitation of outside work, specification of schedule of study (including specification of particular courses and limitation of hours), and the limitation of extracurricular activities. 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 87th 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, the University Bulletin, and *Student Rights and Responsibilities,* published August 16, 1980.

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 shall include four divisions or components: (1) general studies, (2) premajor or preprofessional, (3) major or professional, and (4) free electives.

The University requires demonstrated competency in English composition. Competency may be demonstrated in the following ways—(1) Students who have a standard score of

21 and below on the English section of the ACT must satisfactorily complete two semesters of composition: English 101 in their first semester at the University and either English 102, or English 103, or English 104, or English 105. (2) Students who have a standard score of 22 and above on the English section of the ACT must satisfactorily complete either English 102, or 103, or 104, or 105. If they receive a grade of B or better, they will have fulfilled the English composition requirement, but if they receive a grade of C, or D, they must complete one of the other second semester courses. Full-time students must enroll in freshman English each semester until they have satisfied this requirement unless (1) they qualify for a one-semester option, in which case they may enroll during either semester of their freshman year; or (2) the program of their college or department requires postponement of the second course. Individual schools in the University may make additional requirements.

The student must file an application for graduation with the dean of his college within 30 days after the beginning of the semester or 15 days in the summer session in which he expects to complete his work. The degree applicant must pay his graduation fees (if applicable) within 60 days after the beginning of the semester or 30 days in the summer session in which he expects to complete his work. Graduation fees apply only to graduate and professional degrees.

Change in Program Requirements

When requirements for an undergraduate degree program are changed after a student has enrolled in it, the students shall have 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 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 his 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.

The first paragraph of this rule shall not apply if the curriculum revision is required by an external accreditation or certification body, provided 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.

Limitations of space, personnel, and other facilities may preclude the completion of a course of study.

When 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.

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.

Not more than 30 credits required for an undergraduate degree and not more than one-third of the requirements for a major may be gained by correspondence. No more than half of the credit toward an undergraduate degree may be earned by any combination of special examinations, Advanced Placement, the College Level Examination Programs and correspondence courses. No credit will be given in The Graduate School or in the professional colleges for courses done by correspondence.

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

Commencement Honors

The bachelor's degree with honors in the student's major is conferred upon the student who, in addition to having completed the requirements for the degree, has attained high standing in his major subject, passed with distinction a thorough comprehensive examination in his major subject, and has been recommended by the faculty of the department in which his major work was done and by the dean of his college. Students majoring in those departments that require the final comprehensive examination are automatically candidates for departmental honors.

A student who attains 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." A student who attains a grade-point average of 3.4 to 3.6 for at least three years of work at the University shall be graduated "With Distinction."

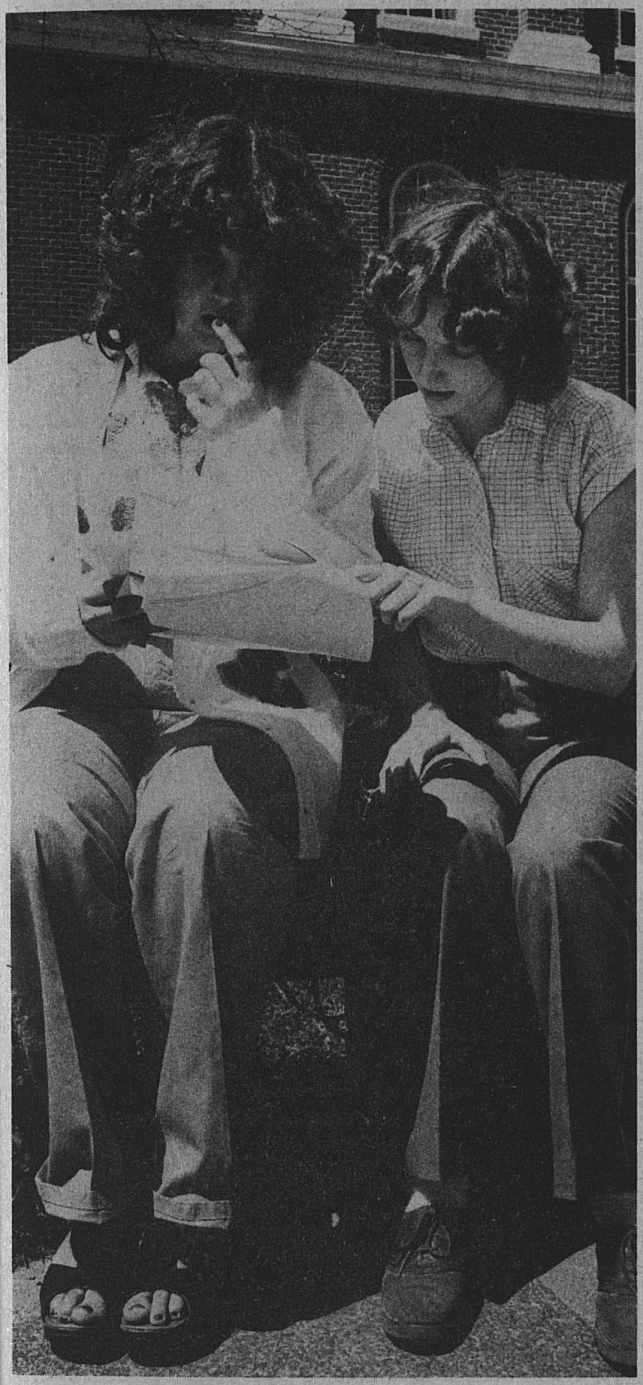
A student with a minimum of two but less than three years of work at the University will receive the appropriate commencement honors if he attains a grade-point average of 0.2 greater than those specified for three years of residence work.

The degree with honors from a professional college is based solely upon work done in the professional college.

A year's work is considered as a year's residence including a proportionate part of the credit hours required for the degree.

A Second Bachelor's or Master's Degree

Students are eligible to qualify for either a second bach-



elor's degree or a second master'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 whenever he has completed the requirements for a second curriculum.

As regards graduate degrees, however, two degrees will not be granted at the same time, and simultaneous enrollment in two or more programs is not permitted.

A Double Major Between Colleges

A student may earn a single baccalaureate degree with a double major in two different colleges. The student must designate one of the majors as the principal major and complete the departmental or program requirements for that major as well as the degree requirements of the college in which the principal major is located. The student must complete the second major requirements which shall be delineated by the second department, and approved by the college of the second department, by the Undergraduate Council, and by the University Senate. These requirements may include whatever components of its college degree requirements the department considers essential. Any student with a double major must complete the University General Studies requirements.

The primary responsibility for advising a student in a double major program shall rest with the principal major department. An adviser from the second department shall provide assistance where necessary.

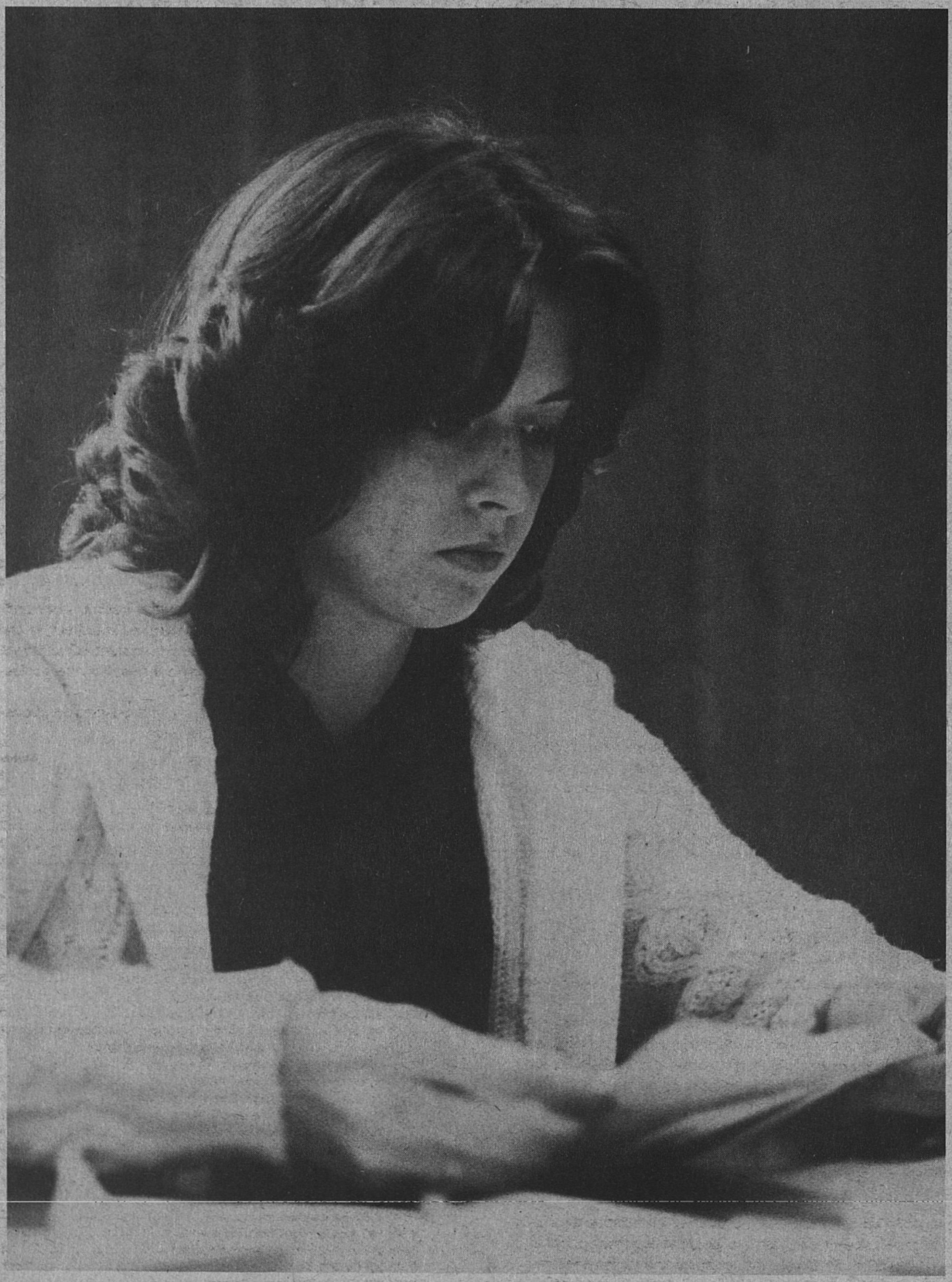
The diploma will indicate the degree from the college of the principal major. The student's transcript will indicate the degree and both majors.

Double majors may not be available to all departments. Students should consult advisers.

Accelerated Programs

In the spring of 1972 the University Senate of the University of Kentucky endorsed the concept of an accelerated program to enable superior students to complete their undergraduate college experience in less than the traditional four years. Inherent in the Accelerated Program concept is the opportunity for a student to receive credit by examination on course material which he may have mastered by non-traditional educational means.

Accelerated Programs may include any or all of the following: the UK High School Juniors Summer Program, the College Board's Advanced Placement Program, special departmental examinations, the English Exam, self-instruction courses, and the College Level Examination Program (CLEP). Complete information on Accelerated Programs is listed under the *Special Academic Programs* section of this Bulletin. Other pertinent information is listed under "Residence Requirement" in this section.



THE ACADEMIC PROGRAM

As the major state university, the University of Kentucky offers a wide variety of course offerings and degree programs ranging from the most traditional of majors in the liberal arts to professional and applied programs with rather specific vocational goals.

The combination of a heterogeneous student body and the multiplicity of curricula requires that the University furnish alternative paths of study to provide the soundest education. The programs being developed are based, in part, on the assumptions that every graduate should have breadth of understanding achieved by study in the basic disciplines and that he should have achieved depth by advanced study in a major department or professional area.

To help the student acquire a breadth of understanding, two semesters of freshman English or their equivalent are required of each student unless he demonstrates competency according to the exemption plans specified in the *Academic Requirements* section of this Bulletin. A full-time student must enroll in freshman English each semester until he has satisfied this requirement unless (1) he qualifies for a one-semester option, in which case he may enroll during either semester of his freshman year; or (2) the program of his college or department requires postponement of the second course.

In addition to the English requirement, the University requires each student to complete five areas of study chosen by the student from the following eight areas of general study:*

I MATHEMATICS-PHILOSOPHY
II PHYSICAL SCIENCES
III BIOLOGICAL SCIENCES
IV FOREIGN LANGUAGES
V HUMANITIES: LITERATURE AND THE ARTS
VI HISTORY
VII SOCIAL SCIENCES
VIII BEHAVIORAL SCIENCES

*Because of accreditation or certification requirements some colleges require specific areas of study. See the requirements of your college.

Within each of these areas, several optional sequences are available, giving the student a wide variety of learning opportunities in the basic disciplines. The courses in each area are listed below. In addition to the courses listed here, each semester the University offers several classes called Freshman Seminars, which may partially satisfy one of the General Studies Areas. The specific course content is listed in the **Schedule of Classes** each semester, or may be obtained from the Office of the Dean of Undergraduate Studies.

Area I. MATHEMATICS-PHILOSOPHY introduces the student to tools of thought that are applicable across a broad range of inquiries. Study of mathematical and logical systems carries with it practice in abstraction, inference, and precision, which the student will find valuable in all modes of thought. In philosophy the student approaches systems of thought from a critical point of view, examining presuppositions and values and meeting basic issues of meaning, reality, reasoning, and ethics.

The general studies requirement in this area may be satisfied by one of the following four options:

		Hours
A.	MA 113 Calculus I	4
B.	MA 122 Finite Mathematics and its Application	3
	MA 123 Elementary Calculus and its Application. (MA 123 is not open to students who have credit in MA 113, 115 or 117.)	3
C.	MA 131 Pre-Calculus Mathematics for the Life Sciences	3
	MA 132 Basic Calculus for the Life Sciences	3
D.	Students choosing this option may *not* satisfy Area V with Option B.	
	PHI 120 Introductory Logic	3
plus one of the following:		
	PHI 100 Introduction to Philosophy	3
	PHI 130 Introductory Ethics	3

Area II. PHYSICAL SCIENCES provides basic understanding and awareness of the environment as manifest in the physical sciences. The aim is to present courses of sufficient breadth and depth to insure a firm foundation in the philosophy and methods of the chosen field.

The general studies requirement may be satisfied by choosing one of the following eight sequences:

		Hours
A.	AST 191 Descriptive Astronomy	3
	AST 192 Descriptive Astronomy	3
B.	CHE 101 Chemistry: A Cultural Approach I	3
	CHE 103 Chemistry: A Cultural Approach II	3
C.	CHE 105 General College Chemistry I	3
	CHE 107 General College Chemistry II	3
D.	GLY 140 General Physical Geology **or**	4
	GLY 144 Introduction to the Earth	3
plus one of the following:		
	GLY 142 General Historical Geology	4
	GLY 146 Earth History	3
	GLY 210 Earth Resources	3
	GLY 227 Elementary Field Work in Regional Geology	6
	GLY 242 Environmental Geology	3
	GLY 341 Landforms	3
	(GLY 140 and GLY 142 are no longer taught on this campus but credit is accepted for these courses from UK community colleges.)	
E.	One course each from the following two groups:	
	1) PHY 151 Introduction to Physics	3
	PHY 201 or 211 General Elementary Physics	4 or 5
	PHY 231 General University Physics	3
	2) PHY 152 Introduction to Physics	3
	PHY 203 or 213 General Elementary Physics	4 or 5
	PHY 232 General University Physics	3
F.	PHY 100 Basic Concepts in Classical and Contemporary Physics	3
plus one of the following:		
	PHY 130 Physics of Energy	3
	PHY 140 Acoustics of Music Instruments	3
	PHY 151 or 152 Introduction to Physics	3
	PHY 201 or 211 General Elementary Physics	4 or 5
	PHY 231 General University Physics	3

G. PHY 130 Physics of Energy 3
plus one of the following:
PHY 140 Acoustics of Music Instruments 3
PHY 151 or 152 Introduction to Physics 3
PHY 201 or 211 General Elementary Physics . . . . . 4 or 5
PHY 231 General University Physics 3
H. PHY 140 Acoustics of Music Instruments 3
plus one of the following:
PHY 151 or 152 Introduction to Physics 3
PHY 201 or 211 General Elementary Physics . . . . . 4 or 5
PHY 231 General University Physics 3

Area III. BIOLOGICAL SCIENCES opens the field of biological science to new students through approaches that provide insights into pertinent scientific methods; teaches the vocabulary necessary to understand the particular discipline, so that exploration can be continued independently; relates the subject matter to other fields of everyday life; and emphasizes concepts of generalizations based upon the data presented.

The general studies requirement in this area may be satisfied by choosing one of the following three sequences:

		Hours
A.	BIO 100 Biology	3
	BIO 101 Biology	3
	(BIO 100 and BIO 101 are no longer taught on this campus, but credit is accepted for these courses from UK community colleges.)	
B.	BIO 200 General Biology I	3
	BIO 201 General Biology I (Lab)	2
	BIO 202 General Biology II	3
	BIO 203 General Biology II (Lab)	2
Two of the following courses:		
C.	A & S 102 Human Ecology (Same as BIO 102)	3
	BIO 103 Principles of Biology	3
	BIO 104 Animal Biology	3
	BIO 106 Principles of Plant Biology	3
	BIO 108 Principles of Microbiology	3
	BIO 110 Introduction to Human Biology and Health	3

Area IV. FOREIGN LANGUAGES focuses on the languages, literatures, and cultural development of other parts of the world. The study of foreign languages can help (1) provide intellectual insights into the nature and function of language, and (2) develop sensitivity to and awareness of different cultural patterns, in addition to developing skill in a foreign language.

Students who choose Area IV as one of the five Areas must satisfy the four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence by examination.

Area V. HUMANITIES: LITERATURE and the ARTS develops broad understanding of Western culture, from which value judgments and aesthetic appreciations may be formed. Students may satisfy the general studies requirements in Humanities by choosing one of the following two options:

		Hours
A.	Choose one of the following:	
	ENG 221 Survey of English Literature I	3
	ENG 222 Survey of English Literature II	3
	ENG 261 Survey of Western Literature from the Greeks through the Renaissance	3
	ENG 262 Survey of Western Literature from 1660 to the Present	3
	CLA 261 Literary Masterpieces of Greece and Rome	3
	FR 261 Masterpieces of French Literature in Translation	3
	GER 261 A Survey of German Literature in Translation	3
	SO 260 Classics of Near Eastern Literature in Translation	3
	SO 261 Survey of Russian Literature from its Beginning through the 19th Century (in English)	3
	SPI 261 A Survey of Spanish Literature from the Middle Ages to the Present in Translation	3
	SPI 263 Masterpieces of Italian Literature in Translation	3
plus one of the following:		
	A-H 105 Ancient through Medieval Art	3
	A-H 106 Renaissance through Modern Art	3
	ART 100 Introduction to Art	3
	CLA 210 Ancient Art	3
	MUS 200 Introduction to Music	3
	MUS 300 History of Jazz	3
	TA 101 Introduction to Theatre: Principles and Practice	3
B.	Choose two of the following courses (students choosing this option may *not* satisfy Area I with Option D.):	
	PHI 100 Introduction to Philosophy	3
	PHI 130 Introductory Ethics	3
	PHI 260 History of Western Philosophy I	3
	PHI 270 History of Western Philosophy II	3

Area VI. HISTORY acquaints students with the past of their cultural experience so that they may better understand the present; creates a consciousness of developmental change, and teaches the ability to read and think critically through the analysis and interpretation of historical problems. A student may satisfy the general studies requirement in history by any one of the following options:

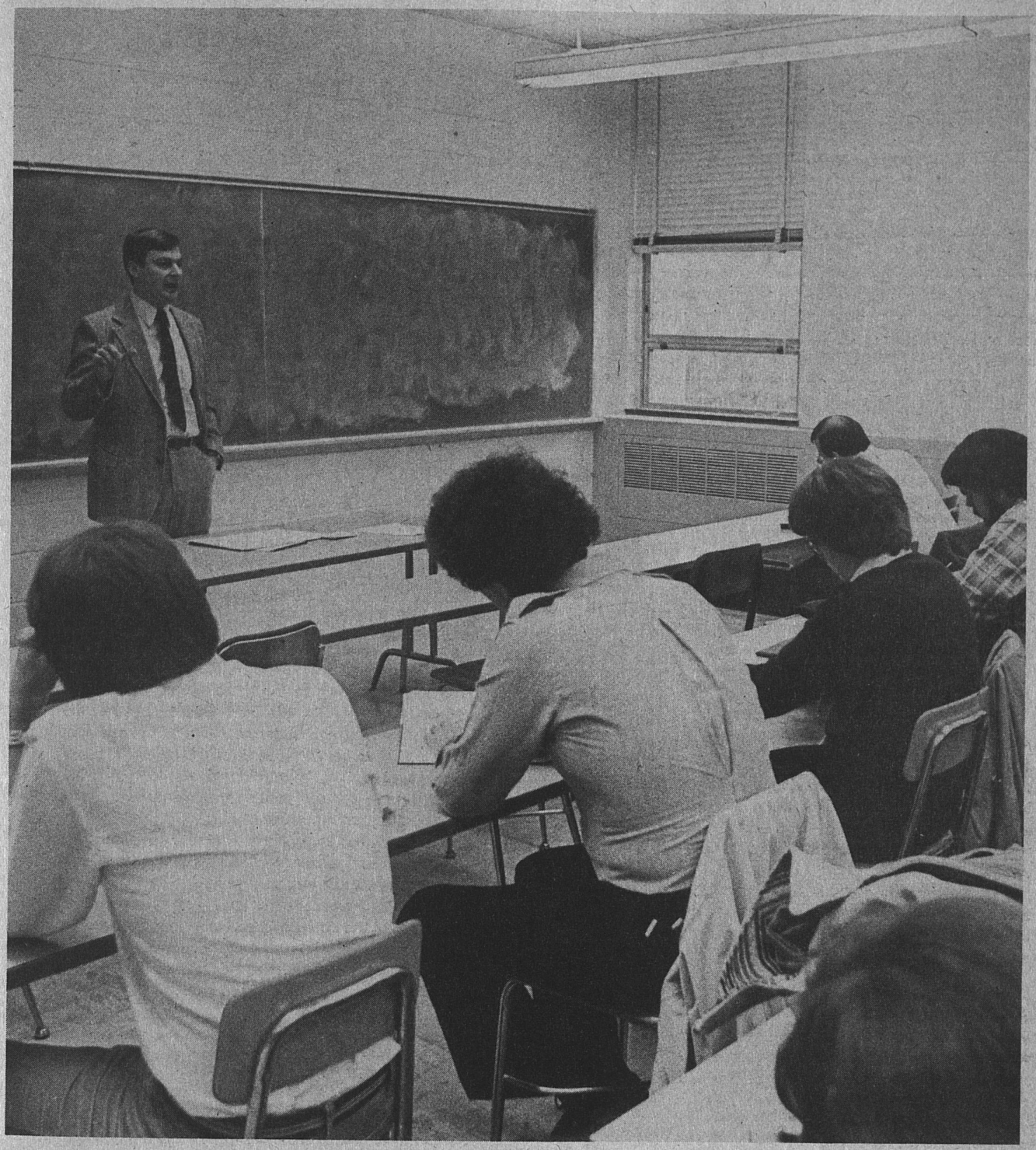
		Hours
A.	HIS 104 A History of Europe to 1713	3
	HIS 105 A History of Europe, 1713 to Present	3
B.	HIS 108 History of the U.S. Through 1865	3
	HIS 109 History of the U.S. Since 1865	3
C.	HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great	3
	HIS 230 The Hellenistic World and Rome to the Death of Constantine	3
D.	HIS 295 East Asia to 1800	3
	HIS 296 East Asia Since 1800	3

AREAS VII AND VIII. SOCIAL AND BEHAVIORAL SCIENCES promote basic understandings of human, social, and economic behavior. These areas afford an ever-growing, systematic distillation of the currently available knowledge about some of the most fundamental problems facing our society, civilization, and common humanity.

Students who wish to satisfy *one* of these areas may do so by completing *any two* of the courses listed below, subject to the restrictions and prerequisites noted.

Students who wish to satisfy *both* areas may do so by completing *four* of the courses listed below. *Two* of these courses *must be in a single department* and the other two must be outside that department, but may be chosen from another single department or from two separate departments:

	Hours
ANT 120 Human Ancestry	3
ANT 121 Introduction to Cultural Anthropology	3
ECO 160 Contemporary Economic Issues	3
ECO 260 Principles of Economics I	3
ECO 261 Principles of Economics II	3
GEO 152 Regional Geography of the World	3
GEO 252 Elements of Human Geography	3
PS 101 American Government	3
PS 201 Introduction to Political Behavior	3
PS 235 World Politics	3
PS 255 State Government	3
PSY 100 Introduction to Psychology	4
PSY 223 Developmental Psychology	3
SOC 101 Introductory Sociology **or**	3
GEN 102A Agricultural Social Science-Agricultural Economics **and**	2
GEN 102B Agricultural Social Science-Agricultural Sociology	2
SOC 152 Modern Social Problems (Prereq: SOC 101 or consent of instructor)	3
SOC 220 The Community (Prereq: SOC 101 or consent of instructor)	3



A student who wishes to substitute an upper division course in the same department for a course listed in the General Studies Component, may do so with the approval of the dean of the college in which the student intends to major and the chairman of the department in which the substitution is to be made.

Each entering student will be assigned a faculty member as an adviser. The student's adviser will help him decide upon a program of study and will explore with him an over-all plan of his work at the University, the choice of a vocation, and graduation requirements. The adviser will be able to provide the student with accurate information concerning the University. After helping the student to decide his college work load, he will approve the schedule. Students who are undecided on a field of study will be advised to concentrate on courses contained in the areas listed previously. Students will gain a background from this program that should help them to choose intelligently the fields in which they will concentrate. Ultimately, each student is responsible for fulfilling the requirements for a particular degree by enrolling in the appropriate courses.

CURRICULA AND DEGREE REQUIREMENTS

AGRICULTURE

Charles E. Barnhart, Ph.D., is Dean of the College of Agriculture, Director, Agricultural Experiment Station, and Director, Cooperative Extension Service; Granville W. Stokes, Ph.D., is Associate Dean, College of Agriculture; John C. Robertson, Ph.D., is Associate Dean for Instruction; C. Oran Little, Ph.D., is Associate Dean for Research; John L. Ragland, Ph.D., is Associate Dean for Cooperative Extension.

The extensive 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 you have a unique opportunity to broaden your background in the areas of research and application of scientific findings in laboratories, greenhouses, field plots and feed lots.

The general aim of the teaching program in the College of Agriculture is to provide for the development of competence for useful service in all aspects of agriculture along with the capabilities for useful citizenship.

Majors in Agriculture

Departmental majors are available in the following areas: Forestry, Landscape Architecture, Agricultural Economics, Agricultural Education, Agricultural Production, Agronomy, Animal Sciences, Entomology, Horticulture, Individualized Programs, Plant Pathology, Pest Management and Rural Sociology. In addition, a Pre-Veterinary Medicine curriculum is available. Students of Agricultural Engineering are registered in the College of Engineering.

Admission

All students planning to study in any phase of agriculture, including Forestry, Landscape Architecture and Pre-Veterinary Medicine are admitted directly into the College of Agriculture as soon as they arrive on the campus. Application for admission is made through the University Admissions Office.

Scholarships and Financial Aid

In addition to the assistance provided by the Office of Student Financial Aid, the College of Agriculture has a number of scholarships and awards which are made available to you on the basis of academic accomplishment, financial need and involvement in extracurricular activities. Many of the departments in the College use student help in laboratories, greenhouses, barns, and field work in connection with the research program in agriculture. Information about these scholarships, awards, and jobs is available in the Office of Associate Dean for Instruction in the College of Agriculture.

Graduate Work

The College of Agriculture offers both the Master of Science and the Master of Science in Agriculture 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, see The Graduate School Bulletin.

Short Courses

Short courses, conferences, and workshops, ranging in duration from one day to one week, are held for those interested in various phases of agriculture.

REQUIREMENTS FOR THE B.S. DEGREE IN FORESTRY

The Department of Forestry program educates and trains students in the theory and practice of forestry and wood utilization. It educates the student in the broad concepts of forest land management.

The forestry program at the University of Kentucky is accredited by the Society of American Foresters which is recognized by the National Commission on Accrediting as the qualified professional organization for evaluating university curricula in this field.

Graduation Requirements

To earn a Bachelor of Science degree in Forestry, the student must complete 140 hours, of which 132 credit hours must be earned on the University Campus and eight credit hours must be earned while attending a summer camp between the junior and senior year. Remedial courses may **not** be counted toward the total hours required. The eight-week summer camp at the University Robinson Forest provides practical training. It is required of all forestry students. In addition—

	Hours
1. Complete five General Studies areas. Students completing courses in the preprofessional requirements may use these courses to fulfill the General Studies requirement when the requirements are the same. Normally this means that the student will take six semester hours in General Studies areas beyond those which simultaneously satisfy the preprofessional and General Studies requirements	6
2. Complete the University requirement in English composition	3-6
3. Complete the preprofessional requirements	
a. MA 113	4
b. CHE 105, 107 and 115	9
c. BIO 106 and 107 and BIO 351	7
d. ECO 260 and 261	6
Total University, and Preprofessional requirements	35-39

Specialty Support	Hours
AEC 445G Introduction to Resource and Environmental Economics	3
AGR 366 Fundamentals of Soil Science	3
AGR 367 Laboratory in Soil Science	2
CE 100 Plane Surveying	3
ENG 103 Writing for Business and Industry	3
ENT 402 Forest Entomology	3

PHY 151 Introduction to Physics	3
PPA 410 Forest Pathology	3
SP 181 Basic Public Speaking	3
STA 370 Introduction to Statistics	4

Professional Component (Forestry Courses)

	Hours
FOR 219 Dendrology	2
FOR 220 Dendrology Laboratory	1
FOR 300 Forest Measurements	4
FOR 305 Harvesting Timber Crops	3
FOR 310 Forest Photogrammetry	1
FOR 340 Forest Ecology	3
FOR 350 Silviculture	4
FOR 400 Wood Identification and Properties	3
FOR 420 Wood Products	3
FOR 425 Timber Management	4
FOR 430 Forest Wildlife and Range Management	3
FOR 440 Forest Resources for Recreation	3
FOR 455 Forest Policy and Administration	3
FOR 460 Forest Watershed Management	3

Forestry Summer Camp

(Includes the following five courses. Enrollment in Forestry summer camp is restricted to Forestry students not on probation, who have completed the following courses with at least a C grade in each course: AGR 366, AGR 367, CE 100, FOR 219, FOR 220, FOR 300, FOR 340, and FOR 350.)

FOR 375 Taxonomy of Forest Vegetation	1
FOR 376 Silvicultural Practices	2
FOR 377 Forest Surveying	1
FOR 378 Forest Mensuration	2
FOR 379 Harvest and Utilization of Wood	2
Electives*	23-27
Total Credits Required	140

*Six hours of these electives are to be free electives, the remainder are to be selected with due consideration to student's academic objectives and must have the approval of the student's adviser.

REQUIREMENTS FOR THE B.S. DEGREE IN LANDSCAPE ARCHITECTURE

Landscape Architecture is the art of design, planning, or management of the land, and the arrangement of natural and man-made elements through application of cultural and scientific knowledge. The four-year professional program fosters concern for resource conservation and stewardship to the end that the resultant environment serves a useful and enjoyable purpose.

Career Opportunities

Potential careers are as unlimited as the man-nature interface. Landscape architects work with the past in historic restoration as in Williamsburg, Virginia, and Savannah, Georgia; with the present in residential design, construction, environmental law and land planning; and toward the future with graphic computers, satellite imagery and remote sensing. Positions may be found in small private offices, industrial firms, educational institutions, and government agencies such as the Corps of Engineers and the U.S. Forest Services.

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 Chairman. 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 University 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 Architecture 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 and no later than September 15 for admission in the following Spring Semester;
2. be eligible for admission into 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 132 credit hours with at least a 2.0 grade-point standing. A minimum of 45 credit hours must be from upper division courses (300 and above). Remedial courses may **not** be counted toward the total hours required for the B.S. in Landscape Architecture. The four-year program consists of two pre-professional years followed by two years of professional training. The program is fully accredited by the American Society of Landscape Architects and meets the necessary requirement for licensing of landscape architects in Kentucky and other states.

In addition to satisfying the University English and General Studies requirements, each student must complete the following:

Preprofessional Requirements

	Hours
CE 100 Plane Surveying	3
BIO 106 Principles of Plant Biology*	3
GLY 144 Introduction to the Earth*	3
GLY 242 Environmental Geology*	3
ECO 261 Principles of Economics II*	3
ARC 201/202 Basic Architectural Studies I and II	12

*May be used to satisfy General Studies requirements.

College Requirements

GEN 102A Agricultural Social Science—Agricultural Economics	2
GEN 102B Agricultural Social Science Agricultural Sociology	2
GEN 104 Agricultural Plant Science	4

Professional Component

	Hours
LA 108 Introduction to Landscape Architecture	0
LA 205 History of Landscape Architecture	3
LA 206 Contemporary Landscape Architecture	3
LA 220 Design Drawing	3
LA 230 Landscape Architectural Design Theory	3
LA 331 Landscape Design I	4
LA 332 Landscape Design II	4
LA 440 Landscape Construction I	3
LA 441 Landscape Construction II	3
LA 490 Senior Project	3
LA 522 Landscape Planting Design	3
LA 523 Landscape Planning and Design	5
LA 575 Advanced Landscape Design	5
LA 576 Seminar in Landscape Architecture	1-2
HOR 327 Ornamental Plants I	3
HOR 329 Ornamental Plants II or	3
HOR 330 Annual and Perennial Flowers	3
HOR 570 Landscape Design of Park and Recreation Areas	3

Specialty Support

	Hours
BIO 451G Introductory Ecology	4
AEC 445 Introduction to Resource and Environmental Economics	3
ARC 840 Theories of Urban Form	3
AGR 366 Fundamentals of Soil Science	3

Students are encouraged to choose electives in the areas of sociology, behavioral sciences, geography, architecture, art and recreation, as they relate to the student's interest and professional goals.

REQUIREMENTS FOR THE B.S. DEGREE IN AGRICULTURE

Graduation Requirements

To earn a Bachelor of Science degree in Agriculture, the student must have 120 credit hours with at least a 2.0 grade point standing. A minimum of 45 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 departmental majors except Forestry and Landscape Architecture must meet the following requirements. (Forestry and Landscape Architecture requirements are listed previously under those departments.) Each candidate for the B.S. degree in Agriculture shall declare a major in an area of specialization.

	Hours
1. University requirements including freshman composition and five general studies areas	34-43
2. College requirements: GEN 102A and GEN 102B, GEN 104 and GEN 106	12
3. Departmental major (may include courses from other departments within the College of Agriculture)	24
4. Specialty Support (outside major department)	21
5. Electives	20-29
	120*

*A minimum of 45 credit hours must be from upper division courses (300 or above).

UNDECLARED MAJORS

Students following this program should, by the end of the sophomore year, choose either a departmental major, the production agriculture program, or the individualized program in agriculture.

This curriculum enables you to meet all the University and College of Agriculture requirements while qualifying to follow any of the degree programs offered by this College.

English Requirement

Competence in English composition—to be demonstrated in one of the following ways—

1. passing English 101 and either 102, 103, 104 or 105;
2. an ACT standard score in English of 22 or above and a grade of B or better in English 102, 103, 104 or 105;
3. an ACT standard score in English of 25 or above and a grade of B or better on special examination.

Preprofessional Requirements

Mathematics

Option 1
MA 113 Calculus I
Option 2
MA 122/123 Finite Mathematics and Its Applications and Elementary Calculus and Its Applications
Option 3
MA 131/132 Pre-calculus Mathematics and Basic Calculus for the Life Sciences

CHEMISTRY*

CHE 105 and 107 General College Chemistry I and II
CHE 115 General Chemistry Laboratory

*If you are considering entering Animal Science, Entomology, or Plant Pathology, you should also take Organic Chemistry before the end of your sophomore year.

BIOLOGY**

Option 1
BIO 200 and 202 General Biology I and II and
BIO 201 and 203 General Biology Laboratory

Option 2
Two of the following:
BIO 103 Principles of Biology
BIO 104 Animal Biology
BIO 106 Principles of Plant Biology
BIO 108 Principles of Microbiology and at least one laboratory BIO 105, 107, or 109

**If you are considering entering Entomology or Plant Pathology you are advised to take Option 1 in Biology.

ECONOMICS

ECO 260 Principles of Economics I
ECO 261 Principles of Economics II

SOCIOLOGY

SOC 101 Introductory Sociology
SOC 152 Modern Social Problems **or**
SOC 220 The Community

College Requirements*

GEN 102A and GEN 102B Agricultural Social Science
GEN 104 Agricultural Plant Science
GEN 106 Agricultural Animal Science

*If you are in this program, you are expected to take GEN 100 (Development of Agricultural Science) during the freshman year.

Electives

For electives, it is suggested that you select from the following courses not more than one course in any group during the freshman and sophomore years or until a major has been declared.

Group 1. Agricultural Economics
AEC 301 Principles of Agricultural Marketing
AEC 302 Farm Management Decision Making

Group 2. Agronomy
AGR 366 Fundamentals of Soil Science
AGR 386 Principles of Field Crop Production

Group 3. Animal Science
ASC 304 Meats and Meat Processing
ASC 380 Feeds and Feeding

Group 4. Entomology and Forestry
ENT 100 Agricultural Entomology
FOR 100 Elements of Forestry

Group 5. Horticulture
HOR 100 Introductory Horticulture
HOR 203 Home Horticulture

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 supplies and services necessary for farm 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

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

	Hours
Preprofessional Requirements	**16-18**
ECO 260/261 Principles of Economics I and II*	6
plus one of the following options: MA 113 Calculus I* **or**	4
MA 122/123 Finite Mathematics and its Application and Elementary Calculus and its Application*	6
plus one of the following: ENG 103 Writing for Business and Industry**	3
COM 101 Introduction to Communications	3
COM 250 Mass Media and Mass Culture	3
JOU 203 Principles of News Writing	3
plus one of the following: SP 181 Basic Public Speaking	3
SP 287 Persuasive Speaking	3
COM 325 Business and Industrial Communication	3

*May be used to satisfy General Studies requirements.
**May be used to satisfy English requirement.

Departmental Major Requirements

The student must complete at least 24 hours within the department for the major and at least 21 hours of specialty support courses from outside the department. Students will 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
AEC 535 Economic Development of Rural Regions of the U.S.	3
Suggested Major Electives	15
AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products	3
AEC 311-315 Marketing Modules	1 ea
AEC 321 Agricultural Futures Markets	3
AEC 323 Linear Programming with Agricultural Applications	3
AEC 399 Experiential Learning in Agricultural Economics	1-3
AEC 501 Agricultural Market Organization and Performance	3

AEC 522 Cooperatives in Agribusiness 3
AEC 531 Agricultural Price Analysis 3
AEC 532 Agricultural Policy 3
AEC 533 Agribusiness Logistics Management 3

Specialty Support **Hours**
Required: 12-13
CS 101 Computer Science I 3
ACC 201/202 Principles of Accounting 6

plus one of the following:
STA 291 Statistical Method 3
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3
STA 370 Introduction to Statistics 4

Suggested Specialty Support Electives: 9
ACC 408G Cost Accounting 3
BA 330 Marketing Management 3
BA 332 Behavioral Systems in Marketing 3
BA 335 Business Management 3
BA 336 Survey of Personnel and Industrial Relations 3
BA 340 Law, Business and Society 3
BA 341 Business Law I 3
BA 345 Corporation Finance 3
BA 351 Introduction to Business Data Processing . 3
BA 435 Analysis of Organizational Behavior 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 105 Issues in Public Policy 3
PS 240 Ideology, Political Change, and Contemporary Industrial Society 3

Option Two: Agricultural Financial 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

Suggested Major Electives 8
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
AEC 323 Linear Programming with Agricultural Applications 3
AEC 408 Farm Records and Business Analysis 3
AEC 414 Farm Estate Planning 1
AEC 423 Advanced Linear Programming Applications 1
AEC 441G Agricultural Financial Management 3
AEC 501 Agricultural Market Organization and Performance 3
AEC 502 Advanced Farm Management 3
AEC 516 Rural Real Estate Appraisal 3
AEC 531 Agricultural Price Analysis 3

Specialty Support **Hours**
Required: 12-13
CS 101 Computer Science I 3
ACC 201/202 Principles of Accounting 6

plus one of the following:
STA 291 Statistical Method 3
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3
STA 370 Introduction to Statistics 4

Suggested Specialty Support Electives: 9
ACC 408 Cost Accounting 3
BA 335 Business Management 3
BA 340 Law, Business and Society 3
BA 341 Business Law I 3
BA 345 Corporation Finance 3
BA 351 Introduction to Business Data Processing . 3
BA 435 Analysis of Organizational Behavior 3
BA 445G Financial Management 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 105 Issues in Public Policy 3
PS 240 Ideology, Political Change, and Contemporary Industrial Society 3

Option Three: Farm Management

Major **Hours**
Required: 9
AEC 301 Principles of Agricultural Marketing 3
AEC 302 Farm Management Decision Making 3
AEC 303 Economics of Agricultural Production . . . 3

Suggested Electives 15
AEC 323 Linear Programming with Agricultural Applications 3
AEC 408 Farm Records and Business Analysis 3
AEC 411-415 Marketing Modules . . . . . 1 ea
AEC 441G Agricultural Financial Management 3
AEC 502 Advanced Farm Management 3
AEC 516 Rural Real Estate Appraisal 3

Specialty Support **Hours**
Required: 6
CS 101 Computer Science I 3

plus one of the following:
STA 291 Statistical Method 3
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3
STA 370 Introduction to Statistics 4

Suggested Specialty Support Electives: 15
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
AEN 430 Farm Water Management 3
BA 341 Business Law I 3
ECO 487 Intermediate Macroeconomic Theory . . . 3
ECO 488 Intermediate Microeconomic Theory 3
ENT 401 Agri-Chemicals in Pest Management 3
HOR 100 Introductory Horticulture 1
HOR 203 Home Horticulture 3
PPA 375 Introduction to Plant Diseases 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

Suggested Major Electives 15
AEC 302 Farm Management Decision Making 3
AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products . . 3
AEC 480 Special Problems in Agricultural Economics 1-3
AEC 516 Rural Real Estate Appraisal 3
AEC 531 Agricultural Price Analysis 3
AEC 535 Economic Development of Rural Regions of the U.S. 3
AEC 545 Natural Resource and Environmental Economics 3

Specialty Support **Hours**
Required: 9-10
CS 101 Computer Science I 3
ECO 488G Intermediate Microeconomic Theory . . 3

plus one of the following:
STA 291 Statistical Method 3
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3
STA 370 Introduction to Statistics 4

Specialty Support Electives: 11-12
Courses to be selected with approval of adviser. Depending on the educational and career objectives of the student, specialty support electives 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: 12
Three hours from:
AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products . . 3
AEC 535 Economic Development of Rural Regions of the U.S. 3

Six hours from:
AEC 301 Principles of Agricultural Marketing 3
AEC 302 Farm Management Decision Making 3
AEC 303 Economics of Agricultural Production . . . 3

Suggested Electives 12
(Courses below are a representative sample)
AEC 323 Linear Programming with Agricultural Applications 3
AEC 445G Introduction to Resource and Environmental Economics 3
AEC 480 Special Problems in Agricultural Economics 1-3
AEC 531 Agricultural Price Analysis 3
AEC 532 Agricultural Policy 3
AEC 545 Natural Resource and Environmental Economics 3

Specialty Support **Hours**
Required: 12-13
CS 101 Computer Science I 3
ECO 487 Intermediate Macroeconomic Theory . . . 3
ECO 488 Intermediate Microeconomic Theory 3

plus one of the following:
STA 291 Statistical Method 3
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3
STA 370 Introduction to Statistics 4

Suggested Electives:
Specialty support courses are especially suggested from the following departments: economics, business administration, sociology, anthropology, statistics, computer science, political science, mathematics, and philosophy.

Examples are:
ECO 391 Economic and Business Statistics 3
ECO 471 International Economics 3
ECO 483G Regional Economics 3
SOC 493G Social and Cultural Determinants of Economic Growth and Development 3
MA 114 Calculus II 4
PS 450G Rural Local Government 3

Free Electives

Electives should be selected in view of other course work to complete the required 120 credit hours for graduation. Adviser's approval required.

AGRICULTURAL EDUCATION

The program in Agricultural Education prepares teachers for many areas of agribusiness education—agricultural engineering, agricultural products, agricultural resources, forestry, ornamental and production horticulture, and production agriculture. Professional education courses in teaching methods and supervised student teaching in vocational agriculture at the high school level are included in the program.

Graduation Requirements

Students majoring 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. A grade-point average of 2.25 is required to enter student teaching. A minimum of 120 credit hours is required for a Bachelor of Science degree. A minimum of 45 hours must be at the 300 level or above.

Students majoring in other agricultural curriculums may also qualify to teach, provided they have 50 hours of technical agriculture, including six hours in each of the following areas: animal science, plant science, soils, agricultural engineering, and agricultural economics (including farm management). They must also have three hours of literature, health, EDU 203, and complete the 15-hour agricultural education block (professional courses and student teaching). These students must meet the 2.25 grade-point average and be admitted to the Teacher Education program.

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.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements	**Hours**
BIO 104 Animal Biology	3
BIO 106 Principles of Plant Biology	3

These courses may be used to satisfy General Studies Area III—Biological Sciences.

Departmental Major (24 hours)	**Hours**
Health (BIO 110 or equivalent)	3
EDV 210 Introduction to Vocational Education	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDV 370 Student Teaching in Vocational Agriculture*	9
EDV 580 Materials and Methods of Teaching Vocational Agriculture*	3
EDV 583 Experience Programs in Vocational Agriculture*	3

*These credits must be taken concurrently during the second semester of the senior year.

Specialty Support (21 hours)	**Hours**
AEC 302 Farm Management Decision Making	3

Plus six hours in each of these areas: animal science, soils, and plant science (agronomy, plant pathology, horticulture, and forestry).

Restricted Electives
Six hours in agricultural engineering
Three hours in agricultural economics
Eight hours in agriculture
Three hours in literature*

*A literature course may be taken as part of the University requirements (General Studies Area V—Humanities) thereby allowing three additional hours of unspecified electives.

Unspecified Electives
Sufficient unspecified electives (usually seven hours) must be taken to complete graduation requirements.

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.

For degree requirements and curriculum, see listing under Engineering.

PRODUCTION AGRICULTURE

The Production Agriculture program provides broad basic training in agriculture. The course work is concentrated in animal science, agronomy, agricultural economics and agricultural engineering.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements	**Hours**
BIO 104 Animal Biology **and***	3
BIO 106 Principles of Plant Biology **or** equivalent*	3
CHE 105/107 General College Chemistry I and II **and***	6
CHE 115 General Chemistry Laboratory	3
ECO 261 Principles of Economics II*	3
ENG 103 Writing for Business and Industry **or**	3
SP 181 Basic Public Speaking	3
MA 122 Finite Mathematics and its Applications* (with encouragement to take MA 123 to complete Area I) **or** equivalent	3
AGR/ASC 360 Genetics	4

*May also be used to satisfy General Studies areas.

Departmental Requirements

The student must take a minimum of six hours in each of four departments—agricultural economics, agricultural engineering, agronomy and animal science. Some course choices are available.

Specialty Support

Courses from departments outside those listed in departmental major are used for Specialty Support. The student must complete at least one course from five of seven areas, which include entomology, forestry, horticulture, plant pathology, cooperative extension, sociology, and veterinary science. In addition, the student must complete six hours of approved courses in botany, biochemistry, chemistry, mathematics, bacteriology, statistics, etc.

Electives

Electives should be selected in view of other course work to complete the required total of 120 credit hours for graduation. Adviser's approval should be obtained.

AGRONOMY

Agronomy is the development and use of plant science and soil science in producing 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 urban uses of soils. The Agronomy curriculum is broadly based in the physical, biological, and social sciences with specialization in the crop and soil sciences. It permits students to develop a program of study to match their educational interests and needs.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements (12-13 hours)	**Hours**
ENG 103 Writing for Business and Industry **or**	3
SP 181 Basic Public Speaking	3
BIO 103 Principles of Biology **and***	3
BIO 106 Principles of Plant Biology **or***	3
BIO 200/202 General Biology I and II **and***	6
BIO 201/203 General Biology Laboratory I and II or equivalent*	4
CHE 105/107 General College Chemistry I and II **and***	6
CHE 115 General Chemistry Laboratory	3
MA 122 Finite Mathematics and Its Applications **and***	3
MA 123 Elementary Calculus and Its Applications **or***	3
MA 131 Pre-Calculus Mathematics for the Life Sciences **and***	3
MA 132 Basic Calculus for the Life Sciences **or***	3
MA 113 Calculus I* **or** equivalent	4

*May also be used to satisfy General Studies areas.

Departmental Major (24 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

The remaining courses are to be selected on the basis of the student's academic objectives, and are subject to the approval of the adviser. They are to be selected from other AGR courses offered in the department but may include up to six hours from plant and/or soil related courses offered in the departments of horticulture, plant pathology, agricultural engineering, forestry, entomology and biology.

Specialty Support (21 hours)

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 view of other course work to complete the required total of 120 credit hours for graduation. The adviser's approval is required.

ANIMAL SCIENCES

The Animal Sciences curriculum emphasizes application of science (biology, mathematics, chemistry) to production of livestock as well as processing and utilization of food products from various livestock species. Students may elect to pursue either a Production or Food Science Option within the Animal Sciences Department. The Animal Production Option emphasizes various aspects of livestock production while the Food Science Option emphasizes production, processing, packaging, distribution, preparation, evaluation and utilization of food with emphasis on meat and dairy products.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements (23-29 hours)

	Hours
Requirement One	
MA 113 Calculus I **or***	4
MA 122 Finite Mathematics and its Application* **and**	3
MA 123 Elementary Calculus and its Applications **or***	3
MA 131 Pre-Calculus Mathematics for the Life Sciences* **and**	3
MA 132 Basic Calculus for the Life Sciences*	3
Requirement Two	
CHE 105/107 General College Chemistry I and II*	6
CHE 115 General Chemistry Laboratory	3
Requirement Three, Option A	
BIO 104 Animal Biology*	3
BIO 106 Plant Biology*	3
BIO 108 Microbiology*	3
plus one laboratory:	
BIO 105 Animal Biology Laboratory	1
BIO 107 Plant Biology Laboratory	1
BIO 109 Introductory Microbiology Laboratory **or**	2
Requirement Three, Option B	
BIO 200/202 General Biology I and II*	6
BIO 201/203 General Biology Laboratory I and II	4
Requirement Four	
SP 181 Basic Public Speaking **or**	3
ENG 103 Writing for Business and Industry	3

*May also be used to satisfy General Studies areas.

Departmental Major (24 hours)

A minimum of 24 hours of departmental courses is required for either option.

Required courses in the two areas are as follows:

ANIMAL PRODUCTION

ASC 300 Live Animal and Carcass Evaluation **or**	3
ASC 321 Dairy Cattle Evaluation	2
ASC 304 Meats and Meat Processing **or**	4
ASC 306 Selection, Evaluation and Use of Animal Food Products	4
ASC 362 Animal Breeding	3
ASC 364 Reproductive Physiology in Farm Animals	3
ASC 378 Animal Nutrition	3
ASC 380 Feeds and Feeding	3
ASC 470 Animal Science Seminar	1

FOOD SCIENCE*

ASC 304 Meats and Meat Processing **or**	4
ASC 306 Selection, Evaluation and Use of Animal Food Products **or**	4
ASC 335 Chemical Analysis of Food	4
ASC 378 Animal Nutrition	3
ASC 470 Animal Science Seminar	1
ASC 530 Food Microbiology	5
ASC 534 Food Chemistry	4
ASC 536 Food Processing	4
ASC 538 Food Fermentation and Thermal Processing	4

*The Food Science option should be selected by students interested in meat and/or dairy products, or in Food Science/Food Technology. Students in this area should take BIO 109 Introductory Microbiology Laboratory.

Specialty Support Outside of Major Department (21 hours)

A minimum of 21 hours is required. Students in animal production should select courses from Group A; students in food science should select courses in group B.

A. ANIMAL 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 401 Fundamentals of Biochemistry	3
CHE 226 Analytical Chemistry	3-5
CHE 232 Organic Chemistry	3
CHE 231, 233 Organic Chemistry Laboratory	2-4
CHE 550, 552 Physiological Chemistry	8
PHY 211, 213 General Elementary Physics	10
STA 370 or STA 291 or STA 292, 293, 294 Statistics	3-4
BIO 340 Comparative Anatomy	4
Courses at 200 level or above from the following departments:	
Agricultural Economics	
Agricultural Engineering	
Agronomy	
Entomology	
Veterinary Science	

B. FOOD SCIENCE

Required:	
CHE 230/232 Organic Chemistry	6
STA 370 Introduction to Statistics **or**	4
STA 291 Statistical Method	3
PHY 201 General Elementary Physics	4
AEN 340 Principles of Food Engineering	4
NFS 311 Nutritional Biochemistry **or**	4
BCH 401G Fundamentals of Biochemistry	3
Selected from the following with adviser's approval:	
AEC 311 Livestock and Meat Marketing	1
CHE 226 Analytical Chemistry	3-5
CHE 231, 233 Organic Chemistry Laboratory	2-4
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 with adviser's approval to satisfy the minimum requirement of 120 hours.

ENTOMOLOGY

Entomology is concerned with the identification, distribution, biology, ecology, physiology, economic importance, management and control of insects and their relatives. Entomologists are also interested in the effect of pesticide residues on man and other animals in the environment.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements

	Hours
BIO 104/105 Animal Biology and Laboratory **and**	4
BIO 106/107 Principles of Plant Biology and Laboratory **or**	4
BIO 200/202 General Biology I and II **and**	6
BIO 201/203 General Biology Laboratory I and II or equivalent **and**	4
CHE 105/107 General College Chemistry	6
CHE 115 General Chemistry Laboratory	3

Departmental Major (24 hours)

	Hours
Required:	
ENT 100 Agricultural 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 401 Agri-Chemicals in Pest Management	3

ENT 402 Forest Entomology 3
ENT 530 Insect Pest Management 3
ENT 561 Medical Entomology 4
ENT 563 Parasitology 4
BIO 570 Invertebrate Zoology 4

Specialty Support (21 hours) **Hours**

Select from following courses:
AEC 302 Farm Management Decision Making . . . 3
AGR 386 Principles of Field Crop Production 3
AGR 366 Fundamentals of Soil Science 3
AGR 404 Weed Science 3
ASC 380 Feeds and Feeding 3
BIO 451G Introductory Ecology 4
BIO 530 Plant Physiology 3
CHE 230/232 Organic Chemistry 6
CHE 231/233 Organic Chemistry Laboratory 2-4
CHE 236 Organic Chemistry 4
ECO 260 Principles of Economics I 3
FOR 219 Dendrology 2
HOR 100 Introductory Horticulture 1
HOR 327 Ornamental Plants I 3
MA 114 Calculus II 4
BIO 276 Principles of Bacteriology 4
PPA 375 Introduction to Plant Diseases 3
STA 370 Introduction to Statistics 4
BIO 508 Evolution 3
BIO 555 Vertebrate Zoology 4

Electives

Should be selected in view of other course work to complete the required total of 120 hours for graduation. Adviser's approval required.

HORTICULTURE

Horticulture is an extensive field of study, including pomology, vegetable crop production, floriculture, and ornamental horticulture. The objective of the horticulture curriculum is to develop in students the ability to integrate the knowledge of the many related fields of science and the arts which contribute to superior culture and use of plants in present day society. 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 the University English and General Studies requirements and the College requirements listed earlier, each student completes one of the following options:

Option I: Science

Preprofessional Requirements **Hours**
BIO 106/107 Principles of Plant Biology and Laboratory* 4
CHE 105/107 General College Chemistry I and II* 6
HOR 100 Introductory Horticulture 1
ART 100 Introduction to Art* 3
CHE 236 Organic Chemistry 4
MA 113 Calculus I* **or** 4
MA 131/132 Pre-Calculus Mathematics and Basic Calculus for the Life Sciences* 6

*Will also satisfy University requirements.

Major (24 hours) **Hours**

HOR 350 Plant Propagation 3
HOR 327 Ornamental Plants I 3
HOR 330 Annual and Perennial Flowers 3
HOR 335 Greenhouse Management 3
HOR 402 Pomology: Deciduous Fruits I 4
HOR 510 Vegetable Crop Production 3
HOR 515 Turf Management 3
Additional courses in horticulture will depend upon the area of concentration chosen by the student.

Specialty Support (21 hours) **Hours**

AGR 366 Fundamentals of Soil Science 3
PPA 375 Introduction to Plant Diseases 3
AGR 470G Fertilizers and Soil Fertility 3
AGR 404 Weed Science **or** 3
ENT 530 Insect Pest Management 3
BCH 401G Fundamentals of Biochemistry 3
PHY 201 **or** 211 General Elementary Physics 4-5
BIO 315 Introduction to Cell Biology **or** 3
STA 291 Statistical Method 3

Restricted Electives (21 hours)

To be selected with the approval of an adviser.

Free Electives (six hours)

Internship (0-6 hours)

The student will work 10 weeks full-time for 400 hours part-time in a horticulture-related enterprise. The experience preferably should be obtained between the junior and senior years.

Option II: Business

Preprofessional Requirements **Hours**
BIO 106/107 Principles of Plant Biology and Laboratory* 4
CHE 105/107 General College Chemistry I and II* 6
HOR 100 Introductory Horticulture 1
ART 100 Introduction to Art* 3
SP 181 Basic Public Speaking* **or** 3
ENG 103 Writing for Business and Industry* 3
ECO 261 Principles of Economics II* 3
MA 122/123 Finite Mathematics and its Applications and Elementary Calculus and its Applications* 6

*Will also satisfy University requirements.

Major (24 hours) **Hours**

HOR 350 Plant Propagation 3
Plus four of the following six courses:
HOR 327 Ornamental Plants I 3
HOR 330 Annual and Perennial Flowers 3
HOR 335 Greenhouse Management 3
HOR 402 Pomology: Deciduous Fruits I 4
HOR 510 Vegetable Crop Production 3
HOR 515 Turf Management 3
Additional courses in horticulture will depend upon the area of concentration chosen by the student.

Specialty Support (21 hours) **Hours**

AGR 366 Fundamentals of Soil Science 3
PPA 375 Introduction to Plant Diseases 3
AGR 470G Fertilizers and Soil Fertility 3
AGR 404 Weed Science **or** 3
ENT 530 Insect Pest Management 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
ACC 201 Principles of Accounting 3

NOTE: To satisfy requirements for an Agricultural Economics Minor, select an additional nine hours of AEC courses with the approval of an adviser.

Restricted Electives (21 hours)

To be chosen with the approval of an adviser.

Free Electives (six hours)

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.

Option III: Education

Preprofessional Requirements **Hours**
BIO 106/107 Principles of Plant Biology and Laboratory* 4
CHE 105/107 General College Chemistry I and II* 6
HOR 100 Introductory Horticulture 1
ART 100 Introduction to Art* 3
SP 181 Basic Public Speaking* **or** 3
ENG 103 Writing for Business and Industry* 3
ECO 261 Principles of Economics II* 3
MA 122/123 Finite Mathematics and its Applications and Elementary Calculus and its Applications* 6
BIO 110 Introduction to Human Biology and Health* **or** 3
English* 3

*Will also satisfy University requirements.

Major (24 hours) **Hours**

HOR 350 Plant Propagation 3
Plus four of the following six courses:
HOR 327 Ornamental Plants I 3
HOR 330 Annual and Perennial Flowers 3
HOR 335 Greenhouse Management 3
HOR 402 Pomology: Deciduous Fruits I 4
HOR 510 Vegetable Crop Production 3
HOR 515 Turf Management 3
Additional courses in horticulture will depend upon the area of concentration chosen by the student.

Specialty Support (21 hours) **Hours**

AGR 366 Fundamentals of Soil Science 3
PPA 375 Introduction to Plant Diseases 3
AGR 470G Fertilizers and Soil Fertility 3
AGR 404 Weed Science **or** 3
ENT 530 Insect Pest Management 3

The following courses are required for a teaching certificate: EDV 370, EDV 580, EDV 583, EDU 203. Additional hours above the 21 hours required to satisfy the Specialty Support area may be used to fill the Restricted Electives area.

To complete the requirements for a teaching certificate, each student must take six hours of agricultural engineering, six hours of agricultural economics (including AEC 302), and six hours of animal science (excluding ENT 100 but including other ENT courses). Three hours of English literature and three hours of health or physical education also are required.

Restricted Electives (21 hours)

To be chosen with the approval of an adviser.

Free Electives (six hours)

Internship (0-6 hours)

ENT 402 Forest Entomology 3
ENT 561 Medical Entomology 4

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.

INDIVIDUALIZED PROGRAMS

This program has 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.

Procedure for entering the individualized program:

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 Service, 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.

There are no required courses other than those required by the University—English composition and at least five of the General Studies Area options. Although no specific communications courses are required in the program, the student must demonstrate skills in writing and speaking.

AGRICULTURAL PEST MANAGEMENT

The primary objective of this major is to provide the training which will enable the pest management graduate to evaluate and diagnose agricultural pest and disease problems and to recommend courses of corrective action that are economically and ecologically sound. The program offers broad training in the identification, distribution, biology, ecology, physiology, economic importance and integrated management of agricultural pest and disease problems. This multidisciplinary program is designed to acquaint the student with the principles and practices of entomology, plant pathology, and weed science. A unique feature is a summer internship program that offers the student practical experience in the various disciplines mentioned above.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements (26-29 hours)

Certain courses from the following may be used to satisfy the General Studies area requirements.

MA 122 Finite Mathematics and its Applications **and** 3
MA 123 Elementary Calculus and its Applications **or** 3
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 **and** 3
BIO 106 Principles of Plant Biology **and** 3
BIO 108 Principles of Microbiology **and** 3
One laboratory (BIO 105, 107 or 109) **or** 1
BIO 200/202 General Biology **and** 6
BIO 201/203 General Biology Laboratory I and II . . 4
SP 181 Basic Public Speaking **or** 3
ENG 103 Writing for Business and Industry 3

Interdisciplinary Major Requirements (24 hours) **Hours**

ENT 100 Agricultural Entomology 3
ENT 310 Insect Pests of Field Crops 3
ENT 530 Insect Pest Management 3
AGR 386 Principles of Field Crop Production 3
AGR 404 Weed Science 3
PPA 375 Introduction to Plant Diseases 3
PPA 545 Epidemiology and Control of Plant Diseases 3
AGR/ENT/PPA 401 Agri-Chemicals in Pest Management 3

Summer Internship **Hours**

AGR 399 Experiential Learning in Agronomy. . . . 3-5

Specialty Support Outside of Major (21 hours) **Hours**

The following courses are required:
CHE 236 Organic Chemistry **or** 4
CHE 230/232 Organic Chemistry 6
CHE 231/233 Organic Chemistry Laboratory. . . . 2-4
STA 370 Introduction to Statistics 4

Select from the following with adviser's consent:
AEC 302 Farm Management Decision Making 3
AEC 322 Agribusiness Management 3
AEC 445G Introduction to Resource and Environmental Economics 3
AGR 360 Genetics 4
AGR 366 Fundamentals of Soil Science 3
AGR 502 Ecology of Economic Plants 3
AGR 554 Advanced Crop Science 3
AGR 560 Soil Plant Relationships. 3
BIO 451G Introductory Ecology 4
BIO 530 Plant Physiology 3
FOR 100 Elements of Forestry 3
HOR 100 Introductory Horticulture 1
HOR 327 Ornamental Plants I. 3
PPA 558 Nematode Diseases of Plants 3
VS 351 Principles of Animal Hygiene and Disease Control 3

Electives

Courses should be selected with adviser's consent to satisfy the minimum requirement of 120 hours.

Summer Internship Program

Project leaders in the Departments of Agronomy, Entomology, and Plant Pathology engaged in research in Pest Management will be asked to employ students qualifying for the summer internship program. The student will be afforded the opportunity, from time to time, to observe and/or participate in work underway by another project leader in another department and, in this manner, broader training will be possible.

Another opportunity for training will be with industry. In this case, a representative from an agrichemical firm will assume the responsibility for training.

In any case, the Program Director and project leaders will determine the objectives that must be reached during the tenure of the summer training.

PLANT PATHOLOGY

Plant Pathology students learn how plant diseases originate, how they spread and how they may be controlled. By controlling plant diseases and producing healthy plants, producers grow feed and fiber more efficiently and more profitably, which in turn benefits consumers through lower prices and higher quality products.

Degree Requirements

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements **Hours**

BIO 106/107 Plant Biology and laboratory **and** BIO 108/109 Microbiology and laboratory **or** BIO 200/201 and BIO 202/203 General Biology I and II and laboratory 9-10
CHE 105/107 General College Chemistry I and II . . 6
CHE 115 General Chemistry Laboratory 3
PHY 201/203 General Elementary Physics 8
MA 113 Calculus I 4
AGR 366 Fundamentals of Soil Science 3
ENT 100 Agricultural Entomology 3

Departmental Major **Hours**

The departmental major may include courses outside the department for a total of 24 credits. Choose from:
PPA 375 Introduction to Plant Diseases 3
PPA 410 Forest Pathology 3
PPA 503 Plant Biochemistry 3
PPA 543 Diseases of Plants 3
PPA 545 Epidemiology and Control of Plant Diseases 3
PPA 558 Nematode Diseases of Plants 3
PPA 575 Plant Pathology 3

BIO 530 Plant Physiology 3
BIO 573 Mycology 4
AGR 360 Genetics 4
AGR 366 Fundamentals of Soil Science 3
AGR 367 Laboratory in Soil Science 2

Specialty Support (21 hours) **Hours**

Any combination of:
BIO 108/109 Microbiology 5
CHE 230/232 Organic Chemistry 6
CHE 231/233 Organic Chemistry Laboratory 2-4
AGR 360 Genetics 4
AGR 366 Fundamentals of Soil Science 3
AGR 367 Laboratory in Soil Science 2
BIO 476G General Microbiology 4
BIO 574 Anatomy of Vascular Plants 4
STA 370 Introduction to Statistics 4

Electives

Electives should be selected in view of other course work to complete the required total of 120 credit hours for graduation. Adviser's approval is required.

RURAL SOCIOLOGY

With the growing recognition of the sociological aspects of rural life problems, opportunities for sociologists to help in the improvement of agriculture and rural life have been widening. Increased attention to rural welfare, social services, recreation and the environment by the government and the general public is an indicator of an expanding need for rural sociologists.

Degree Requirements-Bachelor of Science in Rural Sociology

In addition to satisfying the University English and General Studies requirements and the College requirements listed earlier, each student completes the following:

Preprofessional Requirements (7 or 8 hours to include)

GEN 102A and GEN 102B **or** GEN 102A **and** SOC 101.

Any other Sociology course at the 100 **or** 200 level.

All students wishing to declare a major in Sociology must file an application with and be interviewed by 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.

Departmental Major

The student must complete 24 credit hours within the department.

Required: **Hours**
SOC 302 Sociological Research Methods I 3
SOC 303 Sociological Research Methods II 3
SOC 351 History of Sociology 3
SOC 551 Concepts and Theories in Sociology 3

Elect remaining hours from:
SOC 409 The Family 3
SOC 413 Community Analysis 3
SOC 441 Group Organization and Leadership 3
SOC 501 Population Analysis 3
SOC 515 Diffusion of Technology in Modern Society 3
SOC 517 Rural Sociology 3
SOC 534 The Southern Appalachians: A Sociological Interpretation 3
or any other Sociology course in consultation with a departmental adviser.

Specialty Support

Students must take 21 credit hours of non-freshman courses chosen from **at least** two of the following departments.* Any student who is a double major may choose from only one of these areas if desired. Specific courses from other departments may be accepted by petition to the Director of Undergraduate Studies in Sociology.

Agricultural Economics
Anthropology
Community Health
Computer Science
Cooperative Extension Education
Economics
Education
Geography
History
Human Communications
Human Development/Family Life
Philosophy
Political Science
Psychology
Social Professions
Statistics

*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.

Requirements for a Minor in Rural Sociology

Undergraduate Minor Prerequisite (7 or 8 hours to include:)

GEN 102A **and** GEN 102B **or** GEN 102A **and** SOC 101

Any other 100 **or** 200 level Sociology course (3 hours)

Any student wishing to minor in Rural Sociology should file an application with and be interviewed by the Director of Undergraduate Studies for Sociology prior to entering the program.

Minor Requirements

Completion of 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 351 and SOC 551 **or**
SOC 302 and SOC 303 **or**
SOC 302 and SOC 351

Students wishing to minor in Rural Sociology are advised to give special consideration to the following courses which deal with topics which are central to such a focus in Sociology:

SOC 413, SOC 409, SOC 501, SOC 517, SOC 534, SOC 441, and SOC 515.

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 43 students are chosen from Kentucky to enter the Auburn Veterinary School. 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 a Bachelor of Science degree and 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 Bachelor of Science degree in approximately four years.

A minimum of 85 semester hours with a grade-point average of 2.5 (on a 4.0 basis) is required prior to consideration for admission to Auburn. Because of the high level of competition for admission, a student should maintain 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 following curriculum is designed for both Auburn and Tuskegee and may be completed in three years. Tuskagee requires each applicant to take the Veterinary Aptitude Test (VAT). *The student should work closely with his or her pre-veterinary 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. The application deadline each year is October 15.

Hours
ENG 101 English Composition 3
ENG 102 English Composition* 3
CHE 105 General College Chemistry I 3
CHE 107 General College Chemistry II 3
CHE 115 General Chemistry Laboratory 3
MA 109 College Algebra **or** 3
MA 131 Pre-Calculus Mathematics for the Life Sciences** 3
MA 113 Calculus **I or** 4
MA 132 Basic Calculus for the Life Sciences 3
GEN 106 Agricultural Animal Science 4
PS 101 American Government 3

HIS 104 A History of Europe to 1713 **or** 3
HIS 108 History of the U.S. Through 1865 3
HIS 105 A History of Europe, 1713 to the Present **or** 3
HIS 109 History of the U.S. since 1865. 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 215 Physics for Life Sciences I 5
PHY 217 Physics for Life Sciences II 5
CHE 230 Organic Chemistry 3
CHE 231 Organic Chemistry Laboratory 2
CHE 232 Organic Chemistry 3
CHE 233 Organic Chemistry Laboratory 2
BIO 103 Principles of Biology† 3
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
Electives in Humanities (Area V) and Social Sciences (Area VII)†† 9

Total 92-93

*The English requirement for a B.S. degree from the University of Kentucky must be met. Consult adviser.

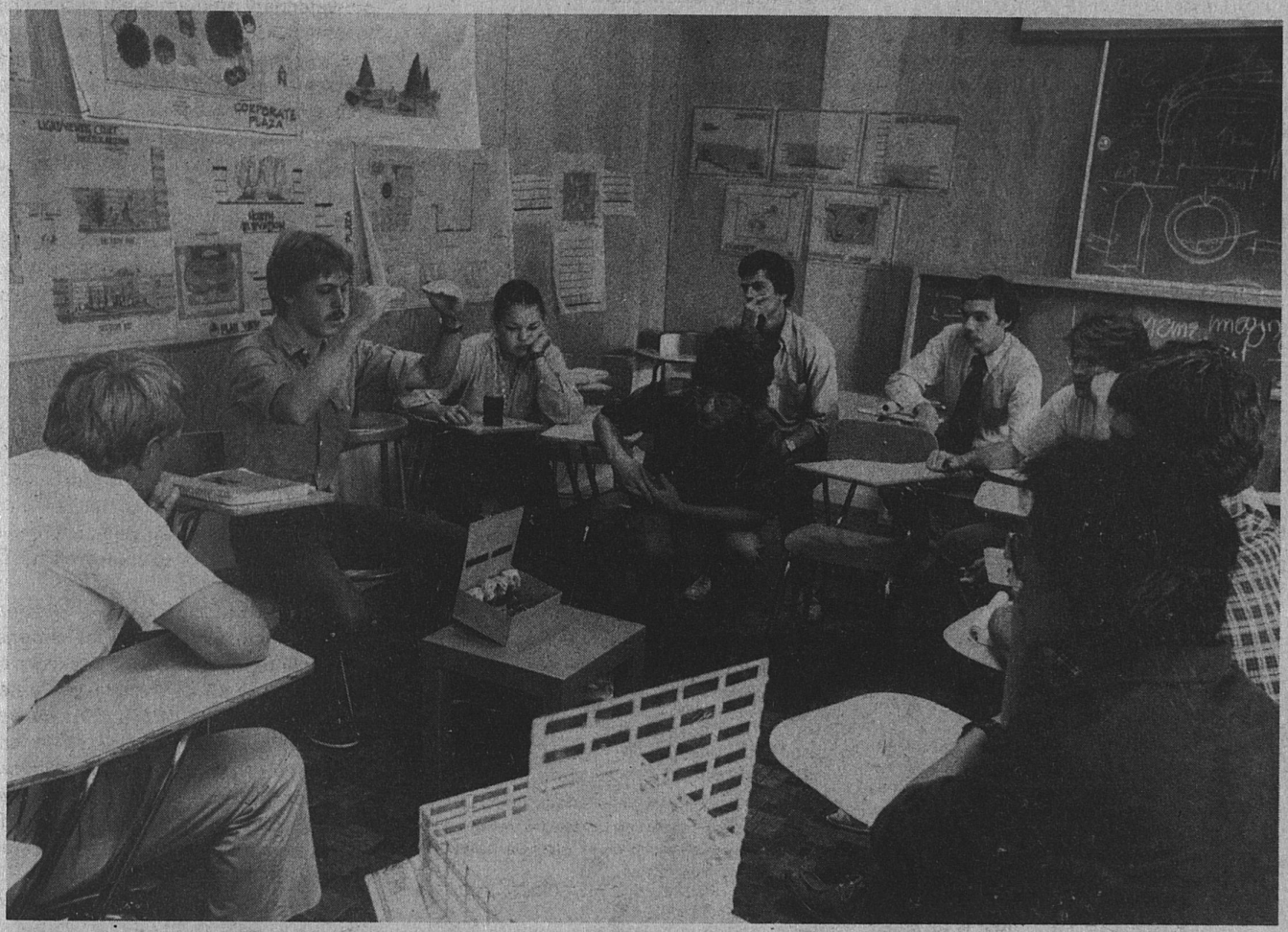
**MA 109 or MA 131 may be exempted, based on ACT scores and mathematics background. Consult adviser.

***Six college hours of a modern foreign language may be substituted on approval of 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 200, 201, 202 and 203 is recommended, but not mandatory. Additional courses in advanced biology are also recommended.

†† Students must complete a minimum of nine hours of liberal education studies selected from the General Studies areas of Humanities (Area V), and Social Sciences (Area VII). No less than one course must be taken in both Areas V and VII.

Further inquiries may be directed to:
M. Ward Crowe, D.V.M.
Department of Veterinary Science
College of Agriculture
University of Kentucky
Lexington, Kentucky 40546
(606) 257-3858



ALLIED HEALTH PROFESSIONS

Joseph Hamburg, M.D., is the Dean of the College of Allied Health Professions. Thomas C. Robinson, Ph.D., is Associate Dean. John K. Johnson, M.S., 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.

Because the expertise and supply of traditional health professionals, such as physicians and dentists, alone cannot meet the needs of current health care systems, allied health professionals are assuming greatly expanded and increasingly complex health care duties and responsibilities. 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.

Undergraduate Curricula and Majors

The College of Allied Health Professions offers a variety of programs at both the certificate and degree levels. A certificate program is presently available for the Clinical Associate program. Four curricula are offered at the baccalaureate level, leading to the Bachelor of Health Sciences degree: Community Health, Medical Technology, Physical Therapy and the Allied Health Teacher/Administrator Preparation program.

ADMISSIONS PROCEDURES

Baccalaureate Programs

All baccalaureate programs in the College of Allied Health Professions are composed of two sub-programs. A **pre-professional program** is composed of courses prerequisite to professional program content as well as University General Studies and English 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 and have been accepted into departmental 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 departments 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 their department's 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 programs.

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, no out-of-state residents will be accepted by that department in the foreseeable future.**

Requirements for the first two years (preprofessional program) may be completed at the University of Kentucky or another 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 department he plans to enter, and have plans to complete **all requirements before actual enrollment** in the professional program. Any University of Kentucky community college work will be accepted for lower division elective credit. No matter how many community college courses are accepted, however, all other requirements for graduation must be met.

It is essential that complete, accurate information be submitted for 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.

Students who are **not currently enrolled** at the University of Kentucky must obtain application materials from and submit all materials to:

Office of Admissions
Gillis Building
University of Kentucky
Lexington, Kentucky 40506
(606) 257-1606

Students who **are currently enrolled** at the University of Kentucky or who will be enrolled the **semester prior** to the date of anticipated entrance into the professional program must obtain professional application materials from and submit all professional application materials to:

Office of Student Services
College of Allied Health Professions
114 Medical Center Annex 2
University of Kentucky
Lexington, Kentucky 40536
(606) 233-6394

Persons not enrolled in the University of Kentucky must complete applications to both the University of Kentucky and the professional program.

Deadlines for submitting application materials 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, please refer to The Graduate School Bulletin or contact:

Graduate School Admissions
351 Patterson Office Tower
University of Kentucky
Lexington, Kentucky 40506
(606) 257-4613

Certificate Program

Admission procedures for the Clinical Associate program vary from the procedures for the baccalaureate and graduate programs described above. Specific information on these different procedures can be found in the program description which follows.

ACADEMIC PERFORMANCE POLICY

The academic performance policy for professional students in the College of Allied Health Professions differs from the general policy for undergraduate students. This policy appears 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.

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 the University's English composition and General Studies requirements and (2) complete a minimum of 120 semester hours, including required courses in both the preprofessional and professional programs. All professional curricula of the College include the interdisciplinary courses—AHE 855/856 Allied Health Colloquium and AHE 841 Health Care System Clerkship.

ALLIED HEALTH TEACHER PREPARATION AND EDUCATIONAL ADMINISTRATION PROGRAM

The Department of Allied Health Education and Research offers a baccalaureate program in Teacher/Administrator Preparation for allied health professionals, often referred to as the "2+2" program. This program is designed for persons with backgrounds in allied health disciplines who wish to become teachers or educational administrators in their specialties.

Admission to the Professional Program

Admission procedures for the program in the Department of Allied Health Education and Research vary somewhat from the procedure for other departmental professional programs. The current requirements for acceptance into the Allied Health Teacher/Administrator Preparation program include:

1. Completion of a two-year associate degree (or its equivalent as determined by achievement on proficiency and/or equivalency examinations acceptable to the University) from an accredited program in an allied health discipline.
2. An overall grade-point average of 2.0 on a 4.0 quality point scale in all course work attempted, as computed by the University Admissions Office.
3. At least one year's professional experience (2000 hours) following acquisition of the associate degree.
4. References from three allied health professionals.
5. Registration, certification and/or licensure appropriate to the allied health discipline.
6. Availability of teaching internship sites.

Allied health specialty work from an accredited program, meeting standards specified by the University of Kentucky and the Department of Allied Health Education and Research, will be transferred as credit toward graduation, according to guidelines approvem for this program by the University of Kentucky Senate. For further information or application materials, please contact:

Center for Learning Resources
Two + Two Program
Medical Center Annex 3
University of Kentucky
Lexington, Kentucky 40536
(606) 233-5616

Professional Program Application Deadlines

June 1—Deadline for UK and professional program applications and all supporting credentials for admission to the Fall Semester

October 15—Deadline for UK and professional program applications and all supporting credentials for admission to the Spring Semester

April 1—Deadline for UK and Professional Program Applications and all supporting credentials for admission to the Summer Sessions.

Professional Requirements

1. General Studies Area Requirements
2. College of Allied Health Requirements
   a. Upper Division Core
   b. Discipline Support Area

Planned according to the student's career goals, courses will be selected, with the approval of the adviser, from such areas as allied health, basic sciences, and advanced courses in the student's discipline.

3. Educator Option

This curriculum provides courses in educational methods for clinical and laboratory teaching and evaluation.

OR Administrator Option

This option offers courses to develop principles of management organizational skills, performance evaluations and financial accounting. Prerequisite course work is necessary for some of the courses required to fulfill this option.

Professional Requirements 2 and 3 must be completed after admission to the program.

COMMUNITY HEALTH

The College of Allied Health Professions offers the Bachelor of Health Sciences degree with a major in Community Health. Preparation of the student for community involvement in health planning incorporates a range of responsibilities that exceed individual patient services. The department offers certain courses which provide a broad introduction to health in our society and the operations of some of the systems within the health field. To prepare students for specialized careers in community health, the Bachelor of Health Sciences degree is offered with three options: health education, environmental health, and health services administration. Only the health education option is fully developed at this time although courses are offered in all options.

Admission to the Professional Program

Admission to the professional program in Community Health is competitive and requires completion of all prerequisite course work and submission of all application materials. A minimum of 60 semester hours, including 30 hours of *Preprofessional Requirements*, is required with an overall grade-point average of 2.0 on a 4.0 scale.

Selection of students for admission to the professional program is on a competitive basis. The departmental 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.

Preprofessional Requirements (Minimum of 30 hours)

2 semesters of biological sciences
2 semesters of social and/or behavioral sciences
CH 210 Introduction to Community Health Ecology
Electives

For more information contact:

Department of Community Health
Medical Center Annex 1, Room 20
University of Kentucky
Lexington, KY 40536
(606) 233-6361

Professional Program Application Deadlines

(Fall admission only)

February 1—Deadline for UK and professional program applications and all supporting credentials

February 15—Deadline for all supporting credentials

Late applicants will be considered only on a space-available basis.

Professional Requirements

Departmental core requirements for a Bachelor of Health Sciences degree are as follows:

	Hours
CH 210 Introduction to Community Health Ecology	3
CH 250 Introduction to Epidemiology	3
CH 481 Community Health Practice*	4-8
AHE 841 Health Care System Clerkship	3
AHE 855 Allied Health Colloquium	2
AHE 856 Allied Health Colloquium	2

Specific requirements for the Community Health education area are:

CH 320 Community Health Education Methodology	3

CH 321 Seminar in Community Health Education. . 3
CH 420 Current Issues in Community Health Education. 3
CH 500 Public Health Sanitation 3
HPR 330 School Health Education 3
HPR 430 Methods in Teaching Health Education . . 3
PS 201 Introduction to Political Behavior** 3
COM 101 Introduction to Communications **or** 3
COM 551 The Communications Process 3
BSC 331 Behavioral Factors in Health and Disease 3

*An eight-week field work experience is required for all majors prior to graduation.
**May be used in fulfilling Area VIII requirements.

MEDICAL TECHNOLOGY

The Medical Technology program in the College of Allied Health Professions leads to the Bachelor of Health Sciences degree. This four-year curriculum is accredited by the American Medical Association's Council on Medical Education, through the National Accrediting Agency for Clinical Laboratory Sciences and the Committee on Allied Health Education and Accreditation (CAHEA). Graduates of this program are qualified to take several national certification examinations and licensure examinations for laboratorians in those states which so require.

The Medical Technology curriculum provides breadth in general education, a strong foundation in the basic sciences essential to medical technology, and professionally-oriented instruction and experience in approved clinical laboratories such as those at the University Hospital and the Veterans Administration Hospital.

The general objective of the baccalaureate program is to educate medical technologist generalists who can take advantage of a wide variety of laboratory career opportunities in clinical facilities, research, education, and administration.

Admission to the Professional Program

Admission to the professional program is dependent upon the submission of a professional application, official transcripts of all college work, American College Test (ACT) scores, and letters of recommendation. All applicants will be interviewed by members of the Medical Technology faculty. **At the time of application,** applicants must have completed at least **45 semester hours** of work, including mathematics, general chemistry with laboratory, microbiology, and one semester of organic chemistry. A minimum of **60 semester hours,** including courses listed in the *Preprofessional Requirements,* must be completed **prior to enrollment** in the professional program.

The Admissions Committee gives careful consideration to all applications. Among those qualities considered are overall grade-point average, science/-mathematics GPA, evidence of academic improvement, ACT scores, recommendations, personal interviews, and evidence of motivation for a career in the field of medical technology.

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 are required for graduation, but not for admission to the professional program. These two courses may be taken with the preprofessional requirements or as part of the professional program.

For more information contact:

Department of Medical Technology
Medical Center Annex 2, Room 122
University of Kentucky
Lexington, KY 40536
(606) 233-5452

Professional Program Application Deadlines

Fall Semester Admission
February 1—Deadline for UK and professional program applications
February 15—Deadline for transcript(s), ACT scores and recommendations

Spring Semester Admission
September 1—Deadline for UK and professional program applications
September 15—Deadline for transcript(s), ACT scores and recommendations.
Late applicants will be considered only on a space-available basis.

Professional Requirements

JUNIOR YEAR

First Semester **Hours**
BCH 401G Fundamentals of Biochemistry 3
MT 831 Introduction to Laboratory Methodology I: Urinalysis 1
MT 832 Introduction to Laboratory Methodology II: Chemistry. 2
MT 854 Medical Parasitology 3
MT 860 Blood Collection 1
AHE 855 Allied Health Colloquium 2
BIO 585 Pathogenic Bacteriology. 4

Second Semester
MT 845 Electronics and Instrumentation for the Medical Laboratory 3
MT 833 Introduction to Laboratory Methodology III: Hematology 4
MT 834 Introduction to Laboratory Methodology IV: Immunohematology 1
BIO 594 Immunology and Serology 5
MT 860 Blood Collection 1
AHE 856 Allied Health Colloquium 2

Intersession
AHE 841 Health Care System Clerkship 3

SENIOR YEAR

First Semester
MT 836 Laboratory Organization and Management II. 1
MT 843 Clinical Hematology Lectures 2
MT 863 Clinical Hematology Laboratory 3
MT 844 Clinical Chemistry Lectures 3
MT 864 Clinical Chemistry Laboratory 3
MT 846 Urinalysis and Miscellaneous Clinical Microscopy 3
MT 870 Medical Technology Senior Seminar 1

Second Semester
MT 856 Clinical Bacteriology Lectures 3
MT 866 Clinical Bacteriology Laboratory 3
MT 857 Medical Mycology 2
MT 858 Immunohematology and Blood Banking . . 3
MT 855 Clinical Serology 3
MT 870 Medical Technology Senior Seminar 1

Intersession and Summer School
MT 880 Clinical Practicum in Medical Technology 12

Four months of clinical practicum in approved clinical facilities either within or outside the University of Kentucky Medical Center are required for fulfillment of national certification requirements.

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. The program provides continuing education opportunities for the practicing physical therapist and explores the possibilities of training new types of personnel allied with physical therapy.

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. Physical therapists receive referrals of patients from licensed physicians and maintain contact with them regarding the progressive care of patients.

Successful completion of the program permits graduates to sit for licensure examinations in all 50 states in the United 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 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. ***Because of the large number of qualified resident applicants to the Physical Therapy program, no out-of-state students will be accepted by that department in the foreseeable future.*** 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 profession; 2) initiative; 3) motivation and perseverance; 4) leadership and responsibility; 5) approach to problem solving; 6) communication and skills; 7) service orientation; 8) self-perception; 9) interaction with others; 10) professional judgment. It is strongly recommended that an applicant obtain a minimum or 25 hours experience as an aide or a volunteer in physical therapy departments.

Preprofessional Requirements

2 semesters of psychology
2 semesters of general chemistry, with laboratory*
2 semesters of general physics, with laboratory*
2 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.

For further information, contact:

Department of Physical Therapy
HP 500 Medical Center
University of Kentucky
Lexington, Kentucky 40536
(606) 233-5830

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

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 502 Principles of Physiology	4
AHE 855 Allied Health Colloquium	2
Total	15

Spring Semester	
ANA 802 Neuroanatomy for P.T. Students	2
AHE 854 Biology of Disease	3
AHE 856 Allied Health Colloquium	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
Total	16

Summer (4-week)	
PT 816-10 Summer Clerkship (Optional)	2
AHE 841-10 Health Care System Clerkship	3

Summer (8-week)	
PT 807-20 Clinical Functional Anatomy	2
PT 826-20 Prosthetics	2
PT 846-20 Medical and Physical Therapy Management of Orthopedic Problems	2
PT 866-20 Electromodalities	1
Total	7

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	1
PT 857 Therapeutic Exercise II	4
PT 864 Research Methodology	2
PT 877 Cardio-Respiratory Therapy	2
PT 887 Introduction to P.T. Administration	1
Total	16

Spring Semester	
PT 818 Clinical Problems	2
PT 838 Clinical Clerkship IV	2
PT 858 Therapeutic Exercise III	4
PT 868 Research Problems **and/or**	2
PT 898 Independent Study	1-4
PT 876 Electrophysiological Testing	2
PT 828 Introduction to Gerontology (Optional)	1
PT 888 Advanced P.T. Administration	3
Total	15-20

Summer	
PT 839-20 Clinical Internship in P.T.	9

CERTIFICATE PROGRAM

Clinical Associate Program (Physician's Assistant)

The Clinical Associate program (Physician's Assistant) is a 24-month certificate program. Graduates of the Clinical Associate program are eligible to take the National Certifying Examination for Primary Care Physician's Assistants. The program is accredited as an Assistant to the Primary Care Physician Program by the American Medical Association Committee on Allied Health Education and Accreditation.

Admission to the Program (Fall Only)

Admission to the Clinical Associate program is competitive and contingent on selection by the Admissions Committee. Applicants to the program should have completed a minimum of 60 semester hours of college work prior to admission, and should have prior health care work experience. The Admissions Committee will base its selection on such factors as overall grade-point average, performance in selected courses, evidence of academic improvement, recommendations, extent of health care work experience, and personal interview. In order to apply for admission, individuals should:

1. Obtain application materials directly from the Clinical Associate program, and submit them in time to be received by the Clinical Associate program by **January 1**.
2. Have official transcripts of all schools, colleges, and universities attended forwarded to be received by the Clinical Associate program by **February 15.**
3. Advise references listed on the application that a reference form will be forwarded by the program for their completion and return to the Clinical Associate program to be received by **February 15.**
4. Submit ACT scores by **February 15.**

Curriculum

The program begins with the University Fall Semester and continues for 24 months. The didactic phase encompasses the first two semesters as follows:

FALL SEMESTER

AHE 850 Clinical Methods
AHE 851 Introduction to the Profession
AHE 852 Medical Ethics for Clinical Associates
AHE 854 Biology of Disease
AHE 855 Allied Health Colloquium
AHE 873 Counseling and Interviewing Skills
BSC 212 Human Growth and Development

SPRING SEMESTER

AHE 856 Allied Health Colloquium
AHE 857 Clinical Laboratory Procedures
AHE 859 Introduction to Radiology
AHE 872 Practical Therapeutics
AHE 595 Directed Studies
ANA 532 Systemic Gross Anatomy

Clinical rotations begin with the University Eight-week Summer Session and continue through the following Eight-week Summer Session. A number of the required clinical rotations are outside of the Medical Center. Hence, students may be required to complete a portion of their clinical education outside the Lexington area. The following rotations are required:

AHE 860 Clinical Family Practice
AHE 861 Clinical Pediatrics
AHE 862 Clinical Obstetrics and Gynecology
AHE 863 Clinical Surgery
AHE 869 Clinical Internal Medicine
AHE 870 Emergency Medicine
AHE 871 Clinical Psychiatry
AHE 842 Clinical Practicum in Allied Health
AHE 865 Clinical Radiology
AHE 866 Clinical Dermatology
AHE 867 Clinical Preceptorships I
AHE 868 Clinical Preceptorships II

Note: The curriculum of this program is presently being modified. At the time of publication of this Bulletin, various course changes have been approved but the approval process for the new curriculum has not been completed.

For further information and application write:

Clinical Associate Program
University of Kentucky
107 Medical Center Annex 2
Lexington, Kentucky 40536
(606) 233-5743

GRADUATE PROGRAMS

The **Department of Allied Health Education and Research** coordinates master's and doctoral 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).

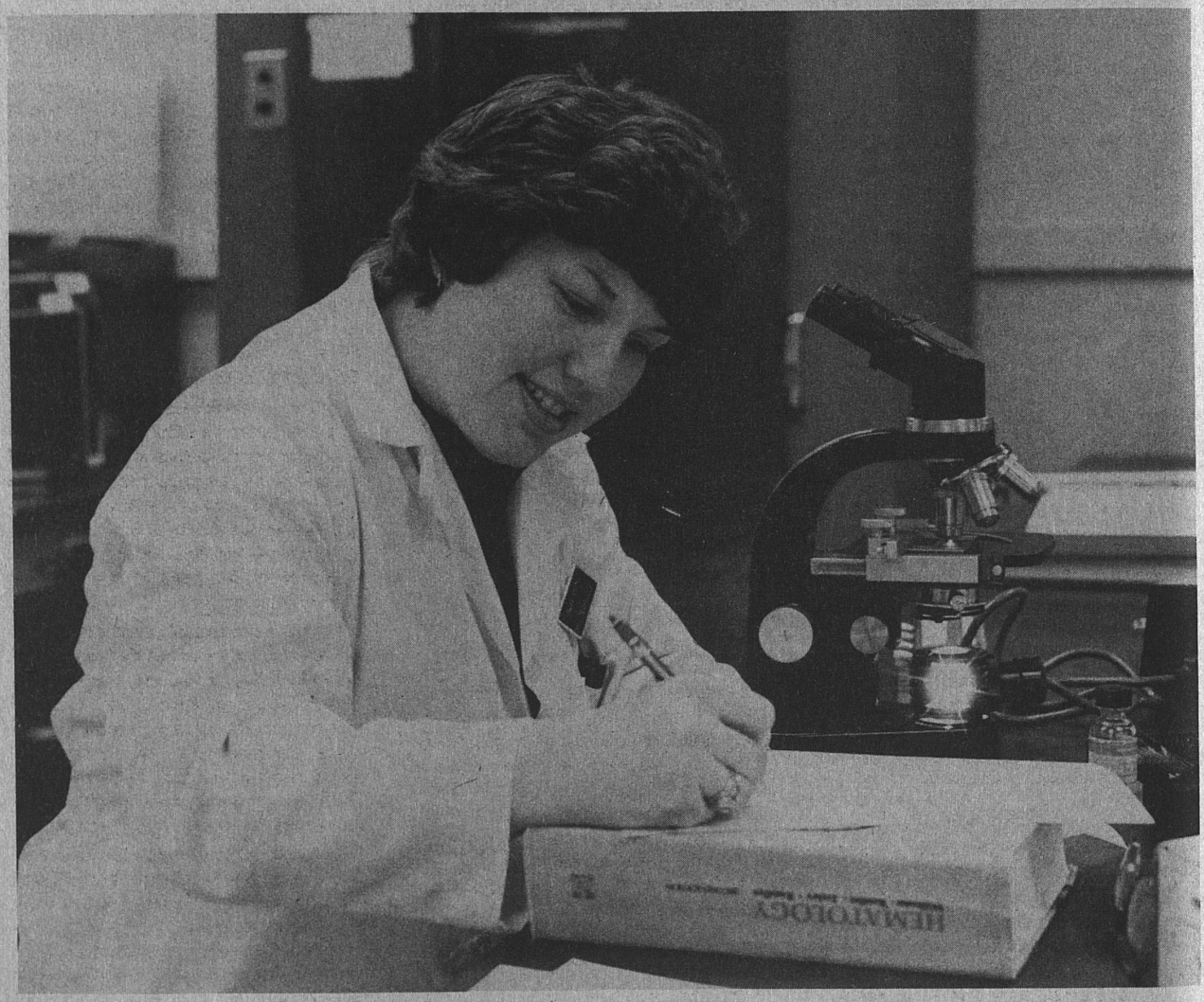
These programs lead to the M.S. degree in Education or the Ed.D.

The **Department of Clinical Pastoral Counseling** coordinates learning experiences with the programs of patient care in the University Hospital to educate health and religious personnel in their developing interrelationships. Students wishing to pursue graduate studies through this Department are referred to the Department of Educational Psychology and Counseling, College of Education. Students wishing further information are invited to consult the Department Chairman.

Graduate Degrees in Allied Health Professions

Master of Science in Clinical Nutrition. The program is designed for those who intend to pursue careers in dietetics and clinical nutrition, to teach clinical dietetics, or to do research in clinical nutrition and metabolism.

Master of Science in Radiological Health. This program 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.



ARCHITECTURE

Anthony Eardley, Architectural Association Diploma (Hons), 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 object 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 the fall semester 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 later on.

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 his background and previous development.

Admissions Procedures

Freshman candidates are required to file an application with the Office of the Dean of Admissions and Registrar by February 1, 1982 for Fall 1982 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 Dean of Admissions.

For Fall admission, applicants must register for and take the American College Test (ACT) on or before the December 1981 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 6, 1982 for Fall 1982 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 6, 1982 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 6, 1982 for Fall 1982 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 Dean 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 Office of the Dean of Admissions and Registrar by February 1, 1982 for Fall 1982 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 program 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 Dean 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 the College of Architecture Admissions Committee, 117 Pence Hall.

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 6, 1982 for Fall 1982 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 of the Commonwealth of Kentucky and the nation. The College is fully accredited by the National Architectural Accreditation Board.

The College of Architecture is enriching 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 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. Complete the University requirements relating to English and General Studies.

2. Complete 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 on a 4.0 system.

	Hours
Professional Studies and Professional Electives	120
General Studies courses	32
English 101/102 or equivalent	6
Electives (nonprofessional)	18
Total	176

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 English Composition	6
MA 122/123 Finite Mathematics and its Applications and Elementary Calculus and its Applications	6
Elective or General 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 General 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 General 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 General 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; Raymond H. Cox, Ph.D., Associate Dean for Basic Studies; John E. Christopher, Ph.D., Associate Dean for Advanced Studies; Herbert N. Drennon, Ph.D., Associate Dean for Special Programs; Mary F. Franke, Ed.D., Assistant Dean and Director of Developmental Studies; John E. Delap, M.A., Director of Student Records and Registration; Barbara B. Mabry, M.A., Director of Academic Advising Services; Cliff Swauger, M.S., Director of Fiscal Affairs and Operations.

THE COLLEGE'S MISSION

The College of Arts and Sciences fulfills a University-wide mission in that it provides most of the courses which constitute the common core of the University's undergraduate studies—the general education experience. Also, some students enroll in the College's basic studies in preparation for seeking admission to programs of limited enrollment in other colleges.

The College provides the opportunity to pursue the Bachelor of Arts, the Bachelor of Science and the Bachelor of General Studies degrees. Most departments offer programs leading to the Master's or Ph.D. degree as well.

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 value. 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 as a freshman, or with advanced standing, or as a special student, are the same as those outlined for the University. The College, however, strongly recommends that the student present at least two years of study in mathematics beyond general math (i.e., Algebra I, Algebra II, Geometry, Trigonometry, etc.) and at least two years of study in a foreign language. Students will find that entering the College with an intermediate level of competency in these two basic skills will greatly facilitate normal progress toward a University degree.

THE STUDENT AND ACADEMIC AFFAIRS

Once admitted to the College, all students who have questions about their individual programs of study, or who encounter academic problems—including notice of probation or suspension—should come to Room 257 Patterson Office Tower.

PROGRAMS AND SERVICES

Lower Division Students

Upon entering the College, new freshmen (and initially transfer students) become the responsibility of the Division of Basic Studies. The Division is located on the south side of the second floor of Patterson Office Tower. The Division provides the assistance of a centralized Academic Advising Service and, to a limited number of entering students who are academically disadvantaged, it offers a Developmental Studies Program. This program provides those students entering the University with an inadequate academic background an opportunity to improve their skills. The program offers credit courses in basic communications and mathematics and a noncredit course in reading and study skills. Those interested in this program should contact the director in Room 301, Frazee Hall.

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, two options for continuing advisement are open to the student. If the student is reasonably certain about his life/career/study goal, he may promptly declare a major and identify with a faculty adviser in the major department. If, however, the student is undecided about his life/career/study goal or wishes assistance in testing or confirming a tentative decision previously made, he may find a distinctive advantage initially in declaring himself "undecided" about a major. By so doing, the student can continue, under the guidance of a professional adviser of the Academic Advising Service, to investigate systematically alternative interest.

The Office of Student Registration and Records 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 receptionist in Room 257 (258-8711). Problems arising from these issues are the responsibility of the Director of Student Records and Registration in Room 259.

Advanced Students in Individualized Studies

The Division of Special Programs is the academic home of students who elect to fulfill an interdisciplinary major or to follow an individualized degree program. The office of the Associate Dean is entered through Room 271 at the west side of Patterson Office Tower.

The Associate Dean for Special Programs is responsible for promoting opportunities within the College for study in other than disciplinary majors. With the aid of advisers and numerous University faculty, he assists upper division students in drawing upon the total resources of the University while personalizing their programs of study toward their life/ career/ study goals. Students interested in a topical major, the Bachelor of General Studies degree, one of the College's interdisciplinary majors, or premedical, predental, pre-optometry, prelaw sequences of courses should consult with his office about their study plans. Those preparing

to apply for admission to advanced study in professional schools will also receive assistance in his office. Students and faculty who are interested in promoting additional upper division learning experiences of a cross-disciplinary or integrative nature should seek his administrative support.

Advanced Students in Disciplinary Studies

Normally academic advising is provided for advanced students concentrating in the disciplines 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, the student should at his earliest opportunity become personally acquainted with his adviser and engage in long-range planning of his area of concentration. It is imperative that each student file a Plan of Study for his area of concentration with the Office of Student Records and Registration, Room 257, Patterson Office Tower, by no later than the end of the junior year. Should the advanced student need authoritative information about College or University requirements or should he withdraw from his first choice of a major and seek a new direction, the assistance of the Academic Advising Service remains available.

The Division of Advanced Studies is responsible for the continuing development, support, and evaluation of the programs of study engaged in by disciplinary majors. Students and/or faculty who wish to initiate review or change in upper division offerings in the disciplines should, after conferring with their department chairman, consult with the Associate Dean of this Division.

Student Advisory Council

The 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 selected each spring by the undergraduate students regularly enrolled in the College. The chairman of the Student Council is an ex officio member of the Faculty Council of the College.

DEGREES

The College of Arts and Sciences provides two basic degree programs: (1) the Bachelor of General Studies, (2) the traditional Bachelor of Arts or Bachelor of Science. The Bachelor of Arts or Science program is typical of liberal arts programs offered at most universities. The Bachelor of General Studies is essentially an unstructured program which requires that each student plan and justify his own course of study.

THE BACHELOR OF GENERAL STUDIES DEGREE

The Bachelor of General Studies (BGS) degree offers an alternative to the more traditional Bachelor of Arts or Bachelor of Science degrees. The BGS is designed for those students whose intellectual interests or career objectives cut across traditional departmental lines and who wish to design their own programs of study in an imaginative manner. Apart from certain minimum requirements, the BGS allows great flexibility in the choice of courses.

A student considering the BGS degree must be able to define his objectives clearly and select courses that will enable him to reach those objectives. Generally, the program will be arranged around some topic, or theme, which gives coherence and purpose to the effort. The Field of Concentration—presented as a plan sheet by the senior year—reflects this theme.

Admission Requirements

Students who have earned 30 credit hours of course work and have a grade-point average of at least 2.0 may apply for admission to the BGS program. Any student interested in applying to the program should first see the Coordinator for Special Programs, who will provide copies of the application form and discuss each applicant's qualifications for the program. Each qualified student will be assigned a faculty adviser in the area of his or her primary interest to help prepare the application for admission to the program. The Coordinator for Special Programs is located in 271 Patterson Office Tower.

Graduation Requirements

To receive the Bachelor of General Studies degree, students must complete the following requirements:

1. At least 30 credit hours earned after formal admission to the program
2. A total of 120 credit hours (in courses acceptable to the College of Arts and Sciences) with a grade-point average of 2.0 or better
3. 90 credit hours in the College of Arts and Sciences
4. 45 credit hours in courses at or above the 300 level
5. Freshman English requirement
6. Completion of five of the eight General Studies areas
7. Completion of the College's Basic Skills requirements in either foreign languages or mathematics
8. Submission and approval of a BGS plan sheet for the Field of Concentration as follows: at least 40 credit hours with a grade-point average of 2.0 or better in an approved program of courses at the 200 level or above; and at least 24 of these credit hours must be at the 300 level or above.

THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES

The requirements for these two degrees are not stated in terms of specific courses which must be taken. Rather, they are written as guidelines for the student and his adviser to follow. The structure of these degrees places upon each student a large share of the responsibility for planning his course of study so as to constitute an integrated whole and not simply a random collection of courses.

These degrees are divided into three components: Basic Skills, Breadth of Study and Depth of Study. This division is not meant to imply that these are separate and disjoint areas. Rather, the intent is to focus the student's attention on various aspects of his education and, at the same time, make him aware of the opportunities afforded in each component.

Requirements for the Bachelor of Arts and Bachelor of Science Degrees

1. BASIC SKILLS

a. **Composition and expression.** Each student must demonstrate his ability to write coherent English according to basic standards of form and style. In addition the student must demonstrate his ability to use these composition skills in his expression. The level of proficiency expected is that required to *complete the University composition requirement.*

b. **Translation and interpretation.** Each student must demonstrate his understanding of the structure and content of linguistic systems foreign to his own and exhibit his ability to translate from one to another. The level of proficiency expected is that required to *complete four units* of one foreign language or three units of one foreign language and two units of a second.*

c. **Abstraction and inference.** Each student must demonstrate his ability to work within a formal system, to abstract

from data, and to systematize abstractions according to their inherent logic. The level of proficiency expected is that required to *complete four units* in formal sciences such as computer science, logic, mathematics, or statistics.***

*One unit is considered equivalent to one year of high school or one semester of college work.

**High School courses in general mathematics or business mathematics may not be used to satisfy this requirement.

2. BREADTH OF STUDY

The student seeking the Bachelor of Arts degree must complete at least 12 hours in each of the following three broad categories of disciplined inquiry. The student seeking the Bachelor of Science must complete at least nine hours in each category.*

a. Natural Sciences** At least six hours must be in a single discipline in courses listed in General Studies Areas II or III.

b. Humanities

c. Social and Behavioral Sciences** Study in a single discipline may not serve to fulfill breadth requirements in more than one category.

*The Bachelor of Science degree requires the completion of 60 hours in biological, mathematical and physical sciences. This 60 hours may include freshman level courses, courses used to satisfy the natural science breadth requirement, and courses listed in General Studies Areas II and III.

**At least one course in the natural or social and behavioral sciences must include some laboratory or field experience.

3. DEPTH OF STUDY

Each student must complete at least 46 hours, 40 of which must be in courses not open to freshmen, of concentrated study in either of the following ways:

a. **Discipline focus.** At least 18* hours of work at or above the 200 level in a departmental or interdepartmental program, at least six hours of premajor work, and at least 14 hours in work related to but outside the major program. At least 24 hours must be courses at or above the 300 level.

b. **Topical focus.** A systematic and coherent study of a single topic that cuts across lines of existing programs, with the advice of a member of the College faculty and consent of the Associate Dean for Special Programs.

*This minimum may be set at 15 hours for a departmental or interdepartmental program with the approval of the Arts and Sciences Faculty Council and the Undergraduate Council if there are special reasons for a lower minimum.

4. GENERAL

Each student must complete 120 hours of course work (exclusive of physical education service courses) or its equivalent with a grade-point average of at least 2.0. At least 90 of these credits must be in Arts and Sciences courses. The Bachelor of Arts degree shall include at least 40 credits at or above the 300-level.

The University requirements for English composition and the General Studies must be satisfied. The composition requirement is the same as Basic Skills, section a. The General Studies requirement will usually be satisfied as the remainder of the Basic Skills and the Breadth of Study requirements are completed.

Discussion of Components

1. BASIC SKILLS

a. Composition and Expression

Students must demonstrate the ability to express themselves in written English, according to basic standards of form and style, by completing the freshman English requirement as follows:

Students who have a standard score of 21 and below on the English section of the ACT must satisfactorily complete two semesters of composition: English 101 in their first semester at the University and either English 102, or English 103, or English 104, or English 105. Students who have a standard score of 22 and above on the English section of the ACT must satisfactorily complete either English 102, or 103, or 104, or 105. If they receive a grade of B or better, they will have fulfilled the English composition requirement. If they receive a grade of C, or D, they must complete one of the other second semester courses. Full-time students must enroll in freshman English each semester until they have satisfied this requirement unless 1) they qualify for a one-semester option, in which case they may enroll during either semester of their freshman year; or 2) the program of their college or department requires postponement of the second course. Individual schools in the University may make additional requirements.

Students with standard scores of 25 or above may complete this requirement by passing a special examination. Information on special examinations is provided in the *Special Academic Programs* section in the front portion of this Bulletin.

Students in the Honors Program take the Honors Colloquia; a grade of A or B in the first Honors Colloquium fulfills the freshman English requirement.

b. Translation and Interpretation

All students must demonstrate their understanding of the structure and content of a language other than their own and exhibit an ability to translate from one to the other by completing four units of one foreign language or three units of one foreign language and two units of a second.

Duplication of credit is not allowed toward satisfaction of this requirement. For example, a student who presents three units of high school work in a single language may complete this requirement by passing the fourth semester of the four-semester sequence in the same language at the University but may not complete the requirement by passing the first, second or third semester of that sequence at the college level.

c. Abstraction and Inference

All students must demonstrate ability to work within a formal system, to abstract from data, and to systematize abstractions according to their inherent logic by completing four units chosen from approved computer science, logic, mathematics, or statistics courses. Students may combine approved high school and university units. High school courses which satisfy the requirement are algebra (I and II), geometry, trigonometry, and calculus; general and business mathematics courses do not. Appropriate university courses for this requirement include: computer science courses; PHI 120, 320, 520; all mathematics and statistics courses (except STA 200).

Students who wish to use high school units to satisfy all or part of Basic Skills component **b** or **c**, must provide a high school transcript or have the appropriate school officials certify the credit by writing:

The Director of Student Records and Registration
College of Arts and Sciences
Room 257, Patterson Office Tower
University of Kentucky
Lexington, Kentucky 40506

2. BREADTH OF STUDY

The student seeking the Bachelor of Arts degree must complete at least 12 hours in each of the following categories; the student seeking the Bachelor of Science degree must complete at least nine hours in each category. Courses in a single department may not fulfill Breadth of Study requirements in more than one of the categories listed below (e.g., if ANT 332 is used as a Natural Science course, no ANT course may be counted as a Social and Behavioral Science).

a. Natural Sciences Category

The Natural Sciences are devoted to the scientific study of natural phenomena of the earth and the universe. All courses in the departments of Biology, Chemistry, Geology, and Physics and Astronomy satisfy this requirement; at least six hours must be taken in one of these departments. The remainder of the requirement may be satisfied by courses in one of these departments, or may include ANT 120, ANT 232, ANT 332, GEO 151, GEO 251, PSY 556, or PSY 558. Courses in the history or philosophy of science do not satisfy this requirement.

b. Humanities Category

The Humanities focus on the verbal and nonverbal interpretations of experience shared by mankind, both now and in the past.

Humanities courses include:

ANT 512 Comparative Civilizations
ANT 524 Mythology
Art-History
All English courses except those in composition and writing (Specifically excluded are ENG 101, 102, 103, 104, 105, 205, 401, 501, and 509.)
All literature and civilization courses in the departments of Classics, French, German, Slavic and Oriental, and Spanish and Italian (but not composition, the first four-semester language sequences, or linguistics courses)
All linguistics courses (including, in addition to those with LIN prefixes, ANT 215, 518; ENG 414G, 510, 512, 518; FR 407; GER 531, 532; PSY 529; SO 410, 411; SPI 501, 502, 503, 506)
HPR 290 History and Philosophy of the Dance
History—all courses (Note, however, that Humanities and History are two distinct areas in the General Studies requirements.)
Music appreciation and the history of music
Philosophy (except PHI 120 Introductory Logic, PHI 320 Symbolic Logic I, and PHI 520 Symbolic Logic II)
SOC 525 Religion and Culture
TA 101 Introduction to Theatre
TA 580 History of the Theatre I
TA 581 History of the Theatre II
*ARC 820, 821, 822, 823 Studies in History and Theory of Architecture and Urban Form

*Undergraduate students must have the approval of the Dean of Arts and Sciences and the Dean of Architecture to enroll in the ARC courses.

c. Social and Behavioral Sciences Category

The Social and Behavioral Sciences are concerned with the study of human beings and higher level organisms who, by intervention in natural events of the earth or universe, seek to understand and to modify their physical, biological, social, and cultural environments. Courses that satisfy this requirement are:

*Anthropology (except physical anthropology, ANT 120, 232, 332, 402G)
Economics (except statistical methods, ECO 391, 592)
*Geography (except GEO 151, 251, 305, and 505, physical geography, climatology, and cartography)
History (Note that HIS courses satisfy the requirement in one category only, i.e., Social and Behavioral Sciences or Humanities, but not both.)
Communications courses which bear the COM prefex and SP 280
JOU 535 History of Journalism
JOU 537 Seminar in Public Opinion
Linguistics—all courses (but note that linguistics courses satisfy the requirement in one category only, i.e., Social and Behavioral Sciences or Humanities, but not both)
PHI 535 Social and Political Philosophy
PHI 537 Philosophy of Law
PHI 562 Philosophy of the Social Sciences
PHI 565 Philosophy of Language
PHI 570 Philosophy of History
PHI 575 Philosophy of Mind
Political Science
*Psychology (except PSY 216, 552, 556, and 558, statistical or biological courses)
*Sociology

At least one course in (a) the Natural or (c) Social and Behavioral Sciences must include some laboratory or field experience (i.e., supplementary work, regularly scheduled and supervised, which includes such activities as scientific experiments, collecting and analyzing data, etc.)

*If courses in this department are used to satisfy the Social and Behavioral Sciences requirement, no courses from the department may be used to fulfill either the Natural Sciences or Humanities requirement.

General Studies

The University requires that students enrolled in the Bachelor of Arts, Bachelor of Science, and Bachelor of General Studies programs *complete five of the eight areas of General Studies.* Normally these areas will be satisfied as the student completes the College Basic Skills and Breadth of Study components, but each student must be careful to insure this is the case.

Upper division courses in the same department may be substituted for listed courses with the approval of the dean of the student's college and the chairman of the department in which the courses are taught. Arts and Sciences students are encouraged to make liberal use of this substitution option.

3. DEPTH OF STUDY

A major in the College of Arts and Sciences is composed of prerequisite courses and a 40-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. A prerequisite of at least six hours.
2. A total of 40 hours in the field of concentration, including hours in the major.
3. A standing of 2.0 in these 40 hours is required for graduation.
4. A minimum of 18 hours in the department, exclusive of prerequisites.
5. At least 14 hours in the field must be outside the major department.
6. At least 24 hours must be in courses above the 200 level.
7. No course open to freshmen may be counted in the field of concentration.

The student is required to gain at least 40 hours in a field of concentration, most of which must be taken during the junior and senior years. These 40 hours are to be elected subject to the approval of the student's adviser and the Associate Dean for Advanced Studies 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 40 hours of the field of concentration.

Each department shall 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.

At the beginning of the junior year the student and his adviser should work out a tentative plan for the 40 hours in the field of concentration. By the beginning of the

senior year the student must file a field of concentration plan sheet signed by his faculty adviser with the Office of Student Records and Registration. This plan must specify all of the courses comprising the 40 hours of the student's field of concentration. All courses listed must be taken. Changes in the plan must be approved by the adviser and the Director of Student Records and Registration.

GENERAL INFORMATION

Topically Related Fields (Topical Majors)

If a student has an interest which does not fall into a departmental area he may select a topic for concentration instead of a departmental major. The topical major offers great flexibility and allows the student to cut across departmental and College lines in constructing a meaningful and imaginative program. Courses in several departments might be selected to provide study of an area—Latin America, for instance.

Other examples might be black studies, urban problems, women's studies, behavioral sciences. Each program is reviewed by faculty in the general area of study, and must finally have approval of the Associate Dean for Special Programs. A student who has interests that he thinks could fit into the topical major should come first to the Associate Dean for Special Programs. If his proposal seems to have promise he will be directed to faculty who can give him advice in further developing his program.

The specific requirements of the Topical Major are that the student must have a grade-point standing of 2.5. He must meet all lower division requirements and complete the 40-hour field of concentration requirement (see preceding section), except that rather than having a departmental major, all of his work must be generically related to his topic. In addition, he must complete in his senior year a comprehensive paper or project that serves to integrate in some fashion his 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 Associate Dean for Special Programs.

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 double major to the Office of Student Records and Registration. He 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 record will indicate his two majors.

For information on double majors involving two colleges, consult the *Academic Requirements* section in the front portion of this Bulletin.

Minors

The College of Arts and Sciences does not require minors. However, should a student desire to do so, he can earn a minor in the following disciplines: astronomy, chemistry, classical civilization, comparative literature, English, French, geography, geology, German, Greek, Latin, linguistics, mathematics, philosophy, physics, political science, psychology, rural sociology, sociology, and Spanish. Interdisciplinary minors are also available in Appalachian studies and women's studies.

Changing Majors

A student changing majors must consult the Office of 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 within the 128 hours required for graduation by the State Department of Education. For specific information, consult the College of Education.

Any Arts and Sciences student intending to seek teaching certification should so indicate to his 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 he has determined to seek certification he is assigned an adviser both in the College of Education and in his 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.

B.A. or B.S. With Department Honors

The degree of A.B. or B.S. with Honors in the student's major subject will be conferred upon the student who, in addition to having completed the requirements for the degree, shall have (1) attained high standing in his major subject, (2) passed with distinction a thorough, comprehensive examination in his major subject, and (3) been recommended for the said degree by the faculty of the department in which his major work was done and by the dean of his college. Students majoring in those departments that require the final comprehensive examination are automatically candidates for department honors.

Independent Work Courses

A junior or senior may, with the approval of his adviser, the instructor who would direct the work, and the dean, register for an independent work course in his major department. Normally, a standing of 3.0 in the major would be required. In exceptional circumstances a nonmajor or topical major might 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. Independent work courses are defined by their larger scope, wider content, advanced point of view, and by a more rigorous demand of reading, writing, and thinking. 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.

Electives 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. However, election of law courses by Arts and Sciences students is limited by the following regulations:

Students registered in the College of Arts and Sciences may take work in the College of Law only on securing the consent of the Dean of the College of Law.

Students taking the combined Arts-Law course must, before taking law courses, complete the first three years of Arts and Sciences work under the conditions specified.

Combined Courses In Arts and Law, Arts and Medicine, Arts and Dentistry

A student may combine his courses in Arts and Sciences and Law, (students may no longer enter the Arts-Law combined program for admission to the University of Kentucky College of Law), Medicine, and Dentistry gaining the A.B. or B.S. degree after three years in this College and one or more years in the professional school.

1. He 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 should have a standing of 2.75 on all work attempted, before transferring to a Law College.

2. He must have met the specified requirements of the College of Arts and Sciences and have gained at least 20 hours in his field of concentration before transferring to the professional school.

3. He must spend at least one year in a College of Law approved by the Association of American Law Schools, or in an accredited Medical School, or an accredited College of Dentistry.

4. He must, in professional courses, secure sufficient hours to bring his 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 duplicating 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.

PRELAW COURSES

There is no one 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 do everything possible to 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 law should consult the Associate Dean for Special Programs of Arts and Sciences.

It is highly recommended that students complete the bachelor's degree before entering the College of Law. Most law schools require a degree prior to admission.

PREMEDICAL COURSES

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. However, most medical schools require considerably more than these minimum requirements.

MINIMUM REQUIREMENTS FOR ENTRANCE TO MEDICAL SCHOOLS AND IN PREPARATION FOR TAKING THE MEDICAL COLLEGE ADMISSIONS TEST (MCAT)

1 year English composition
1 year biology with laboratory
1 year physics with laboratory
2 years chemistry including
  general chemistry
  qualitative analysis
  quantitative analysis
  organic chemistry
Electives sufficient for junior classification

The student may pursue a combination Arts-Medicine curriculum, spending three years at the University before transferring to medical school and obtaining the A.B. or B.S. degree after the first year's work in medical school.

The student who completes a four-year course of study and thereby obtains his 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. The student may elect any field of concentration and may major in any department of the field which he desires 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, or who have had three or four years of college work, or even a college degree. Furthermore, these boards seldom select a student who does not have a satisfactory standing, regardless of the number of years spent in college.

RECOMMENDATIONS FOR PROSPECTIVE MEDICAL STUDENTS

1. Consider the study of medicine only if you have a serious desire to follow this profession, and if you are capable of demonstrating this by successfully and satisfactorily completing your college courses. An applicant for entrance to medical school should have at least a 3.0 standing.

2. Early in your academic career, try to determine to what medical school or schools you will make application. Then, inform yourself as to the specific requirements and desires of these schools and try to conform to them. In order to do this, it is advisable for you to write the medical schools of your choice or contact the Preprofessional Office in the College of Arts and Sciences at UK.

3. There is no premedical major as such. The premedical student is strongly urged to work toward a departmental major as soon as he can make such a choice. For some students of above average promise as premedical students, a topical major is sometimes appropriate.

4. It is extremely important that all course work necessary in preparation for taking the Medical College Admissions Test (MCAT) be completed by the end of the junior year. This is because application to medical school is normally made at the beginning of the senior year and the applicant must have taken the MCAT.

5. The College of Arts and Sciences has a Preprofessional Office in Room 271 of the Patterson Office Tower. General questions should be directed to this office. All premeds should register their names with this office.

PREDENTAL CURRICULUM

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. However, applicants who have a science backgroud and who have demonstrated academic excellence will have an advantage over those without such credentials.

A specific number of undergraduate credits is no longer a requirement for admission to the College. However, because of the large number of qualified applicants having four or more years of academic preparation, an applicant must be *exceptional* to gain admission with less experience. Applicants to the College should understand that gaining admission is a very 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 the prospective dental student contact the admissions office of the College of Dentistry at an early stage in his undergraduate career for guidance. The admissions personnel at the College of Dentistry will work with the student and his adviser to afford him 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 Office, Room 271, Patterson Office Tower.

PREMINISTERIAL, PRETHEOLOGICAL, AND PRERELIGIOUS EDUCATION

Students planning to enter the ministry or the field of religious education should consult the Office of the Associate Dean for Special Programs, which will plan with them their schedule for the first year and help them in the choice of their major department after the first year.

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 nonwestern 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 CURRICULUM

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 in the College of Optometry 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	Semesters
General Chemistry	2
Organic Chemistry	1
English	1 or 2
Calculus	1
General Biology or Zoology	1 or 2
General Physics	2
General Psychology	1
Principles of Microbiology or Bacteriology	1
Social Studies	2
Statistics	1
Electives	

Electives

The electives may be selected from art, drama, economics, history, languages, music, philosophy, sociology, anthropology, political science, and speech. Additional courses in the humanities and social and behavioral sciences may be chosen also.

The foregoing list of subjects will prepare a student for any college or school of optometry but financial support from the Commonwealth of Kentucky applies only to the three colleges of optometry mentioned above. Additional information may be obtained from the Preprofessional Office, Room 271, Patterson Office Tower.

PREPHARMACY

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 the College of Pharmacy are:

1 year English composition
1 year biology (with laboratory)
1 semester microbiology (with laboratory)
1 semester mathematics (Calculus I)
1 semester principles of economics
1 year physics (with laboratory)
1 year general chemistry (with laboratory) including qualitative analysis
1 year organic chemistry (with laboratory)

Additional courses: Sufficient elective courses need to be selected such that a minimum of 66 hours (junior classification) are presented. Wise selection of electives will assist in meeting the General Studies Component requirement for graduation from the University.

It is recommended that the student distribute his electives among several disciplines, rather than concentrate in any particular area.

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF PHARMACY

First Year		Hours
CHE 105	General College Chemistry I	3
ENG 101	Freshman Composition	3
CHE 107	General College Chemistry II	3
CHE 115	General Chemistry Laboratory	3
ENG 102	Advanced Freshman Composition	3
MA 113	Calculus I	4
BIO 276	Principles of Bacteriology	4

Second Year

CHE 230	Organic Chemistry	3
CHE 231	Organic Chemistry Laboratory	1
PHY 211	General Elementary Physics	5
BIO 200	General Biology I	3
BIO 201	General Biology Laboratory I	2
ECO 260	Principles of Economics I	3
CHE 232	Organic Chemistry	3
CHE 233	Organic Chemistry Laboratory	1
PHY 213	General Elementary Physics	5
BIO 202	General Biology II	3
BIO 203	General Biology Laboratory II	2

Additional electives, with these requirements, must total 66 semester hours.

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.

Degree Requirements

The Department of Aerospace Studies (Air Force Reserve Officer Training

Corps) *is not a degree granting department.* An academic major in Air Force ROTC 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

1. General Military Course: The General Military Course, taken during the freshman and sophomore years in the four-year program, consists of four one-credit hour courses (AS 111, AS 112, AS 211, AS 212). Each course meets twice weekly, once in academic session and once for leadership laboratory.

2. Professional Officer Course: Admission to the Professional Officer Course (junior and senior years) is competitive and is based upon Air Force Officer Qualifying test scores and performance at an Air Force Field Training session. The Professional Officer Course consists of four three-credit hour courses (AS 331, AS 332, AS 341, and AS 342). The courses are normally taken consecutively and meet four times weekly, three times in academic session and once for leadership laboratory.

3. Leadership Laboratory: Students enrolled in the four or two-year program are involved once a week in a cadet corps training program. This program is designed to stimulate a typical Air Force organization and associated functions. The leadership laboratory program is largely cadet planned and conducted in line with the concept that it provides leadership training experiences which will improve the students' ability to perform as Air Force officers.

Field Training

Field Training is offered at Air Force bases across the country. It is here that the student receives junior officer training and leadership development with other students. Also at this time the Air Force has an opportunity to evaluate personally 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

Scholarships are available to qualified AFROTC students on a competitive basis. AFROTC scholarships pay tuition, books, lab fees, and a subsistence allowance of $100 per month. Four-year scholarships may be awarded to high school male and female seniors. Two and three-year scholarships are awarded to qualified male and female students in the AFROTC program. Complete scholarship information may be obtained by writing the Professor of Aerospace Studies, Barker Hall, University of Kentucky, Lexington, Kentucky 40506.

ANTHROPOLOGY

Anthropology is the descriptive and comparative study of man with special reference to his biological and cultural development. The subject matter traditionally includes four subdivisions: archeology, ethnology, linguistics and physical anthropology.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

ANT 120 Human Ancestry 3
ANT 121 Introduction to Cultural Anthropology. . . 3

Major Requirements

To earn a B.A. or a B.S. degree in Anthropology, a student is required to complete at least one course beyond the freshman level in each of the five fields of anthropology: archaeology, ethnology, linguistics, physical anthropology and social anthropology. The student must also earn a minimum of 24 credit hours in anthropology at the 200 level and above, exclusive of anthropology courses used to satisfy University area requirements. The Department requires a student in the senior year to take ANT 582, Tutorial Seminar.

To complete the Field of Concentration: Fourteen hours of nonfreshman, related course work from outside the Department are also required. These courses should be selected with the aid of an adviser.

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 recently constructed T. H. Morgan Biological Sciences Building.

Undergraduate programs are offered with majors in Biology, Botany, Microbiology, and Zoology, which encompass the major areas of plant biology, animal biology and microbiology.

BIOLOGY

The faculty in the Thomas Hunt Morgan School of Biological Sciences is committed to the education and training of those students interested in a career in the biological sciences. The faculty is trained with experience abroad and in this country in such fields as taxonomy, physiology, ecology, cell biology, genetics, microbiology and developmental biology.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Premajor Requirements*

Physics 211 and 213 or 215 and 217
Mathematics 113; or 122 and 123
Chemistry 105, 107, 115 and 230, 231, 232, 233; or CHE 105, 107, 115, 230, 231 plus 226 or 444G or 550 or BCH 401G.
Biology 200, 201, 202 and 203; or Biology 104, 106, and 108 (two of these to be accompanied by the appropriate laboratory, BIO 105, BIO 107, BIO 109.)
French, German, or Russian in Area IV of the General Studies Requirements.

*May also satisfy General Studies requirements.

Major Requirements

Requirement One
A course (with laboratory when available) chosen from four of the six following basic areas:
Genetics (BIO 404G)
Cell Biology
Developmental Biology
Regulatory Biology
Environmental, Systematic or Evolutionary Biology
Morphology and Systematic Biology

Requirement Two
One hour in an undergraduate seminar (BIO 325, 523 or 524).

Requirement Three
Ten additional upper division hours from biological sciences or related areas (to satisfy Arts and Sciences requirements).

Requirement Four
The major shall include at least one upper division course in animal biology, plant biology, and microbial biology.

The student should consult with an adviser on the matter as well as the possibility of choosing courses which emphasize (1) Environmental and Evolutionary Biology (EEB); (2) Microbial, Cellular and Molecular Biology (MCMB); or (3) Regulatory and Developmental Biology (RDB).

Field of Concentration: Same requirements as the College of Arts and Sciences (40 hours).

BOTANY

The faculty in Botany is committed to the education and training of those students interested in a career in the botan-

ical sciences. The faculty is trained with experience abroad and in this country in such fields as taxonomy, physiology, ecology and cell biology as well as other pertinent areas.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

BIO 200/202 General Biology, BIO 201/203 General Biology Laboratory **or** 10
BIO 104/105 Animal Biology, BIO 106/107 Plant Biology, BIO 108/109 Microbiology 12
CHE 105/107 General College Chemistry I and II . . 6
CHE 115 General Chemistry Laboratory 3
MA 113 Calculus I **or** 4
MA 122 Finite Mathematics and its Application. 3
MA 123 Elementary Calculus and its Applications. 3

Under Area II of the General Studies requirements, the Botany area requires the PHY 211/213 sequence.

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 260 Field Botany I **and** 2
BIO 261 Field Botany II **or** 2
BIO 265 Dendrology. 3
CHE 230/232 Organic Chemistry 6
CHE 231/233 Organic Chemistry Laboratory. . . . 2-4

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 faculty in Microbiology is committed to the education and training of those students interested in a career in this discipline. The faculty is trained in bacteriology, virology, parasitology, cell biology and other areas.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

Biology 200, 201, 202, 203 **or** Biology 108, 109, 104, 106, **and** 105 **or** 107 . . 10-12
CHE 105/107 General College Chemistry I and II . . 6
CHE 115 General Chemistry Laboratory 3
CHE 226 Analytical Chemistry **or** 3-5
CHE 444G Physical Chemistry 4
MA 113 Calculus I 4
PHY 211/213 General Elementary Physics 10

These premajor requirements also satisfy Areas I, II and III of the General Studies areas. The area of Microbiology recommends that students fulfill Area IV with French, German or Russian.

Major Requirements **Hours**

The major in microbiology requires a minimum of 18 hours, to include the following:

BIO 325 Microbiology Seminar 1
BIO 585 Pathogenic Bacteriology. 4
BIO 594 Immunology and Serology 5

Courses in other areas dealing primarily with microorganisms may be considered as a part of the major with the permission of the School of Biological Sciences: Microbiology.

Note: BIO 177/178, Orientation in Microbiology, BIO 276, Principles of Bacteriology, and BIO 476G, General Microbiology, will **not** fulfill major requirements.

To complete the Field of Concentration: Fourteen credit hours of nonfreshman, related courses outside the major field of study should be selected in consultation with the student's adviser. The following must be included:

CHE 230/232 Organic Chemistry **and** 6
CHE 231/233 Organic Chemistry Laboratory. . . . 2-4 **and** a course in genetics.

ZOOLOGY

The faculty in Zoology is committed to the education and training of those students interested in a career in the animal sciences. The faculty has training in such fields as embryology, genetics, physiology, natural history and the environmental sciences.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

PHY 211/213 General Elementary Physics 10
MA 113 Calculus I 4
CHE 105/107 General College Chemistry I and II . . 6
CHE 115 General Chemistry Laboratory 3
CHE 230/232 Organic Chemistry 6
CHE 231/233 Organic Chemistry Laboratory 4
BIO 200/202 General Biology I and II 6
BIO 201/203 General Biology Laboratory 4

Major Requirements **Hours**

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 4
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 a Ph.D. degree.

Bachelor of Arts in Chemistry

In addition to satisfying the University English requirement, students must fulfill General Studies and College requirements as they complete the following program:

General Studies

Complete one sequence in any three of the following Areas: III, IV, V, VI, VII, or VIII. (Students will fulfill Areas I and II by meeting the Premajor Requirements.)

Premajor Requirements

CHE 105, 107 and 115
MA 113, 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 Depth of Study requirement of 40 hours at or above the 300 level.

Physics: PHY 211/213 or 215/217

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 401, 501 or 502 cannot be counted; if BCH 401, 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.

B.A. in Chemistry Curriculum

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	3
ENG 101 Freshman Composition	3
MA 113 Calculus I	4
General Studies/Breadth of Study	3
Second Semester	
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Advanced Freshman Composition	3
MA 114 Calculus II	4
General Studies/Breadth of Study	3

Sophomore Year

First Semester	Hours
CHE 230 Organic Chemistry	3
CHE 231 Laboratory for CHE 230	2
Free Elective	3
Elective*	2
General Studies/Breadth of Study	3
Foreign Language**	3
Second Semester	
CHE 232 Organic Chemistry	3
CHE 233 Organic Chemistry Laboratory	2
Free Elective	3
Elective*	2
General Studies/Breadth of Study	3
Foreign Language**	3

Junior Year

First Semester	Hours
PHY 211 or 215 General Elementary Physics **or** Physics for the Life Sciences I	5
CHE 226 Analytical Chemistry	3
Foreign Language**	3
General Studies/Breadth of Study	3
Second Semester	
PHY 213 or 215 General Elementary Physics **or** Physics for the Life Sciences II	5
Foreign Language**	3
General Studies/Breadth of Study	3
Major Field Options*	6

Senior Year

First Semester	
CHE 444G Physical Chemistry***	4
CHE 395 Independent Work in Chemistry	3
General Studies/Breadth of Study	3
Major Field Options*	5
Second Semester	
CHE 441G Physical Chemistry Laboratory	2
CHE 395 Independent Work in Chemistry	3
General Studies/Breadth of Study	3
Major Field Options*	4
CHE 572 Seminar	1

*Among the electives and major field options, at least four hours in the Field of Concentration must be taken in courses other than Chemistry.

**Any foreign language sequence satisfying the Arts and Sciences translation and interpretation requirement may be used. However, students should be aware that the Arts and Sciences requirement does not necessarily satisfy the University Area requirement in foreign language.

***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

In addition to satisfying the University English requirement, students must fulfill General Studies and College requirements as they complete the following program:

General Studies

Complete one sequence in each of three of the following Areas: III, IV, V, VI, VII, VIII. (Students will fulfill Areas I and II by meeting the Premajor Requirements.)

Premajor Requirements

CHE 105, 107 and 115
MA 113, 114

Major Requirements

Chemistry: CHE 226, 230, 231, 232, 395*, 410G (or 510), 440G, 442G, 443G, 522, 532, 533, 572
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 401 or BCH 501 and 502. (If CHE 550 or 552 is counted for credit, BCH 401, 501 or 502 cannot be counted; if BCH 401, 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.

B.S. in Chemistry Curriculum

Freshman Year

First Semester	Hours
CHE 105 General College Chemistry I	3
ENG 101 Freshman Composition	3
MA 113 Calculus I	4
General Studies/Breadth of Study	3
Second Semester	
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
ENG 102 Advanced Freshman Composition	3
MA 114 Calculus II	4
General Studies/Breadth of Study	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	3
PHY 241 General University Physics Laboratory	2
Second Semester	
CHE 232 Organic Chemistry	3
CHE 231 Laboratory for CHE 230	2
MA 214 Calculus IV	3
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
General Studies/Breadth of Study	3

Junior Year

First Semester	Hours
CHE 532 Spectrometric Identification of Organic Compounds	2
CHE 440G Physical Chemistry	3
GER 101 Basic German*	4
General Studies/Breadth of Study	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
General Studies/Breadth of Study	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
General Studies/Breadth of Study	3

*Any other foreign language sequence satisfying the Arts and Sciences translation and interpretation requirement may be substituted. However, students should be aware that the Arts and Sciences requirement does not necessarily satisfy the University Area requirement in foreign language.

**Either CHE 410G or CHE 510 is required.

Minor in Chemistry

	Hours
1. MA 113	4
2. PHY 211/213 **or** PHY 231/241, 232/242	10
3. CHE 105/107 **and** CHE 115, 226, 230, 231, 232, and 444G	23

CLASSICAL LANGUAGES AND LITERATURES

The Department of Classical Languages and Literatures offers three majors which involve extensive work in the original languages. The Bachelor of Arts degree program in Classics assists students in gaining superior competence in reading and interpreting both Greek and Latin and is the appropriate degree preparation for graduate study in Classics. The Bachelor of Arts degree program in Latin is designed primarily for prospective Latin teachers in the secondary schools and provides intensive training in Latin language and literature and a workable knowledge of Greek and Roman culture. The Bachelor of Arts degree program in Greek parallels the Latin major and prepares students for further study in such areas as philosophy, archaeology or biblical studies.

In addition to the degree programs offered in Classics, Greek and Latin, the Department administers an interdisciplinary program in Classical Civilization. This liberal arts program, leading to the

Bachelor of Arts degree, is designed to acquaint students with the foundations of Western culture. Although some language training in Latin or Greek is required, most of the work is done in English and includes a considerable amount of study in other areas of the ancient world. This major attracts students interested in such diverse areas as museum curatorship, travel guidance, and archaeology.

The program requirements for each major are outlined below.

Classics

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements **Hours**

CLA 151/152 Elementary Greek 6
CLA 201/202 Intermediate Latin 6
or their equivalent

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 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 the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements **Hours**

CLA 151/152 Elementary Greek 6
or the equivalent

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 the University General Studies requirements and the College requirements each student completes the following:

Premajor Requirements **Hours**

CLA 201/202 Intermediate Latin 6
or the equivalent

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 a 40-hour Field of Concentration.

Teacher Certification Requirements

Students who wish to teach Latin in the secondary school must also meet the certification requirements outlined in the *College of Education* section of this Bulletin.

Classical Civilization

Degree Requirements

In addition to satisfying the University General 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**
their equivalent 6

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, ancient or medieval philosophy, and Middle East civilization. However, other areas are acceptable as long as the 22 hours combine appropriately with the 18 hours mentioned above to form a 40-hour Field of Concentration.

Minor Requirements

Students who wish to earn a minor in this Department can choose from the following:

Greek Minor: CLA 151/152 (or their equivalent) plus 12 hours in Greek language and literature courses beyond the 100 level, excluding courses in English translation.

Latin Minor: CLA 201/202 (or their equivalent) plus 12 hours in Latin language and literature courses beyond the 200 level, excluding courses in English translation.

Classical Civilization Minor: 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 chairman, 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, German, Slavic and Oriental Languages and Literatures, and Spanish and Italian Languages and Literatures. The bachelor's degree in Comparative Literature is based on the existing literature courses in the various language departments and on a four-course core offered in the Department of English.

Degree Requirements

In addition to satisfying the English and General Studies requirements of the University and the College, 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 Comparative Literature Methodology
2. Any one of the CLT survey courses: CLT/ENG 560, 561, 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 his Second Literature and that literature is foreign, he may choose his 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 265 Studies in the Contemporary Scene

CLT 300 Seminar: Comparative Literature Methodology
CLT/ENG 560 Comparative Literature: Grecian and Roman
CLT/ENG 561 Comparative Literature: Medieval and Renaissance
CLT/ENG 562 Comparative Literature: 17th-19th Century
CLT/ENG 563 Comparative Literature: 20th Century
CLA 235, 236, 261, 370, 424G,
ENG 261, 262, 361, 362, 363, 568, 569, 570
FR 261, 421G, 422G, 423G
GER 261, 510, 511
SO 261, 264, 380, 381, 450G, 458G, 460G
SPI 261, 263, 422G, 591, 592

Minor in Comparative Literature

1. At least two literature courses in a language other than English.
2. One course in Comparative Literature (CLT 265, CLT 300).
3. Two courses selected from the following: survey courses in Comparative Literature (CLT/ENG 560, 561, 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

Undergraduate courses treat in depth the techniques for the representation, storage, manipulation, retrieval and presentation of computer information.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes one of the following options:

Option 1: Scientific Applications Specialization

Premajor Requirements **Hours**

CS 101 Computer Science I* 3
CS 102 Computer Science II* 3
MA 113 Calculus I 4
MA 114 Calculus II 4

*For 1981, CS 150 is acceptable in place of CS 101 and 102.

Major Requirements

Requirement One
MA 213 Calculus III 4
MA/CS 240 Introduction to Discrete Computer Mathematics 3
CS 250 Computer Organization 3
CS 270 File Processing 3
CS/MA 321 Introduction to Numerical Methods 3
CS 340 Discrete Structures in Computer Science 3
CS 370 Data Structures 3
CS/MA 537 Numerical Analysis I 3

Requirement Two
A minimum of 12 hours in mathematics and statistics, including one of the following:
STA 381 Introduction to Engineering Statistics or
STA 321 Basic Statistical Theory I
(STA 320 is a prerequisite for STA 321.)
The remainder of the prescribed credits in mathematics and statistics are to be chosen from appropriate upper division courses. The department will maintain a list of such appropriate courses.

Requirement Three
A minimum of nine additional credits in upper division Computer Science courses.

Requirement Four
PHY 231/232 General University Physics 6
PHY 241/242 General University Physics Laboratory 4

Option 2: Software Specialization

Premajor Requirements **Hours**

CS 101 Computer Science I* 3
CS 102 Computer Science II* 3
MA 113 Calculus I 4
MA 114 Calculus II 4

*For 1981, CS 150 is acceptable in place of CS 101 and 102.

Major Requirements

Requirement One
MA 213 Calculus III 4
CS/MA 240 Introduction to Discrete Computer Mathematics 3
CS 250 Computer Organization 3
CS 270 File Processing 3
CS/MA 321 Introduction to Numerical Methods 3
CS 340 Discrete Structures in Computer Science 3
STA 381 Introduction to Engineering Statistics 3
CS 370 Data Structures 3
CS 420G Compilers for Algorithmic Languages . . . 3
CS 440 Foundations of Computing 3
CS 470G Systems Software 3

Requirement Two
At least nine hours of additional computer science courses or courses related to computer science, including two of the following:
EE 480G Logical Design 3
CS 505 Data Base Management Systems 3
CS 450G Fundamentals of Programming Languages 3
CS 580 Algorithm Design 3

Requirement Three
Each student must complete a cognate sequence of courses (7-12 hours) in an area related to computer science. Most sequences will satisfy either the natural sciences or the social and behavioral sciences Breadth of Study requirements. A list of currently approved cognate sequences is available from the Director of Undergraduate Studies in the Computer Science Department.

Minor in Computer Science

CS 101 Computer Science I 3
CS 102 Computer Science II 3
CS/MA 240 Introduction to 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

DIPLOMACY AND INTERNATIONAL COMMERCE

The Patterson School of Diplomacy and International Commerce offers an interdisciplinary master's degree especially designed to prepare people for professional careers in fields such as international organizations, U.S. government agencies in foreign affairs, international economic and development activities, international journalism, and related endeavors requiring professional graduate training at the master's level.

Although the Patterson School does not offer a bachelor's degree, somewhat similar programs are available at the undergraduate level by individual arrangement with the Associate Dean for Special Programs.

For further information, consult the Graduate School Bulletin.

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 two different undergraduate degrees—a Bachelor of Arts in the College of Arts and Sciences and a Bachelor of Science 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 the University General Studies requirements and the College requirements each student completes the following:

Premajor Requirements **Hours**

1. ECO 260/261 Principles of Economics I and II 6
STA 292 Descriptive Statistics 1
STA 293 Probability 1
STA 294 Sampling and Inference 1

2. Each student must take a mathematics option from Area I. This option may be substituted for Area II or III. MA 113, Calculus I, or MA 122, Finite Mathematics and its Application, is prerequisite to STA 292/293/294.

3. Each student must complete a sequence in Area VII. The economics sequence of ECO 260 and ECO 261 will not fulfill this requirement.

Major Requirements **Hours**

A minimum of 18 credit hours of advanced work in economics. Must include:
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 260 Principles of Economics I	3
ECO 261 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
	18

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.

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 the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements (6 hours)

ENG 221 Survey of English Literature I 3
ENG 222 Survey of English Literature II 3
(Exceptions are made only by the approval of the Director of Advising.)

Major Requirements	**Hours**
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 I	3
ENG 427G Shakespeare Studies II	3
ENG 428G Milton	3
3. One course in English Literature before 1800:	
ENG 422G English Rennaissance: 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 490G English Drama I	3
ENG 519 Introduction to Old English	3
ENG 521 Middle English Literature	3
4. Five courses (15 hours) as specified in one of the several Departmental plans:	
English Literature	
American Literature	
Modern Literature	
Folklore	
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, Room 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 (18 hours): Students may complete the Field of Concentration requirements in one of the following ways: (1) six courses (18 hours) in related areas outside English; or (2) five courses (15 hours) in related areas and one additional course (3 hours) in English.

Minor in English

The minor consists of a total of 18 hours distributed as follows:

1. One of the following sophomore survey courses: ENG 221, 222, 251, 252.
2. One of the following major author courses: ENG 421G, 425G, 426G, 427G, 428G

Or one of the following genre courses: ENG 281, 360, 361, 362, 364, 365, 366, 367, 368, 380, 381, 440G, 441G, 442G, 454G, 455G, 466G, 490G, 491G, 568, 569, 581.

3. One of the following survey courses in English literature before 1800: ENG 422G, 423G, 430G, 431G, 519, 521.
4. One of the following survey courses in English literature after 1800: ENG 435G, 436G, 438G, 439G, 443G, 446G

Or one of the following American literature courses: ENG 264, 356, 370, 374, 451G, 452G, 453G, 454G, 455G, 550.

5. Two more courses selected from those listed in 2, 3, and 4 above and/or from the following: ENG 201, 207, 270, 271, 301, 363, 369, 375, 390, 414G, 473G, 501, 509, 510, 512, 514, 515, 516, 518, 560, 561, 562, 563, 570, 572.

FRENCH LANGUAGE AND LITERATURE

As a branch of the liberal arts curriculum, the Department 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 the University General Studies requirements and the College requirements, each student completes the following:

(The Department recommends option A in Area V and option A in Area VI of the General Studies Areas.)

Premajor Requirements	**Hours**
Requirement One	
FR 203 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 French Conversation and Composition	3
FR 406 Advanced French Grammar and Composition	3
FR 407 French Phonetics	3
One course chosen from the FR 436G-440G literature sequence	
Two other French courses chosen on the 400 or 500 level excluding FR 553, Teaching of Modern Foreign Languages, and all French literature in translation.	
Option II (Literature Oriented)	
FR 306 French Conversation and Composition	3
Three period courses: FR 436G, FR 438G, FR 439G **or** FR 440G	9
Two other literature courses at or above the 400 level	6
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 excluding all courses at the 100 level and excluding FR 201 and FR 202 and all courses in French literature in translation.

GEOGRAPHY

Geography is the study of place and the location of natural, cultural, and economic patterns on the earth's surface. Geographers have developed a body of theory and methodology which provides for the student an appropriate background in problem solving. Geography is especially useful to students who plan to enter the fields of marketing; private business or government administration; rural, urban, or regional planning; cartography; resource analysis; and law.

Degree Requirements

In addition to satisfying the University General 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 four program concentrations or "tracks" which will best prepare them for individual career goals. The concentrations are: 1) cartography; 2) planning; 3) urban-economic; and 4) general geography. The premajor requirements are the same for each concentration.

Premajor Requirements **Hours**

One of the following:
GEO 151 Elements of Physical Geography 3
GEO 210 Geography of Environmental Quality 3
GEO 251 Introduction to Weather and Climate 3
and
One of the following:
GEO 252 Elements of Human Geography 3
GEO 255 Economic Geography 3

Concentration Requirements

Cartography Concentration

Professional Requirements (12 hours)

GEO 305 Elements of Cartography 3
GEO 407 Development of Geographic Thought . . . 3
GEO 500 Introduction to Analytic Techniques in Geography 3
GEO 501 Field Studies in Geography 3

Major Requirements

Required Core Courses (minimum of nine hours)
GEO 405 Cartographic Design 3
GEO 505 Practicum in Cartography 3
GEO 506 Introduction to Computer Cartography 3
GEO 507 Remote Sensing for Geographers and Planners 3

Additional courses (minimum of six hours)
GEO 410G Introduction to Planning 3
GEO 415 Map Interpretation 3
GEO 430G Urban Land Use Planning 3
GEO 540 Principles of Urban Geography 3
GEO 545 Transportation Geography 3
GEO 555 Industrial Location 3
GEO 560 Independent Work in Geography 3
(upon adviser's approval)
GEO 565 Topics in Geography 3
(upon adviser's approval)

Planning Concentration

Professional Requirements
(minimum of nine hours)

GEO 305 Elements of Cartography 3
GEO 500 Introduction to Analytic Techniques in Geography 3
GEO 501 Field Studies in Geography 3
GEO 507 Remote Sensing for Geographers and Planners 3

Major Requirements

Required core courses (12 hours)
GEO 410G Introduction to Planning 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 six hours)
GEO 460G Topics in Planning 3
GEO 480 Planning Internship 3
GEO 540 Principles of Urban Geography 3
GEO 541 Geographic Perspectives on Contemporary Urban Problems 3
GEO 544 Population Geography 3
GEO 545 Transportation Geography 3
GEO 550 Geography of Natural Resources 3
GEO 555 Industrial Location 3
GEO 560 Independent Work in Geography 3
(upon adviser's approval)
GEO 565 Topics in Geography 3
(upon adviser's approval)

Urban-Economic Concentration

Professional Requirements (nine hours)

GEO 305 Elements of Cartography 3
GEO 407 Development of Geographic Thought . . . 3
GEO 500 Introduction to Analytic Techniques in Geography 3
GEO 501 Field Studies in Geography 3

Major Requirements (18 hours in upper division courses selected from the following)

Required core courses (minimum of nine hours)
GEO 540 Principles of Urban Geography 3
GEO 542 Political Geography 3
GEO 545 Transportation Geography 3
GEO 555 Industrial Location 3

Additional courses (minimum of nine hours)
GEO 541 Geographic Perspectives on Contemporary Urban Problems 3
GEO 543 Urbanization in the Developing World 3
GEO 544 Population Geography 3
GEO 550 Geography of Natural Resources 3
GEO 560 Independent Work in Geography 3
(upon adviser's approval)
GEO 565 Topics in Geography 3
(upon adviser's approval)

General Geography Concentration

Professional Requirements
(minimum of nine hours)

GEO 305 Elements of Cartography 3
GEO 407 Development of Geographic Thought . . . 3
GEO 500 Introduction to Analytic Techniques in Geography 3
GEO 501 Field Studies in Geography 3

Major Requirements

Students must choose 18 hours of upper division courses in regional and topical geography concentrations with the consent of the adviser.

To complete the Field of Concentration: Students in each concentration must complete 14 to 21 hours of course work in related (cognate) areas outside the Department, chosen in consultation with an adviser.

Minor in Geography

The minor in geography requires a minimum of 18 hours to be selected from the following:
Three hours from: GEO 151, 210, 251
Three hours from: GEO 252, 255
Six hours from: GEO 305, 407, 500, 501, 507
Six hours in any two regional and topical courses.

GEOLOGY

Geology is the study of the Earth including its composition, the processes which occur within it, and on its surface, and its history. Students undertake this study in the classroom, field and laboratory under the guidance of faculty members who are skilled in the many methods which may be used.

Degree Requirements

The degree awarded in Geology is the Bachelor of Science. In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Premajor Requirements **Hours**

GLY 144 Introduction to the Earth 3
GLY 146 Earth History 3
CHE 105/107 General College Chemistry I and II . . 6
CHE 115 General Chemistry Laboratory 3
MA 113/114 Calculus I and II 8

Note: The premajor requirements also satisfy Areas I and II of the General Studies requirements.

Major Requirements **Hours**

GLY 225 Field Studies in Geology 3
GLY 260 Mineralogy I 3
GLY 261 Mineralogy II 3
GLY 401 Paleontology 3
GLY 420G Structural Geology 3
GLY 423 Field Work in Regional Geology 5
GLY 424 Field Report in Regional Geology 1
GLY 450G Stratigraphy and Sedimentation 3
GLY 461 Petrology 3
GLY 540 Advanced General Geology 3
PHY 201/203 General Elementary Physics **or** 8
PHY 231/232 General University Physics 6
STA 291 Statistical Method **or** 3
STA 370 Introduction to Statistics 4
and

Two additional courses in geology, of which at least one must be at the 500 level. With the Department's approval one or more courses in supporting sciences (such as MA 213/214, Calculus III and IV, and CHE 440G/442G, Physical Chemistry) may be substituted for one or both of these courses.

Students emphasizing geophysics must take PHY 231/232 and substitute:
MA 213 Calculus III 4
MA 214 Calculus IV 3
for GLY 461 and statistics and must also take two additional courses selected with the approval of their adviser.

To complete the Field of Concentration: The College requirement of at least 14 credit hours in related fields may be satisfied by choosing STA 370 and by either substituting PHY 211/213 for PHY 201/203 or by adding PHY 241/242 to the 231/232 option. STA 370 is taken for four credit hours. PHY 211/213, General Elementary Physics, includes a laboratory and 10 credit hours (five hours for each course) are earned. PHY 241/242, General University Physics Laboratory, is taken for four credit hours (two hours for each course). When taken with PHY 231/232, this sequence also earns 10 credit hours. If the student does not wish to fulfill the requirement in this manner, then he/she must choose another non-

freshman, related course from outside the Department. This course should be chosen in consultation with the student's adviser.

Minor in Geology

	Hours
GLY 144 Introduction to the Earth **or**	3
GLY 240 Elementary Geology for Engineers	4
GLY 146 Earth History	3
GLY 225 Field Studies in Geology **or**	3
GLY 227 Elementary Field Work in Regional Geography	6
Plus six more hours*	6

*Students taking the four or six credit courses instead of the three credit courses cannot use the surplus of hours to satisfy the "plus six more" requirement.

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 the University General 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

Major Requirements	**Hours**
GER 307/309 German Composition and Conversation	6
GER 311 Introduction to German Literature: Themes **or**	3
GER 313 Introduction to German Literature: Popular Forms	3
GER 315 Periods of German Literature I	3
GER 316 Periods of German Literature II	3
At least 15 hours selected from:	
GER 314 Readings in German Periodicals	3
GER 317 History of German Culture	3
GER 318 German Culture in America	3
GER 319 Contemporary German Literature and Culture	3
GER 415G German Authors*	3-6
GER 416G Genres of German Literature*	3-6
GER 420G Special Studies in German Literary and Cultural History*	3-6

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, English, French, Greek, geography, history, Latin, music, philosophy, Spanish, Italian, linguistics, Slavic and Oriental languages, theatre arts.

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

The minor in German requires a minimum of 12 hours of course work in German language, literature, and culture, in addition to the basic four semesters of German language (101, 102, 201, 202 or equivalent) and excluding all courses in German literature in translation. The 12 hours shall include:

GER 307 German Conversation and Composition	3
GER 311 Introduction to German Literature: Themes **or**	3
GER 313 Introduction to German Literature: Popular Forms	3
Plus six additional hours at the 300 or 400-level or above	6

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 also stressed.

Degree Requirements

In addition to satisfying the University General 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 in consultation 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 108/109 History of the United States
HIS 202/203 History of the British People
HIS 229/230 The Ancient World
HIS 247/248 The Middle East
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 sub-fields of American history, European history, or history of the non-western world.

LATIN AMERICAN STUDIES

The Latin American Studies major 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. Students 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 the University General 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, 213 or 311). Equivalent language preparation may be substituted for the above.

2. Latin American Studies (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 (Required of all majors; taken during the senior year)	3
2. **Group A** (3-6 hours)	
ANT 530 Contemporary Latin American Cultures	3
ANT 546 Prehistoric Meso-America and Peru	3
GEO 524 Geography of Latin America	3
HIS 514 History of Spain to 1700	3

Group B (6-9 hours)
HIS 585 Spain and Portugal in America 3
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 (reading approach) . 3
Any of the Spanish American options:
SPI 213 Civilization of Spanish America 3
SPI 214 Mexican Civilization (in Mexico only). 3
SPI 318 Survey of Spanish American Literature. . . 3
SPI 407G 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 the University General 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 301 (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 (ENG 518, 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, 520, 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, GER 635, 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 is recommended.

Minor in Linguistics

The minor in Linguistics requires 18 hours of course work to be selected as follows:

1. An introductory course: LIN 301, 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, ANT 520, ENG 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, both to students who major in mathematics and those who will use mathematics in other fields. It has programs in such applied areas as operations research, numerical analysis and differential equations, as well as in the traditional fields of algebra, topology and analysis.

The Department offers three programs in Mathematics leading to the Bachelor of Science degree. Students may major in Mathematics or Mathematical Sciences, or they may work for secondary teacher certification in Mathematics. The requirements for these programs are outlined below.

Mathematics

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements

One of the following calculus sequences:
MA 113/114 Calculus I and II 8
MA 115/116 Elementary Analysis I and II 8
MA 117/118 Differential and Integral Calculus 6
In Area IV of the General Studies requirements, French, German or Russian is recommended.

Major Requirements

1. Students must complete **one** of the second year analysis sequences:
MA 213/214 Calculus III and IV 7
MA 215/216 Elementary Analysis III and IV 7
MA 217/218 Calculus for Several Variables and Calculus for Mathematics Majors IV 6

Note: Students who wish to change sequences after the freshman year should consult the Department for advice.

2. Students must complete 18 hours in upper division mathematics courses (300 or above), subject to the following conditions:
At least **six** of the 18 hours must be chosen from:
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
The 18 hours may **not** include MA 341, MA 371, MA 410G, or MA 432G.
Students must complete at lease **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
MA 320/523 Introductory Probability and Probability Models 6
MA 321/538 Introduction to Numerical Methods and Numerical Analysis II 6
MA 416G/417G Principles of Operations Research I and II. 6
MA 433G Methods of Applied Mathematics II **and** 3
MA 485G Fourier Series and Boundary Value Problems **or** 3
MA 573 Applied Complex Analysis 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, philosophy, statistics, computer science, economics, and engineering.

Note: The student who completes the minimal major program above must take at least six of these 14 hours at or above the 300 level in order to comply with the Arts and Sciences Depth of Study requirements. Information on programs for students with special career interests is available from the departmental office.

Mathematical Sciences

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements

MA 117/118 Differential and Integral Calculus 6

Major Requirements

1. The student must complete the following core of courses:
MA 217 Calculus for Several Variables 3
MA 214 Calculus IV 3
MA/STA 320 Introductory Probability 3
MA/CS 321 Introduction to Numerical Methods . . 3
MA 322 Matrix Algebra and Its Applications 3
STA 321 Basic Statistical Theory I 3
STA 422G Basic Statistical Theory II 3
CS 150 Introduction to Algorithmic Processes 3
CS 250 Computer Organization 3
CS 370 Data Structures 3
MA 471G Advanced Calculus I **or** 3
MA 432G/433G Methods of Applied Mathematics I and II. 6
2. The student must take **six** additional, approved courses in the mathematical sciences (computer sci-

ence, mathematics, and statistics). Generally, approved courses are those numbered 300 or above. Exceptions are all courses specifically designed for teachers, all 300-level statistics courses, and MA 371, MA 341, MA 441G, MA 442G, MA 410G, MA 501, and MA 502.

Of the six courses, at least **one** must be taken in each department (Computer Science, Mathematics, and Statistics). However, the sequence MA/CS 416G and MA/STA 417G will satisfy this requirement.

3. In general, the student must have a minimum of 18 hours in one of three broad areas: life sciences and agriculture, physical sciences and engineering, business and economics. However, in individual cases, the Director of Undergraduate Studies may approve cohesive sets of courses that do not fall neatly within these divisions.

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. (Regarding the University General Studies requirements, the Mathematics Department recommends French, German, or Russian for Area IV.)

The Mathematics requirements for secondary teacher certification are as follows:

Major Requirements

Complete one of the following:
MA 213 Calculus III 4
MA 217 Calculus for Several Variables 3
MA 215 Elementary Analysis III 4
plus the following:
MA 341 Topics in Geometry 3
MA 361 Elementary Modern Algebra I 3
MA 371 Elementary Set Theory and Number Systems 3

Complete four additional courses in mathematics numbered 214 or greater, but not including 215 and 217.

To complete the Field of Concentration: Fourteen credit hours of nonfreshman, related courses outside Mathematics are required. Any field to which mathematics is significantly applied is acceptable. Six hours of student teaching will count as upper division work in the requirements.

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 and 217). 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.

MIDDLE EAST CIVILIZATION

The major in Middle East Civilization is an interdisciplinary program which permits the student to pursue his interests in the modern, medieval or ancient periods, and to emphasize either the Arabic/Islamic aspects or the Hebrew/Jewish. It offers a broad background in the languages, literatures, history, and anthropology of the area, in addition to a wide choice of relevant courses from several different departments.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements — Hours

SO 140/141 Elementary Modern Standard Arabic I and II 6
SO 240/241 Intermediate Modern Standard Arabic I and II **or** 6
SO 130/131 Elementary Hebrew I and II 6
SO 230/231 Intermediate Hebrew I and II 6
plus one of the following:
ANT 121 Introduction to Cultural Anthropology . . . 3
GEO 252 Elements of Human Geography 3
HIS 247 The Middle East from the Rise of Islam to the French Revolution 3
HIS 248 The Middle East Since the French Revolution 3
SOC 101 Introductory Sociology 3

Major Requirements — Hours

Twenty-four hours chosen from the following three areas:

Cultural and Historical (9 hours) chosen from:
SO 328 Islamic Civilization: The Rise of Islam to 1798 3
SO 330 The Arab Awakening 3
SO 324 Judaism in the Middle Ages 3
SO 325 Judaism in the Modern World 3
HIS 350-359 Topics in History: Arab Israeli Conflict since 1948 (Course number for this topic is variable) 3
ANT 438G Ethnology of the Near East and North Africa 3

Specialized Areas (9-15 hours) chosen from:
ANT 383 Special Problems 3
SO 341 Seminar in Middle East Studies (May be repeated up to nine hours as topics vary) 3
SO 396 Independent Work in Middle East Civilization 3
SO 444G The Writings of the Muslim Mystics 3
SO 455G Spanish Islam 3
SO 457G Modern Arabic Literature in Translation . 3
SO 458G Modern Hebrew Literature in Translation 3

Advanced Language Courses (6 hours: optional)
SO 442/443 Arabic Reading I and II 6

To complete the Field of Concentration: Sixteen hours normally chosen from the following:
ANT 512 Comparative Civilizations 3
ANT 548 European and Near Eastern Archaeology 3
CLA 390 Roman, Jew and Greek: Backgrounds to Christianity 3
ENG 270 Literature of the Old Testament 3
ENG 271 Literature of the New Testament 3
HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great 3
HIS 230 The Hellenistic World and Rome to the Death of Constantine 3
HIS 501 Fourth Century Greece and the Hellenistic World 3
HIS 510 Medieval Civilization I 3
HIS 511 Medieval Civilization II 3
HIS 528 Cultural and Intellectual History of Europe from the Renaissance to the French Revolution . . 3
HIS 547 The Ottoman Empire 3
HIS 549 History of the Middle East: 1952 to Present 3
HIS 557 The British Empire and Commonwealth after 1870 3
PHI 440 Great Religions 3
PHI 503 Topics in Ancient Philosophy 3
PHI 565 Philosophy of Language 3
PS 240 Ideology, Political Change and Contemporary Industrial Society 3
SOC 525 Religion and Culture (Prereq: SOC 101) . 3

MILITARY SCIENCE (Army ROTC)

The Military Science program at the University of Kentucky, open to both men and women, follows a General Military Science curriculum and is normally four years in length. However, the program may also be completed in two years. The primary objective of the Military Science program, offered on an elective basis, is to prepare junior officers for all branches of the Active United States Army, the Army Reserve, and the Army National Guard. As such, minimal active duty service obligations range from 90 days to three years (non-scholarship) or four years (scholarship).

Scholarships

Scholarships (4, 3, 2, and 1-year) are available, on a competitive basis, to qualified students. These scholarships pay for tuition (in-state or out-of-state), all books and laboratory fees, and provide the recipient with a $100 tax-free subsistence allowance each month of the school year. Scholarship students incur a four-year active duty obligation.

Academic Program

The normal four-year program consists of the successful completion of 20 credit hours of Army ROTC course work which qualifies a student to be commissioned as a Second Lieutenant in the United States Army. The following courses are required to complete this program: Military Science (MS) 101, MS 102, MS 201, MS 221, MS 202, MS 301, MS 302, MS 341 and MS 342, or HIS/MS 311. In addition to these courses, Army ROTC students must attend a six-week Advanced Camp at Fort Riley, Kansas. They normally fulfill this requirement during the summer between their junior and senior year.

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 graduate who is transferring to the University of Kentucky. Interested students must apply through the Professor of Military Science to attend a six-week Basic Camp conducted at Fort Knox, Kentucky, during

the summer. Successful completion of the Basic 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 participated in Junior ROTC for three years in high school 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. This would permit the student to receive the pay of an E-5 in the U.S. Army Reserve or Army National Guard plus the pay of an Army ROTC Advanced Course student.

The Basic Courses (100 and 200 level) are orientational in content and deal with the role/placement of the Army ROTC Program and the United States Army within the U.S. Defense Establishment, American Military History, Small Unit organizations/operations, and military geography/map reading. No military obligation is incurred by the completion of these courses.

The Advanced Courses (300 level) focus on leadership, management, and command/staff responsibilities within military organizations and prepare the student for his/her prospective role as a junior officer in the United States Army. All Advanced Army ROTC students are eligible to receive $100 per month for up to 10 months of the school year and a military obligation is incurred. In addition, students are paid approximately $500 during the summer(s) they attend and complete the Basic Camp and/or the 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 his/her leadership skills, organizational abilities, confidence, and the "whole person."

Professional development and enrichment opportunities are also available to the interested student in the form of the Kentucky Rangers, Pershing Rifles, Kentucky Babes and Rifle Team. These student organizations are advised by faculty of the Military Science program at the University of Kentucky and can provide the arena for additional application of leadership principles and skills.

Unlike any other program on the University of Kentucky campus, Army ROTC adds the dimension of leadership to an already proven academic proficiency.

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. The Department also advises students in the development of Bachelor of General Studies programs.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements

1. PHI 260 History of Western Philosophy I 3
   PHI 270 History of Western Philosophy II 3
2. French or German is highly recommended in Area IV of the General Studies requirement; Greek is recommended if the student plans to concentrate on ancient philosophy.

Major Requirements **Hours**

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 Analytic Philosophy 3
PHI 516 Contemporary Philosophy: Phenomenological Directions 3
PHI 517 Existentialism 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 Metaphysics 3
PHI 555 Epistemology 3
PHI 560 Philosophy of Science 3
PHI 562 Philosophy of the Social Sciences 3
PHI 565 Philosophy of Language 3
PHI 570 Philosophy of History 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 Department of Philosophy 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 the adviser he or she wishes or request assignment to an adviser by the Director of Undergraduate Studies or the Chairman.

Minor in Philosophy

The minor in Philosophy requires a minimum of 18 hours of course work to include the following:

1. No more than two 100-level courses
2. At least one course in logic (PHI 120, PHI 320, or PHI 520)
3. At least one course in the history of philosophy (PHI 260, PHI 270, or any course from Group A in the major requirements)
4. At least three courses (nine hours) at the 300 level or above, excluding 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 or astronomy 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 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.

Degree Requirements

In addition to satisfying the University General 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 6
   PHY 241/242 General University Physics Laboratory 4
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 requirements should be fulfilled in French, German or Russian.

Major Requirements **Hours**

Requirement One
Must include three courses from the following:
PHY 512 Experimental Physics: Electricity and Magnetism 2
PHY 530 Experimental Physics: Spectroscopy 2
PHY 535 Experimental Physics: Atomic and Nuclear 2
PHY 538 Experimental Physics: Light 2
PHY 402G Electronic Instrumentation and Measurements 3
(With departmental faculty consent, this requirement may be reduced to two courses.)

Requirement Two
Must include 15 hours chosen from the following:
PHY 361 Principles of Modern Physics* 3
PHY 362 Principles of Modern Physics* 3
PHY 404G Mechanics* 3
PHY 416G Electricity and Magnetism* 3
PHY 417G Electricity and Magnetism* 3
PHY 472G Interaction of Radiation with Matter . . . 3
PHY 504 Advanced Mechanics 3
PHY 508 Optics* 3
PHY 510 Spectroscopy 3
PHY 514 Electronics 3
PHY 520 Introduction to Quantum Mechanics* . . . 3
PHY 522 Heat and Thermodynamics* 3
PHY 524 Solid State Physics I* 3
PHY 525 Solid State Physics II 3
PHY 545 Radiation Hazards and Protection 2
PHY 546 General Medical Radiological Physics . . . 2
PHY 547 Medical Radiation Imaging I 2
PHY 548 The Physics of Radiation Therapy 2
PHY 554 Fundamental Atomic Physics* 3
PHY 555 Fundamental Nuclear Physics* 3

*Courses recommended for the student interested in a career in physics.

To complete the Field of Concentration: Students must complete 14 hours of nonfreshman, related courses. Courses should be selected with the aid of an adviser.

Other courses recommended:
MA 214 Calculus IV
MA 432G Methods of Applied Mathematics I
MA 433G Methods of Applied Mathematics II
MA 485G Fourier Series and Boundary Value Problems

It is important for any physics or astronomy major to become familiar with computers and programming, especially the Fortran language. The University has an excellent computer center, and there are many ways students can acquire the needed expertise. Students may take a short (two-week) concentrated course, the semester-long CS 221 (First Course in Computer Science for Engineers), or they may learn it on their own through consultation with experts and available reference material. All physics and astronomy majors are urged to acquire this skill as early as possible in their undergraduate careers.

Minor in Physics

Minimum Requirements **Hours**
1. MA 113, 114, and 213; or equivalent 12
2. PHY 211/213 or PHY 231/241-232/242 10
3. PHY 361 and 362 6
4. At least five credits chosen from the following: PHY 400, 402G, 404G, 416G, 417G, 472G, 504, 508, 512, 514, 520, 522, 524, 525, 530, 535, 538, 545, 546, 547, 548, 554, 555, and 567.

Astronomy

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements **Hours**

PHY 231 General University Physics 3
PHY 232 General University Physics 3
PHY 241 General University Physics Laboratory 2
PHY 242 General University Physics Laboratory 2
MA 113 Calculus I 4
AST 191 Descriptive Astronomy 3
AST 192 Descriptive Astronomy 3

The foreign language requirement should be fulfilled in French, German or Russian.

Major Requirements **Hours**

Astronomy beyond the 100-level courses and Physics beyond the 200-level courses 18
Mathematics beyond the 200-level courses 6

Suggested Curriculum:

Freshman Year

Fall Semester **Hours**
ENG 101 Freshman Composition 3
MA 113 Calculus I 4
Foreign Language 3
General Studies 6

Spring Semester
ENG 102 Advanced Freshman Composition 3
MA 114 Calculus II 4
PHY 231 General University Physics 3
PHY 241 General University Physics Laboratory . . 2
Foreign Language 3

Sophomore Year

Fall Semester
MA 213 Calculus III 4
PHY 232 General University Physics 3
PHY 242 General University Physics Laboratory . . 2
AST 191 Descriptive Astronomy 3
Foreign Language 3

Spring Semester
MA 214 Calculus IV 3
PHY 361 Principles of Modern Physics 3
AST 192 Descriptive Astronomy 3
Foreign Language 3
General Studies 3

Junior Year

Fall Semester
MA 432G Methods of Applied Mathematics I 3
PHY 362 Principles of Modern Physics 3
PHY 416G Electricity and Magnetism 3
AST 291 Spherical Astronomy 3
AST 591 Cosmology I 3

Spring Semester
MA 433G Methods of Applied Mathematics II 3
PHY 404G Mechanics 3
PHY 417G Electricity and Magnetism 3
PHY 520 Introduction to Quantum Mechanics 3
AST 391 Celestial Mechanics 3

Senior Year

Fall Semester
PHY 508 Optics 3
PHY 554 Fundamental Atomic Physics 3
AST 491G Galactic Astronomy I 3
AST 495G Elementary Astrophysics I 3
General Studies 3

Spring Semester
PHY 530 Experimental Physics: Spectroscopy 2
PHY 555 Fundamental Nuclear Physics 3
AST 492G Galactic Astronomy II 3
AST 496G Elementary Astrophysics II 3
General Studies 6

Minor in Astronomy

Minimum Requirements
1. MA 113, 114, and 213 or equivalent 12
2. AST 191/192; and PHY 201/203 or PHY 211/213 or PHY 231/232 12-16
3. AST 491G/492G 6
4. At least three hours chosen from the following: AST 291, 391, 400, 495, 496, 591.

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 courses 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 the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements **Hours**

PS 101 American Government 3
PS 201 Introduction to Political Behavior 3
and one of the following:
PS 200 Introduction to Political Analysis 3
PS 210 Comparative Politics and Political Development 3
PS 235 World Politics 3
PS 240 Ideology, Political Change and Contemporary Industrial Society 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. Except for PS 101 and 201, courses taken in fulfillment of the premajor requirements may be used to satisfy these distributional requirements. Undergraduate courses are divided into the following fields:

Field One **Hours**
Theory and Methodology:
PS 200 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 547 Micro-Theory in Political Science 3
PS 549 Science, Technology, and Political Theory 3

Field Two
Comparative Government:
PS 210 Comparative Politics and Political Development 3
PS 411G Comparative Government-Parliamentary Democracies I 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 421G Government and Politics of Southeast Asia 3
PS 428G Latin American Government and Politics. 3
PS 429G Government and Politics of the Soviet Union 3
PS 515 Comparative Political Parties 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 436G International Organization 3
PS 437G Dynamics of International Law 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 473G Public Opinion 3
PS 476G Legislative Process 3
PS 515 Comparative Political Parties 3
PS 571 Interest Groups 3
PS 572 Political Campaign Strategy and Techniques 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 555 Intergovernmental Relations in the American Federal System 3
PS 580 The Budgetary Process 3
PS 584 The American Presidency and the Federal Executive 3
PS 588 Public Personnel Administration 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 553 Urban Government and Politics 3
PS 555 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 105) and 18 hours of course work to be distributed as follows:

1. Six hours of 200-level courses including PS 201 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 the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements **Hours**

1. PSY 100 Introduction to Psychology 4
   PSY 215 Experimental Psychology 4
2. It is recommended that a student take Area I, II, III, IV and V of the General Studies requirements.

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. . 3
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 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 his/her 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

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

The Department of Slavic and Oriental Languages and Literatures offers courses in Russian, Hebrew, Arabic, and the literatures of these languages. For specific courses see the *Course Descriptions* section of this Bulletin.

RUSSIAN

The Russian program is designed to provide an integrated knowledge of the Russian language, its literature and its culture. Cross-disciplinary aspects of Russian history and political science, as well as the language and arts, form an indispensible part of a degree in Russian.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements **Hours**

1. SO 201 Intermediate Russian 3
   SO 202 Intermediate Russian 3
   or their demonstrated equivalent
2. SO 280 Soviet Culture and its Origins 3

Major Requirements

Students must complete a minimum of 21 hours in courses at or above the 300 level.

1. At least 12 hours must be from 300-level courses.
2. At least nine hours must be from 400 or 500-level courses.

To complete the Field of Concentration: Students must take 14 hours of nonfreshman, related courses.

1. Six hours must be taken in:
   HIS 285 History of Russia to 1825 3
   HIS 286 History of Russia since 1825. 3
2. The remaining eight hours are to be chosen with the aid of an adviser.

Minor in Russian

The minor in Russian requires 18 hours of course work, to be distributed as follows:

1. SO 202 Intermediate Russian 3
   or demonstrated equivalent
2. At least two of the following courses:
   SO 301 Russian Conversation and Composition. 3
   SO 302 Russian Conversation and Composition. 3
   SO 303 Russian Pronunciation and Conversation 3
   SO 304 Russian Pronunciation and Conversation 3
3. The remaining hours may be satisfied by any of the following:
   SO 264, 280, 380, 381, 410, 411, 450G, 460G, 463, 464, 480.

Note: SO 395, Independent Study, may not be used for the minor.

RUSSIAN AREA STUDIES

The Russian Area Studies program is designed to equip undergraduates with an integrated knowledge of Russian economics, geography, history, political science, sociology, language and the arts, and to clarify the cross-disciplinary effects of important events and intellectual movements in Russia, past and present.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirement

A minimum of 12 credit hours in the Russian language.

Major Requirements

Students must complete 24 hours of course work directly related to or focusing upon Russian-Soviet civilization, of which nine credit hours must include HIS 285, HIS 286, and PS 429G. Remaining credits may be accumulated in disciplines selected by the student and adviser. Additional course work in the Russian language beyond the prerequisite of 12 credit hours may be applied to the 24 hours required of a major.

To complete the Field of Concentration: Each student must take 16 hours of course work to be selected at the discretion of the student and the program adviser, with the aim of supplementing the substantive and disciplinary contents of the major program.

Course Listings:

The selection of courses in Russian Area Studies will vary each semester. Please consult the UK *Schedule of Classes* for available courses each semester.

SOCIOLOGY

The courses and other training offered in Sociology supplement the work of the allied social sciences and have an important part in a broad liberal education.

In this Department the Bachelor of Arts in Sociology is offered through the College of Arts and Sciences. A Bachelor of Science in Rural Sociology is available through the College of Agriculture.

Courses offered by the Department of Sociology deal with the following: criminology, deviance, family, juvenile delinquency, social classes, sociology of the city, complex organizations, community, rural sociology, techniques of social investigation, industrial sociology, social psychology, population, sociological theory, social change, race and ethnic relations.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements (6 or 7 hours)
Hours

1. SOC 101 or GEN 102A/102B 3-4
2. Any other sociology course at the 100 or 200 level
3. All students wishing to declare a major in sociology must file an application with and be interviewed by 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 to 26 hours in sociology courses above the 100 level including:

1. SOC 351 and SOC 551 (These must be taken in this order.)
2. SOC 302 and SOC 303 (These must be taken in this sequence.)

To complete the Field of Concentration: Students must take 14 to 19 hours of nonfreshman courses to be chosen from at least two of the following related areas. Any student who is a double major may choose from only one of these areas if desired. Specific courses from other areas may be accepted by petition to the Director of Undergraduate Studies in Sociology.

Agricultural Economics
Anthropology
Community Health
Computer Sciences
Cooperative Extension Education
Economics
Education
Geography
History
Human Communications
Human Development/Family Life
Philosophy
Political Sciences
Psychology
Social Professions
Statistics

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 or GEN 102A/102B 3-4
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 351 and SOC 551 **or**
SOC 302 and SOC 303 **or**
SOC 302 and SOC 351

Any student wishing to minor in Sociology should file an application with the Director of Undergraduate Studies in Sociology prior to entering the program.

Minor in Rural Sociology

Prerequisites (7 or 8 hours)
1. GEN 102A/102B or GEN 102A and SOC 101 4-5
2. Any other 100 or 200 level Sociology course 3

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 351 and SOC 551 **or**
SOC 302 and SOC 303 **or**
SOC 302 and SOC 351

Students wishing to minor in Rural Sociology are advised to give special consideration to the following courses which deal with topics which are central to such a focus in Sociology: SOC 413, SOC 409, SOC 501, SOC 517, SOC 534, SOC 441, and SOC 515.

Any student wishing to minor in Rural Sociology should file an application with and be interviewed by the Director of Undergraduate Studies for 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.

Degree Requirements for the Major in Spanish

In addition to satisfying the University General Studies requirements and the College requirements, each student completes the following:

Premajor Requirements	Hours
1. SPI 210 Spanish Composition	3
2. One course chosen from:	
SPI 211 Spanish Conversation	3
SPI 212 Civilization of Spain	3
SPI 213 Civilization of Spanish America	3
SPI 214 Mexican Civilization	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, English, German, classics, history, French, geography, philosophy, Slavic and Oriental languages, linguistics, political science, music, theatre, comparative literature, sociology, honors, and Latin American studies. The courses should be selected with the help 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:

	Hours
1. SPI 202 or SPI 242 or equivalent	3
2. At least one course from SPI 211, 212, 213, 214	3
3. SPI 210	3
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	9

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.

Degree Requirements for the Major in Italian

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, 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 543 Survey of Italian Literature I or	3
SPI 544 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.

STATISTICS

The Department of Statistics at the University of Kentucky is concerned with three essential aspects: teaching, research and consulting. Consultation on the design, analysis and interpretation of experiments is provided to research workers on and off the campus. Particular attention is paid to the consulting needs of graduate students.

The Department of Statistics does not offer an undergraduate degree, but students may elect to include statistics as part of a topical major. The Department does offer the Master of Science and the Doctor of Philosophy degrees.

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.

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	3
2. An additional 15 hours in courses identified by the Women's Studies Committee. Among these are:	
ENG 363 Literary Studies in Intellectual Movements (If appropriate)	3
ENG 375 Images of Women in Literature	3
ENG 390 Undergraduate Seminar (if appropriate)	3
HIS 265 History of Women in America	3
HIS 352 Topics in History	3
PSY 305 Psychology of Sex Roles	1-3
PS 491 Special Topics in Political Science	1-3
SO 341 Seminar in Middle Eastern Studies (if appropriate)	3
EXP 396 Experiential Education	1-12
A-H 390 Topical Research in Art History	3
ENG 570 Selected Topics: Advanced Studies in Literature	3
FAM 551 Woman in Contemporary Society	3
HIS 589 American Social History Since 1865	3
A-E 545 Topical Studies in Art Education (if appropriate)	3
FAM 562 Management for Multi-Roles	3
WS 400 Research in Women's Studies	3

BUSINESS AND ECONOMICS

Richard W. Furst, D.B.A., is Dean of the College of Business and Economics; James A. Knoblett, Ph.D., Associate Dean for Academic Affairs; Charles W. Hultman, Ph.D., Associate Dean for 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 includes the Department of Accounting, Department of Business Administration, Department of Economics, and Continuing Education and Research units. These units are housed in the Commerce Building, which was completed in 1964 and provides modern teaching and research facilities for students and faculty.

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 College of Business and Economics offers three degree programs: Bachelor of Business Administration, Bachelor of Science in Accounting, and Bachelor of Science in Business and Economics. (The Department of Economics also offers a program of study leading to a major in economics through the College of Arts and Sciences.)

The objective of the instructional program is to prepare the student for a lifelong career in business, government, or research and teaching. The program is 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.

ADMISSIONS

Admission to the University of Kentucky does not guarantee admission to one of the degree programs in the College of Business and Economics. In addition to the requirements for admission to the University, all applicants seeking admission to one of the degree programs within the College of Business and Economics 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 criteria listed below are the minimum requirements common to all Business and Economics degree programs. Departmental degree programs within the College may have admission requirements in addition to those common for all Business and Economics programs.

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.

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 degree program criteria.

In all admission categories, 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 substituted upon request.)

All undergraduate degree programs in the College of Business and Economics are divided into an upper and a lower division. The lower division is broadly defined as the first two years of a program and the upper division is defined as the last two years of the program.

Lower Division Admission

The College of Business and Economics is basically an upper division college. Only five courses are available to University students who have not completed 60 hours or more: Accounting 201 and 202 and Economics 160, 260, and 261.

Admission to the University of Kentucky is sufficient for admission to the College of Business and Economics for those students who have completed less than 60 hours.

Upper Division Admission

In order to be considered for admission to any of the 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 of Kentucky.
2. Completion of 60 semester hours with a minimum cumulative grade-point average of 2.3.
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 2.3 in the English and premajor component. The English requirements of the College are the same as the University requirements plus English 103. The premajor requirements are listed under *College Requirements* below.
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 component). The application for admission to the College of Business and Economics must be received by the University Office of Admissions no later than April 1 for the 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 if 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 who may wish to defer seeking upper division admission should be aware that others who have been admitted will be given first preference for en-

rollment in the upper division courses offered by the College of Business and Economics.

EMPLOYMENT

Graduates of the College can count upon the fullest possible cooperation of the University Placement Service and the faculty of the College in finding suitable career opportunities. Major corporations conduct on-campus interviews with interested students each year. Graduates of the College are in much demand, and a student may receive offers from several corporations. Students who feel a need for career counseling are encouraged to contact the Associate Dean for Academic Affairs.

COOPERATIVE PROGRAM OF WORK STUDY

The College of Business and Economics at the University of Kentucky offers a cooperative program with any federal agency. This plan allows qualified students to alternate terms of work and study in their junior and senior years and may extend the time of completion by a year. It is the student's responsibility to plan with the adviser to make sure that this rotation of study and work is compatible with any rotation of course offerings.

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, (6) Ph.D. in Economics and (7) Master of Public Administration. Additional information may be obtained from the Director of Graduate Studies, College of Business and Economics, and from The Graduate School Bulletin.

GRADUATION REQUIREMENTS

University Requirements and General Studies Areas: See *Academic Program* section of this Bulletin.

College Requirements

To graduate from the College of Business and Economics a student must have a total of 120 credit hours with a 2.0 grade-point standing and 24 credit hours of University of Kentucky residence from the College core and departmental major with a 2.0 grade-point standing. English 103, Writing for Business and Industry, is also required.

Premajor requirements are 19-21 credit hours taken from the following courses: **Hours**

ACC 201/202 Principles of Accounting 6
ECO 260/261 Principles of Economics I and II 6
STA 292 Descriptive Statistics 1
STA 293 Probability 1
STA 294 Sampling and Inference 1
MA 122 Finite Mathematics and Its Applications **and** 3
MA 123 Elementary Calculus and Its Applications **or** 3
MA 113 Calculus I 4

College Core, a total of 24 credit hours, consists of the following courses which are required of each student graduating with a B.S. in Accounting or Economics or a B.B.A. in Business Administration:

BA 330 Marketing Management 3
BA 335 Business Management 3
BA 340 Law, Business, and Society **or** 3
BA 341 Business Law I (ACC majors only) 3
BA 345 Corporation Finance 3
BA 439 Business Policy 3
ECO 391 Economic and Business Statistics 3
Electives in Economics 6

Electives

Each of the three 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 lower division business related 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.

ACCOUNTING

The faculty in the Department of Accounting is committed to providing the best possible educational experience for their students. The faculty has both breadth and depth of training and experience in public accounting, industry, government and regulated industries, and previous classroom experience from other institutions.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Major Requirements **Hours**

To graduate with a Bachelor of Science in Accounting, a student is required to have 18 or more credit hours taken from the Department of Accounting in the following courses:

ACC 301 Intermediate Accounting I 3
ACC 302 Intermediate Accounting II 3
ACC 324 Data Processing in Accounting Systems . 3
ACC 408G Cost Accounting 3
ACC 417G Income Taxation 3

At least three hours from the following:

ACC 401G Accounting Theory 3
ACC 403G Auditing 3
ACC 410G Not-For-Profit Accounting 3
ACC 416G Accounting for Business Combinations 3
ACC 517 Corporate Taxation 2
ACC 518 Controllership 3
ACC 527 Taxation of Partnership and Subchapter S Corporations 2
ACC 537 Estate and Gift Taxation 2
ACC 547 State and Local Tax Accounting 2

BUSINESS ADMINISTRATION

The faculty in the Department of Business Administration is committed to providing the best possible educational experience for their students. The faculty has both breadth and depth of training and experience in industry, government and regulated industries, and previous classroom experience from other institutions.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

Major Requirements

To graduate with a Bachelor of Business Administration degree a student is required to have at least 18 credit hours in one of the following programs:

Bachelor of Business Administration-General **Hours**

BA 435 Analysis of Organizational Behavior 3
BA 350 Quantitative Analysis in Management 3
plus departmental electives taken with the consent of the adviser 12

Bachelor of Business Administration-Industrial Administration

BA 350 Quantitative Analysis in Management 3
BA 351 Introduction to Business Data Processing . 3
BA 352 Production and Operations Management I 3
BA 452 Production and Operations Management II 3
ACC 408G Cost Accounting 3
plus one of the following:
BA 453 Statistical Quality Control 3
ACC 301 Intermediate Accounting I 3
ACC 518 Controllership 3
ECO 460 Managerial Economics 3
ECO 463G Analysis of Business Conditions 3
ECO 477G Labor Economics 3

Bachelor of Business Administration-Marketing

BA 332 Behavioral Systems in Marketing 3
BA 334 Introductory Marketing Research 3
BA 432 Marketing Strategy and Planning 3
plus three of the following
BA 331 Retail and Distribution Management 3
BA 431 Contemporary Marketing Problems 3
BA 433 Promotion Management 3
BA 434 Advanced Marketing Research 3

Bachelor of Business Administration-Personnel/Industrial Relations

BA 336 Survey of Personnel and Industrial Relations 3
BA 435 Analysis of Organizational Behavior 3
BA 536 Applied Personnel Management 3
plus three of the following
BA 436 Staffing and Development 3
BA 437 Wage and Salary Administration 3
BA 438 Managing Employee Relations 3
BA 537 Contemporary Problems in Industrial Relations 3
BA 350 Quantitative Analysis in Management **or** . . 3

BA 352 Production and Operations Management. . 3

Note: ECO 477G, Labor Economics, is recommended in partial fulfillment of the economics core requirement in this major.

Bachelor of Business Administration-Finance

BA 346 Fundamentals of Investing. 3
BA 445G Financial Management 3
BA 446 Investments. 3
BA 443 Analysis of Financial Information 3
ACC 301 Intermediate Accounting I. 3
plus one of the following with consent of adviser:
BA 584 Financial Markets and Institutions 3
BA 585 Bank Management 3
BA 444 Real Estate Finance 3
Elective 3

Note: ECO 485G, Monetary Economics, is required in partial fulfillment of the economics core requirement in this major.

ECONOMICS

The Department of Economics offers programs of study leading to two different undergraduate degrees—a B.A. offered through the College of Arts and Sciences and a B.S. through the College of Business and Economics. The main distinction lies in the required supporting courses in each college. The B.S. program stresses related courses of a business-oriented nature. The B.A. program emphasizes related courses of a more liberal arts nature.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements listed earlier, each student completes the following:

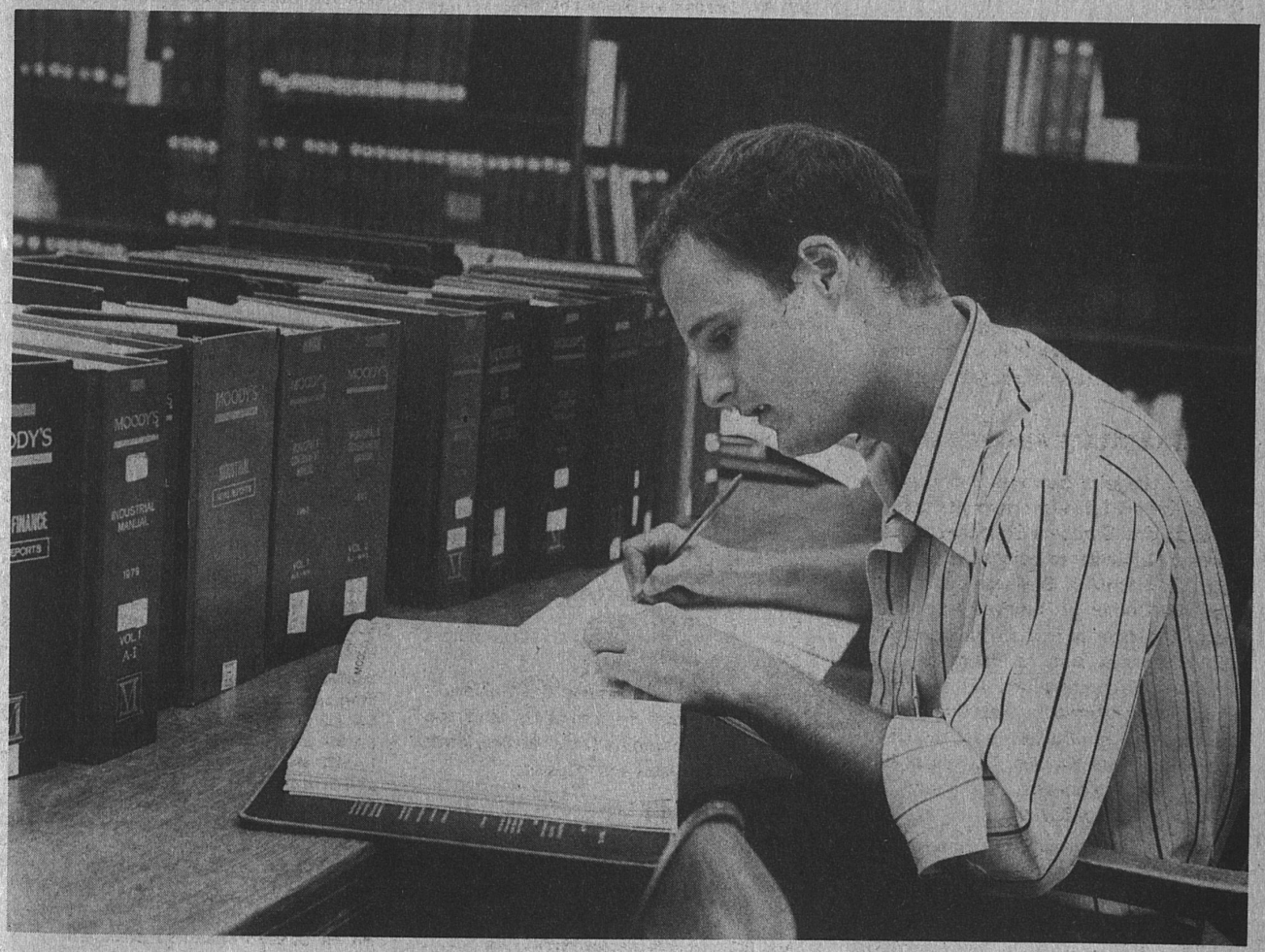
Major Requirements

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 including two seminar courses	12

Minor in Economics

	Hours
ECO 260 Principles of Economics I	3
ECO 261 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
	18



COMMUNICATIONS

Herbert N. Drennon, Ph.D., is Acting Dean of the College of Communications.

The College consists of the Department of Communication and the School of Journalism. The Department of Communication educates its students in oral and interpersonal communication, mass communications, and communication theory and research. 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 two divisions share responsibility for instruction in broadcasting. Four majors are offered by the College: Communication, Journalism (General Editorial and Advertising), Speech, and Telecommunications.

Admissions Policy

General University admissions requirements are applied. High school students considering a career in communications are urged to work on student publications and with electronic media and to participate in debate and other oral communication activities.

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 42 hours may be taken within the College.

Other requirements include General 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 as 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 fulfill the following requirements:

General Studies: Complete five areas, including two of Areas I, II and III; two of Areas IV, V and VI; and one of Areas VII and VIII.

Basic Skills:

1. **Composition and Expression.** Complete two semesters of freshman composition or their 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 301, ANT 518, ANT 519, ENG 518, 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 langauges. 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 301, ENG 414G*; Group II— ANT/LIN/ENG 515, ANT/LIN/ENG 516, ANT 518, ANT/LIN 519, ANT 520, ENG 510, ENG 512, ENG 518, 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 519, ENG 518 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, 122, 123, and 199 (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 nine 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.

General Studies: Complete Areas I (Options A, B and C only), II, III, VII and VIII.

Basic Skills:

1. **Composition and Expression:** Complete two semesters of freshman composition or their 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

The major in Communication is primarily a program of study in the social and behavioral sciences concerned with the communication behavior of individuals, small groups, and societies. As such it involves the study of human systems and their function in the communication process; the ways individuals communicate in face-to-face situations and through the mass media; the ways information is diffused through such social systems as cities, school systems, and industries; the ways social controls on communication are developed and applied; and the causes and effects of these behaviors. A second thrust of the program is communication arts, embracing an area of the humanities concerned with interpretation and performance of literature, the study of aesthetics, and the study of communication in popular culture. Finally, the major in Communication is also aimed at imparting skills in communication performance, message design, and research.

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
One other three-hour course from lower division courses designated as COM, JOU, TEL, or SP	3
One course in the behavioral sciences	3

Major Requirements

COM 550 Introduction to Communications

Research 3
COM 551 The Communications Process 3
COM 553 Mass Communication and Social Issues . 3
COM 554 Seminar in Communications. 2
plus 15 hours from the following:
A course in statistics
PSY 532 Personality
PSY 550 Psychology of Learning
PSY 444G Social Psychology
PSY 545 Small Group Behavior
COM 582 Persuasion
SOC 515 Diffusion of Technology in Modern Society
SOC 549 Sociological Aspects of Mass Communication
SOC 581 Techniques of Social Investigation
PS 470G American Political Parties
PS 473G Public Opinion
PS 476G Legislative Process
PHI 520 Symbolic Logic II
PHI 560 Philosophy of Science

Plus 15-20 hours of electives in COM, JOU, TEL, or SP, from courses at the 200 level or above. Nine hours of this 15-hour requirement may be met by substituting courses in linquistics. Courses from the above list not used to meet requirements are recommended as electives.

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 Sequence in the School of Journalism has full national accreditation by the American Council on Education in Journalism. 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, and *The Kentuckian,* the student yearbook. 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 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**

COM 101 Introduction to Communications 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**

COM 101 Introduction to Communications 3
JOU 204 Writing for the Mass Media 3
JOU 241 Communications Practicum 1

Note: Students who intend to fulfill this sequence should work carefully with the academic adviser because of prerequisites for required business administration and psychology courses. Students are urged to take ECO 260 and 261, and PSY 100 since these courses meet requirements for the Bachelor of Arts degree as well as required course prerequisites.

Major Requirements **Hours**

JOU 561 Newspaper and Magazine Advertising. . . 3
COM 551 The Communications Process 3
JOU 563 Advertising Procedures 3
COM 550 Introduction to Communications Research 3

Communication Electives **Hours**

At least six hours from the following:
JOU 531 Law of the Press 3
JOU 535 History of Journalism 3
JOU 541 Public Relations. 3
COM 553 Mass Communication and Social Issues . 3
COM 582 Persuasion 3
COM 325 Business and Industrial Communication . 3
TEL 500 Telecommunications Audience Analysis . 3
At least six hours from the following:
JOU 387 Introduction to Press Photography 3
JOU 501 News Reporting. 3
JOU 503 Copyreading and Editing 3
TEL 510 Broadcast Advertising 3

Field of Concentration

At least 15 hours from the following:
BA 330 Marketing Management 3
BA 332 Behavioral Systems in Marketing. 3
BA 431 Contemporary Marketing Problems 3
BA 432 Marketing Strategy and Planning. 3
PSY 444G Social Psychology. 3
PSY 550 Psychology of Learning 3

SPEECH

The Speech program in the Department of Communication at the University of Kentucky offers students opportunities in interpersonal communication, public performance, and oral interpretation. Undergraduates can receive training in persuasion, small group communication, organizational communication, and communication theory.

Degree Requirements

In addition to satisfying the graduation requirements outlined earlier, each student completes the following:

Premajor Requirements **Hours**

SP 181 Basic Public Speaking 3
COM 101 Introduction to Communications 3

Major Requirements

COM 581 Communication Processes in Small Groups 3
COM 582 Persuasion 3
SP 583 Studies in Argumentation 3
plus nine credits chosen from:
SP 280 Discussion 3
SP 283 Argumentation and Debate 3
SP 285 Applied Phonetics 3
SP 287 Persuasive Speaking 3
SP 288 Oral Interpretation 3
plus six credits chosen from:
SP 585 American Public Address to 1865. 3
SP 586 American Public Address since 1865 3
SP 588 Oral Interpretation of Drama 3
COM 250 Mass Media and Mass Culture 3
COM 551 The Communications Process 3

Field of Concentration

Sixteen credits are required in nonfreshman courses outside the major department, but related to the major. These courses, which will be chosen in consultation with the adviser, may be selected from one or more disciplines upon determination of the student's individual academic interests and needs. Cognate courses will often be selected from English, theatre, speech therapy and audiology, radio, telecommunications, journalism, political science, history, sociology, anthropology, economics, business administration, philosophy and education.

Note: The Department of Communication no longer offers a program in Speech-Teacher Certification. The College of Education offers such a program built around the standard Speech major.

TELECOMMUNICATIONS

The Telecommunications program offers course work in telecommunications management and systems, in nonprint message design and preparation, and in television and radio production. As a part of the College of Communications, it also draws heavily on College course offerings to provide students with pertinent background in areas such as the theoretical and social evaluation of communication and mass communication.

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
TEL 101 Telecommunications Today 3

Major Requirements

TEL 305 Telecommunications Program Analysis . . 3
TEL 312 Signs, Images, and Symbols 3
TEL 530 Pro-seminar in Radio and Television 2
plus 18 hours from the following courses:
COM 250 Mass Media and Mass Culture 3
TEL 395 Independent Study 1-3
TEL 432 Film Production 2
TEL 500 Telecommunications Audience Analysis . 3
TEL 501 Telecommunications Regulations. 3
TEL 504 Telesystems 3
TEL 505 Telecommunications Program Policies . . . 2
TEL 507 The Public Affairs Program. 2
TEL 510 Broadcast Advertising 3
TEL 511 Telecommunications Instructional Systems. 3
TEL 512 Teletectonics (May be repeated once) . . . 3
TEL 599 Telecommunications Topical Seminar (May be repeated twice). 2

Field of Concentration

Fourteen hours, 200 level or above, in related courses approved by the Department are required. Not more than 40 hours including major and premajor requirements are permitted from within the College of Communications. Normally, these courses should be selected from journalism, speech, political science, psychology, sociology, history, computer science and statistics.

GRADUATE PROGRAMS

The College of Communications offers the following graduate degrees through the University Graduate School: (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

Merrill W. Packer, D.D.S., M.S.D., is Dean of the College of Dentistry.

The College of Dentistry at the University of Kentucky is both physically and functionally an integral part of the Albert B. Chandler Medical Center. The College of Dentistry admitted its first class of 26 students in 1962 and has since increased its entering enrollment to 60 students a year.

In addition to the undergraduate dental program, the College also shares responsibility with the College of Allied Health Professions, Lexington Technical Institute and the Community College System in training dental hygienists, dental technologists, and other dental auxiliary personnel.

Mission and Objectives

The major objective of the College of Dentistry is the development of biologically oriented, technically capable, socially sensitive dental practitioners who are keenly aware of the significance of their potential contribution to the total health of their patients. This objective is partially fulfilled by producing graduates who will provide primary dental care.

The College also offers graduate and postgraduate programs in several dental specialties. For further information on these and the program leading to the D.M.D. degree, see the College of Dentistry Bulletin.

Admission—Doctor of Dental Medicine

The College of Dentistry selects 60 students yearly. It seeks to enroll those students whose backgrounds, personalities and motivations indicate that they will make the best possible future dental practitioners. As a state-supported school, the College gives preference to those qualified applicants who are residents of Kentucky; however, a limited number of highly qualified out-of-state applicants are considered each year and such candidates are encouraged to apply.

The College has established programs which have resulted in increased enrollments of women, minorities, and individuals with rural backgrounds.

Recommended Predental Preparation

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. However, applicants who have a science background and who have demonstrated academic excellence will have an advantage over those without such credentials.

A specific number of undergraduate credits is no longer a requirement for admission to the College. However, because of the large number of qualified applicants having four or more years of academic preparation, an applicant must be *exceptional* to gain admission with less experience. Applicants to the College should understand that gaining admission is a very 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 the prospective dental student contact the admissions office of the College of Dentistry at an early stage in his undergraduate career for guidance. The admissions personnel at the College of Dentistry will work with the student and his adviser to afford him the best possible chance for gaining admission.

Application

The University of Kentucky College of Dentistry has joined the American Association of Dental Schools Application Service (AADSAS), a centralized application service. Application forms may be obtained from predental advisers or dental schools or by writing to:

AADSAS
P.O. Box 4000
Iowa City, Iowa 52240

Application for admission to the College of Dentistry should be submitted to AADSAS after May 1 but no later than January 1 preceding the fall in which admission is desired. Candidates are advised to complete their applications at the earliest possible date, since no applicant can be considered until all parts of the application have been received. Candidates 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 educational institution attended above the secondary level. Transfer credits entered on a transcript from a previous institution attended is 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 two or more letters of recommendation. It is not necessary that these letters be written by specific individuals (e.g., predental adviser, practicing dentist, etc.). Rather, letters should be requested from those 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 DAT results will 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 of all applicants 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 must complete the test no later than October of the year preceding the year of anticipated admission.

Any questions related to admission should be directed to:

Director, Office of Admissions
College of Dentistry
Albert B. Chandler Medical Center
Room MN 118

University of Kentucky
Lexington, Kentucky 40536
Telephone: (606) 233-6071

EDUCATION

George Denemark, Ed.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 Education—Preparation Level)
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

The University of Kentucky is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel with the doctor's degree as the highest degree approved.

Special Facilities and Services

The Diagnostic Center for Speech and Hearing serves as a training facility for students. Services include hearing and speech evaluation and therapy for all University students; speech, hearing, and language evaluations for children and adults who are Kentucky residents; and supervised out-patient speech, language, and hearing therapy services.

The Education Library contains more than 54,000 volumes, over 525 periodicals, and approximately 250,000 pieces of microfiche; a complete microfiche collection of all ERIC documents is on file. The facilities and resources of the other libraries on campus are also available to all students.

The Instructional Media Center contains audio-visual equipment and resources used in conjunction with courses in educational media. It includes a materials-preparation laboratory, a demonstration classroom, a photographic darkroom, a television studio, and an equipment operation laboratory. Media consulting services are provided to University faculty.

The Reading Center maintains a special collection of books, pamphlets and other materials relative to reading curricula, and, in addition, assesses students who are having problems in reading and gives appropriate remediation.

The Educational Assessment Clinic is operated by the Department of Special Education. It provides diagnostic and prescriptive services to children with learning difficulties. The facility also serves as a training and practicum site for special education majors.

The Center for Professional Development is the service and outreach arm of the College. It provides assistance to schools and other agencies in inservice education, research and development, field service, and other services.

General Information

Students expecting to receive teaching certificates, regardless of the college from which they graduate, must meet the requirements of the College of Education, as well as the requirements of the college in which they are enrolled.

Students expecting to receive teaching certificates must apply for and be admitted to the Teacher Education Program before upper division courses in the required Professional Education sequence may be taken. No more than two methods courses in the Professional sequence may be taken at the same time.

Students expecting to receive certificates as elementary, special education, or junior high/middle school teachers are required to be enrolled in the College of Education and to have an adviser in the College of Education.

Students expecting to receive certificates in early childhood education or senior high school teaching may be enrolled in another college or in the College of Education. If they are enrolled in a college other than Education, they must meet the requirements of the College of Education, as well as the requirements of the college in which they are enrolled. They must also have an adviser in the College of Education.

ADMISSION TO TEACHER EDUCATION PROGRAM

All students, regardless of the college in which they are enrolled, must apply for and be admitted to the appropriate professional Teacher Education Program if they expect to complete a program leading to teacher certification.

A student with junior status who has completed EDP 202 with a C or better and who seeks Teacher Certification must apply to a Teacher Education Program. Teacher Education Program faculties deliberate and make admissions recommendations to the dean on the basis of a student's previous academic performance; experience in working with youth; ability to communicate, both orally and in writing; evidence of commitment to teaching as a profession; recommendations of former instructors and/or members of the teaching profession familiar with the applicant's qualifications. They review the file of an applicant to determine if personal, professional and intellectual qualities, when viewed as a whole, give evidence of the capability and motivation to become a successful teacher. Program faculties may also consider factors pertaining to the provision of adequate educational programs for all persons in Kentucky.

Additional information may be obtained by any student who may seek admission to a professional program by writing:

Office of Teacher Education and Certification
166 Taylor Education Building
University of Kentucky
Lexington, Kentucky 40506

A minimum of three semesters of study is required in a regular Teacher Education Program. Admission to the program does not guarantee completion. If, for any reason, the faculty decides that the student should not continue in a Teacher Education Program, the student may be required to withdraw at any time before completion. It should be noted that the action of the Undergraduate Admissions and Standards Committee of the College of Education is final.

Student Teaching

A student may enroll in student teaching in one of the prescribed curricula of the College of Education (elementary education, special education, middle school/junior high, senior high) provided he has satisfied the following requirements:

1. Has spent one semester in residence on campus;
2. has been admitted to a professional Teacher Education Program;
3. has maintained a grade-point standing of at least 2.25 in (a) his area of concentration, major, minor and/or support areas, (b) professional education courses, and (c) his 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 plans to do student teaching;
7. has been accepted by the school system and supervising teacher where he 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 will do his student teaching. Typically the student will be involved for the full school day.

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 EDU 203) during the student teaching semester. If they have had EDU 203, they will take 15 semester hours including student teaching.

All students must be admitted to the Teacher Education Program. Technical agriculture requirements of 50 hours with at least six hours in animal science, plant science, soils, agricultural engineering, and agricultural economics including three hours in farm management must be met for certification. Also required are three hours of health and three hours of literature.

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.

Graduation Requirements

The College of Education grants the degree of Bachelor of Arts to students who are enrolled in the College of Education, who have completed their appropriate academic areas, majors and minors in approved teaching fields, general education components, special studies requirements, and who have completed their requirements in professional education. This degree is granted to students in Early Childhood, Elementary, Middle School/Junior High and Secondary Education. The Bachelor of Science in Education is granted to majors in Industrial Education—Preparation Level.

To graduate from the College of Education, a student must, while meeting specified requirements, complete 128 semester hours 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 over-all university work.

Certification

The University of Kentucky offers curricula for most certificates issued by the State Department of Education.

Based on four years of college work and upon meeting the requirements of the College of Education, the student is eligible for either the Provisional High School Certificate, the Provisional Middle School/Junior High School Certificate, or the Provisional Elementary Certificate. Application for the desired certificate is made during the student teaching semester.

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 Standard Certificates for elementary and secondary teachers, master's degree programs leading to provisional certification for school guidance counselors and school psychometrists, 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.

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.

Curricula

Requirements for graduation and teacher certification are subject to frequent changes. College of Education students are well advised to request more complete program guidelines from: Teacher Education and Certification, 166 Taylor Education Building, University of Kentucky, Lexington, Kentucky 40506.

Students who wish to earn teaching certificates must satisfy the following requirements, regardless of the college in which they are enrolled:

Senior/Junior High	Hours
Communications and Humanities	18
Physical Sciences and Biological Sciences	12
Social Science	12
Elementary	
Communications and Humanities	18
Physical Sciences and Biological Sciences	12
Social Science	18

General Studies

The five areas which best fit into the above requirements are:

1. Area II Physical Sciences
2. Area III Biological Sciences
3. Area IV Foreign Languages, **or** Area V Humanities: Literature and the Arts
4. Area VI History
5. Areas VII and VIII Social and Behavioral Sciences

Students who do not choose these component areas may need to take more than the minimum number of required hours in order to satisfy the requirements mentioned above.

Students may substitute Area I, Mathematics-Philosophy Option A, B or C for Area II, Physical Sciences, or Area III, Biological Sciences. However, if this substitution is made, at least one physical science course or one biological science course must be taken to meet teacher certification requirements.

It should be noted that ANT 120 and PSY 100 and PSY 223 fulfill the requirements in Areas VII and VIII but do not fulfill the Social Science requirement for certification.

In addition to the five areas of General Studies Components listed above, it is recommended that all students take at least two courses in psychology.

Students are urged to obtain a College of Education brochure and to confer with an adviser in the College of Education concerning other specific requirements for graduation and/or certification.

DEPARTMENTS

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. Programs lead to the Specialist in Education degree and the Doctor of Education degree.

CURRICULUM AND INSTRUCTION

The Department of Curriculum and Instruction offers a wide range of graduate programs leading to the Master of Arts in Education, Master of Science in Education (Plan A or Plan B available), Specialist in Education, and Doctor of Education degrees. These programs are designed to prepare specialists for teaching, supervising, and coordinating subject matter areas at the elementary, junior high, senior high, and junior college level. The specialist and doctoral programs prepare leaders for both public schools and institutions of higher learning. Graduate specialization areas are available in a wide range of academic subject matter fields as well as educational media and technology and reading.

The Department of Curriculum and Instruction has four basic undergraduate programs, one for early childhood teachers (kindergarten through grade three), one for elementary teachers (grades one through eight), one for middle school/junior high school teachers, and one for senior high school teachers.

REQUIREMENTS FOR TEACHING IN KINDERGARTEN THROUGH GRADE 3

Needed to graduate (including all elective and required courses, a total of 128 hours)

Professional Requirements	Hours
FAM 252 The Individual, Marriage and Family*	3
EDP 202 Human Development and Learning**	3
FAM 255 Child Development**	3
EDF 301 Education in American Culture*	3
EDC 327 Principles and Trends in Early Childhood Education*	3
EDC 329 Reading and Language Arts in the Elementary School*	3
EDC 337 Teaching Mathematics in Early Childhood Education*	3
EDC 338 Science and Social Studies for Young Children*	4
EDC 339 Diagnostic Teaching of Reading and Language Arts in Early Childhood Education	3
FAM 350 Guiding Children in Learning Environments*	4
EDS 375 Introduction to Education of Exceptional Children*	3
FAM 507 Assessment of Young Children	2
EDS 510 Early Childhood Education of the Handicapped	2
FAM 554 Working with Parents	3
EDC/FAM 411 Student Teaching in Early Childhood Education	12

*Prerequisite to student teaching

**Upper division professional Early Childhood Education courses may not be taken until after the student has completed EDP 202 and FAM 255 and has been admitted to the Teacher Education Program.

Special Studies Component Requirements	Hours
Freshman English	6
ENG elective (ENG 414G recommended)	3
COM 101 Introduction to Communications	3
NFS 101 Food and Nutrition for Man	3
PSY 100 Introduction to Psychology	4

Academic Requirements

A-E 270 Introduction to Art Education*	3
HPR 360 Physical Education in the Elementary School*	3
LS 510 Children's Literature and Related Materials*	3
MA 201 Mathematics for Elementary Teachers I*	3
MA 202 Mathematics for Elementary Teachers II*	3
MUS 260 Music Fundamentals and Skills for Classroom Teachers*	3

*Prerequisite to student teaching

General Studies Component Requirements

(See section on General Studies Component Requirement.)

REQUIREMENTS FOR TEACHING IN ELEMENTARY SCHOOLS

Needed to graduate (including all elective and required courses, a total of 128 hours.

Special Studies Requirements	Hours
Freshman English	6
Communications & Humanities (If Area IV is taken, this three-hour elective must be a literature course.)	3
SP 181 or COM 101	3
BIO 110, HPR 145 or NFS 101. Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	3
PSY 100	4

Professional Education Requirements	Hours
EDP 202 Human Development and Learning*	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms**	3
EDF 301 Education in American Culture**	3
EDC 324 Teaching Science and Social Learnings in Elementary School***	4
EDC 329 Reading and Language Arts in Elementary School***	3
EDC 330 Diagnostic Teaching of Reading and Language Arts in the Elementary School***	3
EDC 331 Teaching Mathematics in the Elementary School***	3
EDC 333 Student Teaching in the Elementary School	12

Academic Requirements

The student chooses three of the following four courses:

Hours	
A-E 270 Introduction to Art Education	3
A-E 272 Workshop in Design Education	3
MUS 260 Music Fundamentals and Skills for Classroom Teachers	3
MUS 261 Methods and Materials of Teaching Music in the Elementary Grades	3

And these courses:

LS 510 Children's Literature and Related Materials	3
MA 201 Mathematics for Elementary Teachers I	3
MA 202 Mathematics for Elementary Teachers II	3
HPR 360 Physical Education in the Elementary School	3

*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.

**All of the education course sequence must be completed before the student teaching may be done.

***Only two of the four methods courses may be taken in any one semester.

General Studies Component Requirements

(See section on General Studies Component Requirement.)

Students wishing to earn their provisional special education certificates in conjunction with the elementary certificate are required to do half of their student teaching in special education and half in the elementary school, in addition to completing all the required courses in the respective special education program in which they are enrolled.

REQUIREMENTS FOR TEACHING IN MIDDLE SCHOOL/JUNIOR HIGH SCHOOL

The middle school/junior high school certificate is valid in grades five through nine and may be endorsed for teaching at the high school level for any subject assignment in which the teacher holds a regular high school teaching major or minor.

Teachers of art, music, physical education, and all vocational subjects will be eligible to teach in middle schools and junior high schools provided they hold a certificate valid for high school or 12-grade teaching.

Needed to graduate (including all electives and required courses, a total of 128 hours)

General Studies Component Requirements

(See section on General Studies Component Requirements.)

Special Studies Component Requirements

Freshman English 6
Communications & Humanities (If Area IV is taken, this three hours must be in literature.) 3
SP 181 or COM 101 3
BIO 110, HPR 145 or NFS 101 3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.
PSY 100 4

Professional Education Requirements — Hours

Total hours required 31
EDP 202 Human Development and Learning* 3
EDU 203 Teaching Exceptional Learners in Regular Classrooms 3
EDF 301 Education in American Culture 3
EDC 340 Teaching in the Junior High School** . . . 4
EDP 520 The Secondary School Pupil** (adolescent psychology) 3
EDC 533 Teaching Reading in the Secondary School **or** 3
EDC 534 Reading and Study Skills in English 3
Student Teaching 12

*Prerequisite to ALL other required professional education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202.

**Taken concurrently the semester immediately preceeding student teaching.

Preparation Plans for Academic Teaching

The specialization component of the curriculum for the Provisional Certificate for Teaching in the Middle School/Junior High School shall include a minimum of 60 semester hours distributed among two middle grade teaching fields of 24 semester hours each and one additional subject concentration of 12 semester hours credit.

The middle school/junior high teaching fields shall be identified as follows and each field shall require a minimum of 24 semester hours credit including the preparation as described below.

1. English and Communication. Composition—six semester hours; linquistics, advanced composition, or phonetics—three semester hours; adolescent literature—three semester hours; speech—three semester hours; American literature—three semester hours; teaching of reading—three semester hours; and electives—three semester hours.

2. Humanities and Fine Arts. Preparation shall be distributed among three of the following studies with no less than six semester hours credit in each of the three chosen studies: music, art, humanities, philosophy, and literature.

3. Foreign Language. Twelve semester hours credit or two full years of study in each of two languages in courses above the freshman level.

4. Mathematics. Preparation to include six semester hours credit designed especially to present the newer concepts of mathematics.

5. Science. Preparation shall include six semester hours credit in each of physical sciences, biological sciences, and earth sciences; at least one biological science and one physical science course must be accompanied by a laboratory requirement.

6. Social Studies. Preparation shall be distributed among the subjects of United States history, geography, political science, economics, sociology, and social anthropology, so as to include at least six semester hours credit in United States history, six semester hours credit in geography, and six semester hours credit from one of the remaining subjects.

The 12-semester hour subject concentrations required as a part of the specialization component shall be selected from the following subjects:

Any one foreign language
Art
Biology
Business (must include typewriting)
Chemistry
Dramatics
Economics
Geography
Geology
Health
History
Journalism
Mathematics
Physics
Political science
Sociology
Speech

REQUIREMENTS FOR TEACHING IN SENIOR HIGH SCHOOLS

Needed to graduate (including electives and required courses, a total of 128 hours.)

Professional Education Requirements — Hours

Total hours required 27
EDP 202 Human Development and Learning* 3
EDU 203 Teaching Exceptional Learners in Regular Classrooms 3
EDF 301 Education in American Culture 3
EDC 344 Principles and Techniques of Teaching in the Secondary School** 3
Special methods courses to be taken where appropriate:
EDC 521 Materials and Methods in Teaching Mathematics in the Secondary School (required of mathematics majors) 3
EDC 522 Materials and Methods in Teaching Social Studies in the Secondary School (required of all majors in the social science group) 3
EDC 524 Materials and Methods for Teaching Science in the Secondary School (required of all majors included in the science group) 3
EDC 525 Materials and Methods of Teaching English in the Secondary School (required of all English majors) 3
Student Teaching 12

The professional semester work load may be no more than a total of 15 credit hours.

*Prerequisite to ALL other required professional education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202.

**EDC 344 must be taken prior to student teaching and should be taken the semester immediately preceding student teaching. EDP 202, EDU 203 and EDF 301 and the special methods courses where appropriate are prerequisite courses for EDC 344.

Special Studies Component Requirements

(Same as for Middle School/Junior High School.)

General Studies Component Requirements

(See section on General Studies Component Requirements.)

Requirements for Majors, Minors and Areas of Concentration

Senior high school curriculum majors must prepare themselves by intensive study in selected areas. All students admitted to the Teacher Education Program after September 1, 1972, are expected to meet one of the following options in the choice of a curriculum leading to certificates for teaching in special fields. **Please Consult Your Adviser.**

There are six different formats for programs leading to graduation and certification:

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.

3. A major of 30 to 36 hours and supporting courses from two related subject fields (12 hours each) chosen from courses listed in the minors.

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 will be certified in the major only and the related courses cannot be combined for a minor.

5. A major of 30 hours with three support areas of 12 hours each.*

6. A major of 30 hours, a minor of 21 hours, and a support area of 12 hours.*

*These options are available only in social studies (history major).

Since there is an over-supply of teachers in most fields and since the College is making every effort to improve quality and selectivity, it is recommended that basic subjects be chosen as major fields and that the supporting courses or minors be in related fields. The student will be certified in only one field if he presents a major and two or three supporting fields of 12 hours each. He will be certified in two fields if he presents a major and a minor.

An area of concentration from an approved subject field shall consist of 48 semester hours unless otherwise specified.

A major from an approved single subject field shall consist of 30 semester hours with the following exception:

English (36 hours). One course in linguistics or equivalent required.

A minor from an approved single subject field shall consist of 21 semester hours with the following exceptions:

1. English (24 hours). One course in linguistics or equivalent required.
2. French, German, Latin, Russian or Spanish (24 hours in one language). The Teaching of Modern Foreign Languages is required as one of the courses.
3. Health (24 hours).

Secondary Art

General Studies Components

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	**Hours**
Freshman English	6
Communication & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 **or** COM 101	3
BIO 110, HPR 145 **or** NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Sequence	**Hours**
EDP 202 Human Development and Teaching	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 325 Teaching in the Elementary School*	3
EDC 344 Principles and Techniques of Teaching in the Secondary Schools	3
EDC 342 Student Teaching in Art	12

*Required for 12-grade certification.

Teaching Field Program

Students majoring in art will have an area of concentration in art totaling 49 hours.

Secondary English, Speech, and Speech and Theatre Arts

Secondary English

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI and VII.

Special Studies Requirement	**Hours**
Freshman English	6
Communications & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 **or** COM 101	3
BIO 110, HPR 145 **or** NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4
EDC 534 Reading and Study Skills in English	3
(EDC 533 may be substituted only if necessary)	

Professional Education Sequence	**Hours**
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 525 Materials and Methods of Teaching English in the Secondary School	3
EDC 353 Student Teaching in English	12

A student majoring in English education will select **one** of the following plans:

Plan I: Area of concentration in English. English major plus 18 additional hours for a total of 54 hours. These include one additional English course and 15 hours chosen from journalism, speech, communications and theatre arts.

Plan II: English major and a minor (21 hours) in theatre arts or journalism.

Plan III: English major and two support areas of 12 hours each in two related areas approved by the adviser.

Plan IV: English major and support block of 24 hours chosen from three or more related fields approved by the adviser.

Secondary Speech

In addition to the 30-hour speech major, the student will select a minor from: English, theatre arts, or a foreign language. English is highly recommended. (Students minoring in English must also take EDC 525 and EDC 534.)

Secondary Speech and Theatre Arts

In addition to the 38-hour major, the student will select a minor in English or a foreign language. English is strongly recommended. (Students minoring in English must also take EDC 525 and EDC 534.)

Secondary Foreign Languages

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	**Hours**
Freshman English	6
Communication & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 **or** COM 101	3
BIO 110, HPR 145 **or** NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Sequence	**Hours**
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
FR 553; GER 553; SPI 552; CLA 530 (the teaching of French, German, Spanish, or Latin)	3
EDC 354 Student Teaching in Foreign Languages	12

Teaching Field Programs

Students majoring in 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 chosen from:
English, French, German, Latin, Russian, Spanish

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 (above 100 level, not in the major) from English, French, German, Latin, Russian, Spanish **and**

Support Area of 12 hours above 100 level in a related field of history: French history, Latin American history, Spanish history, German history, Russian history, Greek and Roman history.

Option B

Any two languages (other than the major) with 12 hours each above the 100 level courses from English, French, German, Latin, Russian, Spanish.

For specific courses in each language check with your adviser.

Secondary Mathematics

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	**Hours**
Freshman English	6
Communications & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 **or** COM 101	3
BIO 110, HPR 145 **or** NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Sequence	**Hours**
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 521 Material and Methods in Teaching Mathematics in the Secondary School	3
EDC 356 Student Teaching in Mathematics	12

Teaching Field Programs

Students majoring in mathematics will select one of the following three programs:

Plan 1. Mathematics major of 30 hours and any minor listed below (21 hours unless otherwise noted):
Accounting
Any foreign language (24 hours)
Economics
English (24 hours)
Geography
History
Journalism
Political science
Psychology
Sociology
Speech
Theatre

Plan 2. Mathematics major of 30 hours and two fields of 12 hours each chosen from the following support areas:
Astronomy
Biological sciences*
Chemistry
Computer science
Earth science
Economics
Engineering drawing
Physics
Statistics

Plan 3. Mathematics major of 30 hours and any combination of 24 hours from areas related to mathematics such as:
Astronomy
Biological sciences*
Chemistry

Computer science
Earth science
Economics
Engineering drawing
Physics
Statistics

Courses in other areas may be selected with adviser's approval.

*BIO 110 may not be used as one of the required courses.

Secondary Music

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	Hours
Freshman English	6
Communication & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 or COM 101	3
BIO 110, HPR 145 or NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Sequence	Hours
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 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

*Consult adviser
**Required for 12-grade certification

Teaching Field Program

Students majoring in music will have an area of concentration in music totaling 65-71 hours.

School Media Librarian

Needed to graduate (including all electives and required courses, a total of 128 hours.)

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	Hours
Freshman English	6
Communications & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 or COM 101	3
BIO 110, HPR 145 or NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Sequence	Hours
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 325 Teaching in the Elementary School or	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 329 Reading and Language Arts in the Elementary School	3
EDC 533 Teaching Reading in the Secondary School	3
LS 576 School Media Practicum	9

Additional Specialization	Hours
The student consults adviser concerning work to be taken in a single academic field	21

School Media Librarian Major (30 hours)

Required Courses (24 hours)	Hours
LS 550 Introduction to Cataloging and Classification	3
LS 530 Reference and Information Services	3
LS 547 Administration of School Media Centers	3
LS 510 Children's Literature and Related Materials	3
LS 513 Literature and Related Materials for Early Adolescence	3
LS 514 Information Resources and Services for Young Adults	3
EDC 544/LS 586 Utilization of Educational Media	3
EDC 545 Preparation of Instructional Materials	3

Electives
Six hours chosen from the following:

EDC 549 Sociological Aspects of Mass Communication	3
COM 101 Introduction to Communications	3
COM 250 Mass Media and Mass Culture	3
COM 550 Introduction to Communication Research	3
COM 551 The Communications Process	3
COM 553 Mass Communication and Social Issues	3
JOU 535 History of Journalism	3
JOU 387 Introduction to Press Photography	3

Secondary Sciences

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	Hours
Freshman English	6
Communications & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 or COM 101	3
BIO 110*, HPR 145 or NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

*BIO 110 does not count toward biology major.

Professional Education Sequence	Hours
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary Schools	3
EDC 524 Materials and Methods for Teaching Science in the Secondary Schools	3
EDC 355 Student Teaching in Sciences	12

Note: Since changes are being made in the science curriculum to conform with new requirements of the State Department of Education, students who are entering this program after the Fall 1979 term should consult their Education advisers regarding their programs.

Students who entered the program prior to the Fall 1979 term may complete one of the following options:

PLAN I—Major with a supporting minor

Students choosing this option will complete a major consisting of a minimum of 30 semester hours in one of the sciences listed below and will complete a minor consisting of a minimum of 21 semester hours in another science listed below or in mathematics. It is expected that most students choosing to work in secondary science will choose this plan since it leads to certification in both the major and the minor. Sciences in which an individual may major are: biological science, earth science, chemistry, or physics. The supporting minor must be chosen from one of these sciences or mathematics.

PLAN II—Major with two 12-hour supporting subjects

The major of at least 30 semester hours must be chosen from the list in Plan I, 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. **It should be noted that under Plan II the student will be certified only in his major,** which would greatly reduce his employment opportunities.

PLAN III—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 I 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. **It should be noted that students choosing Plan III will only be certified in their major; supporting work will be scattered so that employment opportunities will likely be even more diminished than for Plan II.**

Plan IV—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.

Secondary Social Studies

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	Hours
Freshman English	6
Communication & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 or COM 101	3
BIO 110, HPR 145 or NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Sequence	Hours
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
EDC 522 Materials and Methods in Teaching Social Studies in the Secondary School	3
EDC 357 Student Teaching in the Social Studies	12

Major Requirements

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. A sample "Tree of Experiences" designed by social studies education students to illustrate the possibilities for experiences enriching the social studies education major will be given to each student entering the program. The student will also be given a blank tree to fill out on a continuing basis, using previous and new experiences. 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 options.

Plan A. major in History (30 hours) with either option 1: one minor (21 hours) and one support area (12 hours) chosen from anthropology*, economics, geography, political science, psychology, or sociology **OR** option 2: three support areas (12 hours each) chosen from the subjects listed above.

Plan B. Major (30 hours) in economics, geography, political science, psychology, or sociology with a minor (21 hours) in history and a support area (12 hours) in one of the remaining social sciences.

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.

History Major (30 hours)

Required: HIS 104, 105, 108, 109, 316

Above the 100 level, each student is required to take six hours of American history and any other nine hours which will give the student a broad background. At least six hours should be taken at the 500 level. Consideration of topical seminars is encouraged.

History Minor (21 hours)

Required: HIS 104, 105, 108, 109

Any other nine hours which will give the student a broad background.

*Anthropology may currently be used only as a support area. A student may take 18 hours of anthropology under Plan C.

EDUCATIONAL PSYCHOLOGY AND COUNSELING

The Department offers work leading to both the Ph.D. and the Ed.D. as well as the Ed.S., the M.A. in Education and the M.S. in Education. Degrees are awarded in three areas: Educational Psychology, School Psychology, and Counseling Psychology. Except in the area of general educational psychology, master's degree programs incorporate extensive professional training and practica. No undergraduate degrees are awarded.

The Educational Psychology program is concerned with human development and learning within the educational process. The program emphasizes human development, human social and cognitive learning, and development of educational research and evaluation skills. Graduates of the Educational Psychology program usually work as professors of educational psychology, educational researchers, or educational evaluators for a variety of educational agencies.

The School Psychology program is designed to prepare students to serve as psychologists in public schools. The program is designed around a general educational psychology and human development core. Additional work is required in the psychological assessment of children, special education, and curriculum and instruction. Graduates of the School Psychology program can sit for the State Board of Education examination in order to be certified in Kentucky as school psychologists. Upon graduation, students in this program are employed by school systems and in other community agencies as school psychologists. There is a required internship in school psychology. While completing the School Psychology program, the student may obtain certification as a School Psychometrist.

The Counseling Psychology program trains students as counseling psychologists. The core of this program consists of work in human development, counseling theory and technique, and psychological assessment. Additional work is required in advanced psychology courses, research methods, and practicum in counseling psychology. Graduates of the Counseling Psychology program work as counseling psychologists in a wide variety of mental health care facilities including community comprehensive health care agencies, university and college counseling centers, hospitals, prisons, and other community and family counseling centers. These persons are prepared to sit for the State Board of Psychological Examiners examination to be certified at the master's degree level or licensed at the doctoral level as counseling psychologists.

Graduates of the School Guidance Counseling Program work as guidance counselors in elementary and secondary schools. This program requires prior certification and experience as either an elementary or secondary school teacher and it results in certification by the State Department of Education as a guidance counselor.

HEALTH, PHYSICAL EDUCATION AND RECREATION

Opportunities for varying extents of concentration in the major field and in minor fields within limitations of University and College policy are offered. The general requirements for physical education and health majors are the same as for all other students in the College of Education.

All students are encouraged to take two years of physical education, earning one hour of credit for each semester successfully completed. They may choose from a large variety of life-time activities. (See *Schedule of Classes* for each semester.)

A locker fee of $5 per semester, depending upon the activities included in the class in which enrolled, is charged each student. This fee includes towel service, locker rental and the privilege of using the equipment and facilities and swimming pool of the Department during nonclass periods. Students must furnish their own swimsuits.

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements	**Hours**
Freshman English	6
Communications & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 **or** COM 101	3
BIO 110, HPR 145 **or** NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

HEALTH EDUCATION

Professional Education Sequence	**Hours**
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in the Secondary School	3
HPR 371 Student Teaching in Health Education	12

Premajor Requirements	**Hours**
CHE 101/103 Chemistry: A Cultural Approach **or**	6
CHE 105/107 General College Chemistry I and II and CHE 115 General Chemistry Laboratory	9
BIO 110 Introduction to Human Biology and Health **or**	3
BIO 200/201 General Biology I and Laboratory **or**	5
BIO 202/203 General Biology II and Laboratory	5
BIO 276 Principles of Bacteriology **or**	4
BIO 476G General Microbiology	4
ANA 206 Elementary Anatomy	3
PGY 206 Elementary Physiology	3

Professional Health Education Major

	Hours
HPR 190 First Aid and Emergency Care	2
HPR 330 School Health Education	3
HPR 430 Methods of Teaching Health Education	3
HPR 530 Administration of Health and Safety Education	3
HPR 307 Introduction to Safety Education	3
HPR 407 Driver and Traffic Safety Education I	3
HPR 445 Introduction to Tests and Measurements	3
HPR 395 Independent Work in Health and Safety	3
HPR 509 Workshop in Health and Safety	2
CH 210 Introduction to Community Health Ecology	3
NFS 101 Food and Nutrition for Man	3
EDP 518 Mental Hygiene	3
Electives in related health areas	

Professional School Health Minor

	Hours
BIO 110 Human Biology and Health	3
HPR 190 First Aid and Emergency Care	2
HPR 330 School Health Education	3
HPR 430 Methods of Teaching Health Education	3
HPR 530 Administration of Health and Safety Education	3
EDP 518 Mental Hygiene	3
CH 210 Introduction to Community Health Ecology	3
NFS 101 Food and Nutrition for Man	3

Teaching Minor

Students who major in health education are also required to select a 21-24 hour minor from the following: biology, chemistry, psychology, sociology (see College of Education brochures for specific program requirements in each of the minors).

PHYSICAL EDUCATION

Professional Education Sequence

	Hours
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDC 344 Principles and Techniques of Teaching in Secondary Schools	3
HPR 369 Student Teaching in Physical Education	12
Those students who want a K-12 certificate must also take:	
EDC 325 Teaching in the Elementary School	3
Elementary Physical Education Endorsement Courses	12

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 Gymnastics	1
HPR Service Course elective	1

Professional Physical Education Major

	Hours
HPR 147 Dance Foundations I*	1
HPR 148 Women's 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, 324*	1
HPR 440 Organization and Administration of Physical Education	3
HPR 420 Physiology of Exercise*	3
HPR 445 Introduction to Tests and Measurements*	3
HPR 472 Kinesiology*	3
HPR 579 Adapted Physical Education*	3

*Required in major

Professional activity course electives—each student must elect two with approval of adviser:

TEAM

HPR 146 Flagball and Speedball
HPR 148 Women's 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: dance*, health (24 hours), mathematics, psychology, and sociology. Students should check with the College of Education for the specific program requirements in each minor.

*Noncertification program

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 (*) shall constitute the 12-hour 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 393 Rhythmical Forms and Analysis*	3
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.

	Hours
HPR 290 History and Philosophy of the Dance	3
HPR 292 Ethnic Dance	2
HPR 293 Classical Ballet I	2
HPR 294 Classical Ballet II	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 Physical Education	3
HPR 593 Dance Production	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, SOC 409, and SOC 551)
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 330, HPR 430, HPR 530 and BIO 110)
10. Elementary Physical Education—Required for K-12 certificate:

HPR 263 Developmental Sports Skills for the Elementary School Child
HPR 364 Gymnastics 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—10 hours	Hours
HPR 340 Athletic Training	2
HPR 354 Principles and Problems of Coaching	2
HPR 420 Physiology of Exercise	3
HPR 472 Kinesiology	3
Elect any two of the following courses:	
HPR 241 Basketball Coaching Fundamentals	2
HPR 242 Football 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 (advanced coaching courses)	2

RECREATION (Noncertification)

General Studies Component

A student can best satisfy these requirements by choosing Areas III, V, VI, VII, and VIII.

Preprofessional Requirements (17-18 hours)

	Hours
STA 370 Introduction to Statistics	4
Social and Behavioral Sciences (upper division). ECO, ANT, PSY, GEO, PS, and/or SOC*	6
Activities—A minimum of eight credit hours, no more than two hours taken in one of the following areas: HPR professional activity courses, studio courses in theatre arts, dance, music, and art.	

*These requirements will not count in any other requirements in the program.

Recreation (Minimum of 30 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 Recreation**	3
HPR 471 Outdoor Education Through Camping	2
HPR 478 Senior Seminar in Recreation*	3
HPR 570 Landscape Design of Park and Recreation 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 577 Practicum in Recreation* 9

*Required of all majors.
**Senior standing and consent of instructor.

Area of Specialization

In addition to the major requirements, students are to choose one area of specialization (option) and complete the requirements for the selected area. Students should consult with an adviser on the area of specialization.

Electives

Electives to complete the 128-hour degree requirement will be selected by the adviser and student.

HIGHER EDUCATION

The Department of Higher Education offers only graduate degrees, the Master of Science in Education, the Doctor of Education, and the Doctor of Philosophy. These programs do not require certification and are open to qualified persons with backgrounds in the various University disciplines who are interested primarily in preparing for a career in college and university administration. Higher education as a field of study embodies educational content and process relating to students, faculty, and administration in the two-year and four-year college environments.

SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION

The faculty of this Department is engaged in the systematic analysis and interpretation of educational phenomena, using appropriate knowledge and methodologies of the humanities and social sciences, directed to (1) the development of teachers and researchers with special competencies in social and philosophical studies, (2) assistance in the preparation of other educational personnel, (3) contributions of research based on the special competence of this faculty, and (4) change in education through active participation in redirection and reform.

Only graduate degrees are offered in this Department.

SPECIAL EDUCATION

The Department of Special Education offers programs leading to the Bachelor of Arts, Master of Arts in Education, Master of Science in Education, Educational Specialist, and Doctor of Education degrees in education. The Graduate School Bulletin should be consulted for graduate-level degree requirements. Three different programs of study are available at the undergraduate level: (1) Learning and Behavior Disorders, (2) Trainable Mentally Handicapped, and (3) Speech and Communication Disorders.

Students enrolling in the 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. In addition, it should be noted that a selective admission policy is in existence within the Department. Admission to the freshman year does not guarantee admission to a certification program. Admission decisions are made at the end of the sophomore year.

LEARNING AND BEHAVIOR DISORDERS

Students graduated from this program obtain Kentucky teacher certification in elementary education (1-8) and in the area of learning and behavior disorders (K-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 140-142 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.

General Studies Requirements

Students can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VIII.

Special Studies Requirements **Hours**

Students in the Learning and Behavior Disorders Program follow the same Special Studies Requirements as outlined earlier in this section for the Elementary Education Program.

Academic Requirements

Students follow the same requirements listed for elementary education majors.

Professional Education Requirements

Students meet the same requirements listed for elementary education majors.

Learning and Behavior Disorders Requirements

Core Requirements **Hours**

EDS 250 Introduction to Special Education 4
EDS 510 Early Childhood Education of the Handicapped 2
EDS 511 Speech and Language Development 3
EDS 512 Language Disorders I 3
EDS 513 Protecting the Human Rights of the Handicapped 2
EDS 514 Special Education Learning Environments 2
EDS 515 Career Education in Special Education. . . 2
EDS 516 Principles of Behavior Management with Exception Children 2
EDS 517 Prosthetics for Handicapped Children . . . 2
EDS 518 Working with Parents of the Handicapped 2
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 358 Field Experiences with Mildly Handicapped Children 3
EDS 359 Student Teaching in Special Education . . 6

TRAINABLE MENTALLY HANDICAPPED

Students graduating from this program obtain Kentucky teacher certification in elementary education (1-8) and in the area of the trainable mentally handicapped (K-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.

Students must meet the same general studies, special studies, academic, professional education, and special education core requirements as described in the previous section on learning and behavior disorders in addition to the following:

Trainable Mentally Handicapped Area Requirements **Hours**

EDS 541 Characteristics of the Trainable Mentally Handicapped 2
EDS 547 Direct Observation and Assessment Procedures 2
EDS 548 Curriculum and Materials for 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 COMMUNICATION DISORDERS

In keeping with the standards of the American Speech and Hearing Association, the undergraduate program in speech and communication disorders is considered to be a pre-professional degree program. Graduates of the undergraduate program **will not** qualify for public school certification as a speech

therapist. In order to meet Kentucky and American Speech and 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 between five and six years to complete both the Bachelor of Arts and Master of Science programs.

General Studies Requirements

Students can best satisfy these requirements by choosing Areas II, III, V, VI and VII.

Special Studies Requirements	Hours
Freshman English	6
Communications & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 or COM 101	3
BIO 110, HPR 145 or NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Requirements	Hours
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDP 301 Education in American Culture	3

Speech Pathology Area Requirements	Hours
EDS 250 Introduction to Special Education	4
EDS 277 Introduction to Disorders of Speech and Language	3
SP 285 Applied Phonetics	3
EDS 378 Anatomy and Physiology of Speech	3
EDS 379 Fundamentals of Hearing	3
EDS 380 Pathologies of the Auditory System	3
EDS 381 Introduction to Management Procedures in Speech Pathology	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 and Language Development	3
EDS 512 Language Disorders I	3
EDS 585 Sociolinguistics or	3
PSY 529 Psycholinguistics	3
EDS 516 Principles of Behavior Management with Exceptional Children	2
EDS 587 Audiometry	3
EDS 588 Disorders of Articulation	3
EDS 589 Cleft Palate	3

Elective courses

Students select up to 26 semester hours from areas such as special education, linguistics, psychology, and allied health professions.

Certification and the Master's Degree

Upon completion of the B. A. degree and with admission to the master's program* the following courses are required 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 (Student Teaching)	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, University of Kentucky, Lexington, Kentucky 40506.

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 is provided and the Ed.D. is offered as a part of the College-wide doctorate. At the doctoral level one may concentrate on: 1) administration and supervision, 2) curriculum, 3) teacher education, 4) research, and 5) vocational guidance.

VOCATIONAL AGRICULTURE

See Agricultural Education listed under the College of Agriculture.

BUSINESS AND OFFICE EDUCATION (Noncertificate)

A student may wish to follow one of the following programs:

	Hours
Administrative Secretary	51
Office Administration	51

Students wishing to pursue either of these programs should enroll in the College of Education for a four-year degree program in business and office education and consult an adviser.

General Studies Component

A student is required to complete five of the eight General Studies areas.

Special Studies Requirements	Hours
Freshman English	6
PSY 100 Introduction to Psychology	4
SP 181 Basic Public Speaking or	
COM 101 Introduction to Communications	3

Special Curriculum Requirements	Hours
EDP 202 Human Development and Learning	3
EDF 301 Education in American Culture	3
ENG 103 Writing for Business and Industry	3
STA 200 Statistics: A Force in Human Judgment	3
BA 340 Law, Business, and Society	3
For Administrative Secretary:	
ENG 201 Etymology	3
PSY 502 Introduction to Industrial Psychology or	
PSY 503 Psychology of Industrial Personnel Procedure	3
For Office Administration:	
PSY 502 Introduction to Industrial Psychology	3
PSY 503 Psychology of Industrial Personnel Procedure	3

Major Requirements in Academic Area — Hours

The student in business and office education may follow one of the following areas of concentration:

1. Administrative Secretary

Required Courses (39 hours from the following; consult adviser)

BOE 112 Theory and Principles of Shorthand	3
BOE 113 Intermediate Shorthand and Transcription	3
BOE 117 Typewriting	3
BOE 118 Advanced Typewriting	3
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
BOE 209 Secretarial Applications of Accounting	4
BOE 214 Advanced Shorthand Transcription	3
BOE 215 Administrative Secretarial Procedures	3
BOE 219 Office Machines	3
ECO 260 Principles of Economics I	3
BOE 445 Office Administration and Services	3
BOE 519 Records Management	3
BOE 556 Business Reports and Communications	3

Suggested Electives (12 hours; consult adviser)

BOE 301-303 Office Internship	1 ea.
BA 330 Marketing Management	3
BA 335 Business Management	3
BA 341 Business Law I	3
BA 351 Introduction to Business Data Processing	3
BOE 395 Individual Work in BOE	1-3

2. Office Administration

Required Courses (39 hours from the following; consult adviser)

BOE 117 Typewriting	3
BOE 118 Advanced Typewriting	3
ACC 201 Principles of Accounting	3
ACC 202 Principles of Accounting	3
BOE 219 Office Machines	3
ECO 260 Principles of Economics I	3
ECO 261 Principles of Economics II	3
ACC 301 Intermediate Accounting I	5
BA 536 Applied Personnel Management	3
BA 335 Business Management	3
BA 341 Business Law I	3
BOE 445 Office Administration and Services	3
BOE 519 Records Management	3
BOE 556 Business Reports and Communications	3

Suggested Electives (12 hours; consult adviser)

BA 351 Introduction to Business Data Processing	3
BOE 395 Individual Work in BOE	1-3
ACC 408G Cost Accounting	3
ACC 417G Income Taxation	4
BA 435 Analysis of Organizational Behavior	3
BA 551 Advanced Business Data Processing and Information Systems	3
BA 330 Marketing Management	3

BUSINESS EDUCATION

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements — Hours

Freshman English 6
Communication & Humanities (If Area IV is taken, this three hours must be in literature) 3
SP 181 or COM 101 3
BIO 110, HPR 145 or NFS 101 3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.
PSY 100 4

Major Requirements in Academic Area

The student in business education may follow any one of the following programs:

1. Secretarial—30-hour major plus a minor or support area.
2. General Business—30-hour major plus a minor or support area.
3. Accounting—30-hour major plus a minor or support area.
4. Area of Concentration—48 hours including all courses required in secretarial major plus one additional course in accounting (for a total of nine hours in accounting); nine additional hours in general business, and six hours of electives chosen with the aid of the adviser.

Secretarial Sequence Major — Hours

Required Courses:
BOE 117 Typewriting 3
BOE 118 Advanced Typewriting 3
BOE 112 Theory and Principles of Shorthand 3
BOE 113 Intermediate Shorthand and Transcription 3
BOE 214 Advanced Shorthand Transcription 3
ACC 201 Principles of Accounting 3
BOE 209 Secretarial Applications of Accounting or 4
ACC 202 Principles of Accounting 3
BOE 219 Office Machines 3
BOE 445 Office Administration and Services 3
ECO 260 Principles of Economics I 3
Suggested Electives:
BOE 215 Administrative Secretarial Procedures . . . 3
BOE 301-303 Office Internship . . . . . each 1
BOE 395 Individual Work in BOE 1-6
BOE 519 Records Management 3
BOE 556 Business Reports and Communications . . 3
ACC 202 Principles of Accounting 3
ECO 261 Principles of Economics II 3
BA 330 Marketing Management 3
BA 335 Business Management 3
BA 341 Business Law I 3
BA 456G World Business 3

General Business Sequence Major — Hours

Required courses:
ACC 201 Principles of Accounting 3
ACC 202 Principles of Accounting or 3
BOE 209 Secretarial Applications of Accounting . . 4
ECO 260 Principles of Economics I 3
ECO 261 Principles of Economics II 3
BOE 117 Typewriting 3
BOE 118 Advanced Typewriting 3
BOE 219 Office Machines 3
Suggested Electives:
ACC 301 Intermediate Accounting 5
BA 330 Marketing Management 3
BA 335 Business Management 3
BA 341 Business Law I 3
BA 345 Corporation Fianance 3
BA 456G World Business 3
BOE 395 Individual Work in BOE 1-6
BOE 445 Office Administration and Services 3
BOE 519 Records Management 3
BOE 556 Business Reports and Communications 3

Accounting Sequence Major

Persons who wish to complete a teaching major should follow the program outlined for accounting majors in the College of Business and Economics. In addition they should consult a business education adviser in the College of Education no later than the first semester of their junior year.

Minor and Support Areas—In addition to completing a major, a student must complete:

1. A minor in English (24 hours), accounting* (21 hours), economics (21 hours) or mathematics (21 hours)
2. Two support areas of 12 hours each, chosen from the courses listed for a minor in the following:
   Accounting* (above ACC 201/202 and BOE 209)
   Data Processing (ACC 324, BA 551, CS 150, CS 250, CS 440)
   Economics (above ECO 260 and 261)
   English
   Marketing (BA 330, BA 332, BA 335, BA 431, BA 432, BA 434)
   Mathematics
   Psychology (above 100)
   Sociology

*For secretarial or general business majors.

Professional Education Sequence — Hours

1. Area of Concentration
EDV 210 Introduction to Vocational Education 3
EDP 202 Human Development and Learning 3
EDU 203 Teaching Exceptional Learners in Regular Classrooms 3
EDV 513 Teaching Typewriting and Clerical Practice 3
EDV 514 Teaching General Business Subjects in Secondary School 3
EDV 393 Student Teaching in Business Education 12

2. Secretarial Majors
All courses required in area of concentration plus the following recommended elective:
EDV 511 Teaching Secretarial Subjects 3

3. General Business or Accounting Majors
All courses required in area of concentration **except** for substitution of EDV 512, Teaching Bookkeeping and Accounting (three hours), for EDV 513.

DISTRIBUTIVE EDUCATION

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements — Hours

Freshman English 6
Communication & Humanities (If Area IV is taken, this three hours must be in literature) 3
SP 181 or COM 101 3
BIO 110, HPR 145 or NFS 101 3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.
PSY 100 4

Professional Education Sequence — Hours

The following courses should be taken in sequence:
EDV 210 Introduction to Vocational Education 3
EDP 202 Human Development and Learning 4
EDU 203 Teaching Exceptional Learners in Regular Classrooms 3
EDV 516 Problems of the Coordinator in Vocational Education 3
EDV 517 Determining Teaching Content in Distributive Education 3
EDV 528 Technique of Teaching Distributive Education 3
EDV 380 Student Teaching in Distributive Education 9

Education Electives: — Hours

If needed, electives are usually chosen from the following:
EDC 544 Utilization of Educational Media 3
EDV 535 Principles and Philosophy of Vocational Education 3
IND 525 Supervised Work Experience in Business or Industry 3
EDP 548 Educational Psychology 3

Area of Concentration in Distributive Education (48 hours)

Required (31-32 hours) — Hours

ACC 201 Principles of Accounting 3
A-S 340 Visual Communication Design or 3
HED 101 Visual Awareness I 3
BA 330 Marketing Managment 3
BA 335 Business Management 3
BA 340 Law, Business, and Society or 3
BA 341 Business Law I 3
BA 432 Marketing Strategy and Planning 3
BA 536 Applied Personnel Management 3
ECO 260 Principles of Economics I 3
ECO 261 Principles of Economics II 3
JOU 203 Principles of News Writing 3
SP 183 Parliamentary Usage 2

Electives (16-17 hours) chosen from:

ACC 202 Principles of Accounting 3
BA 336 Survey of Personnel and Industrial Relations 3
BA 340 Law, Business, and Society* 3
BA 341 Business Law I* 3
BA 345 Corporation Finance 3
BA 351 Introduction to Business Data Processing . 3
BA 431 Contemporary Marketing Problems 3
BA 434 Advanced Marketing Research 3
BA 435 Analysis of Organizational Behavior 3
BA 456G World Business 3
ECO 465G Comparative Economic Systems 3
ECO 477G Labor Economics 3
SOC 493G Social and Cultural Determinants of Economic Growth and Development 3
HET 412 Merchandising I—Promotion 3
JOU 561 Newspaper and Magazine Advertising . . . 3

*BA 340 or 341 may be selected as a required course. The other may be taken as an elective.

VOCATIONAL HOME ECONOMICS

Listed under the College of Home Economics.

INDUSTRIAL EDUCATION—PREPARATION LEVEL

General Studies Component (Minimum of 32 hours)

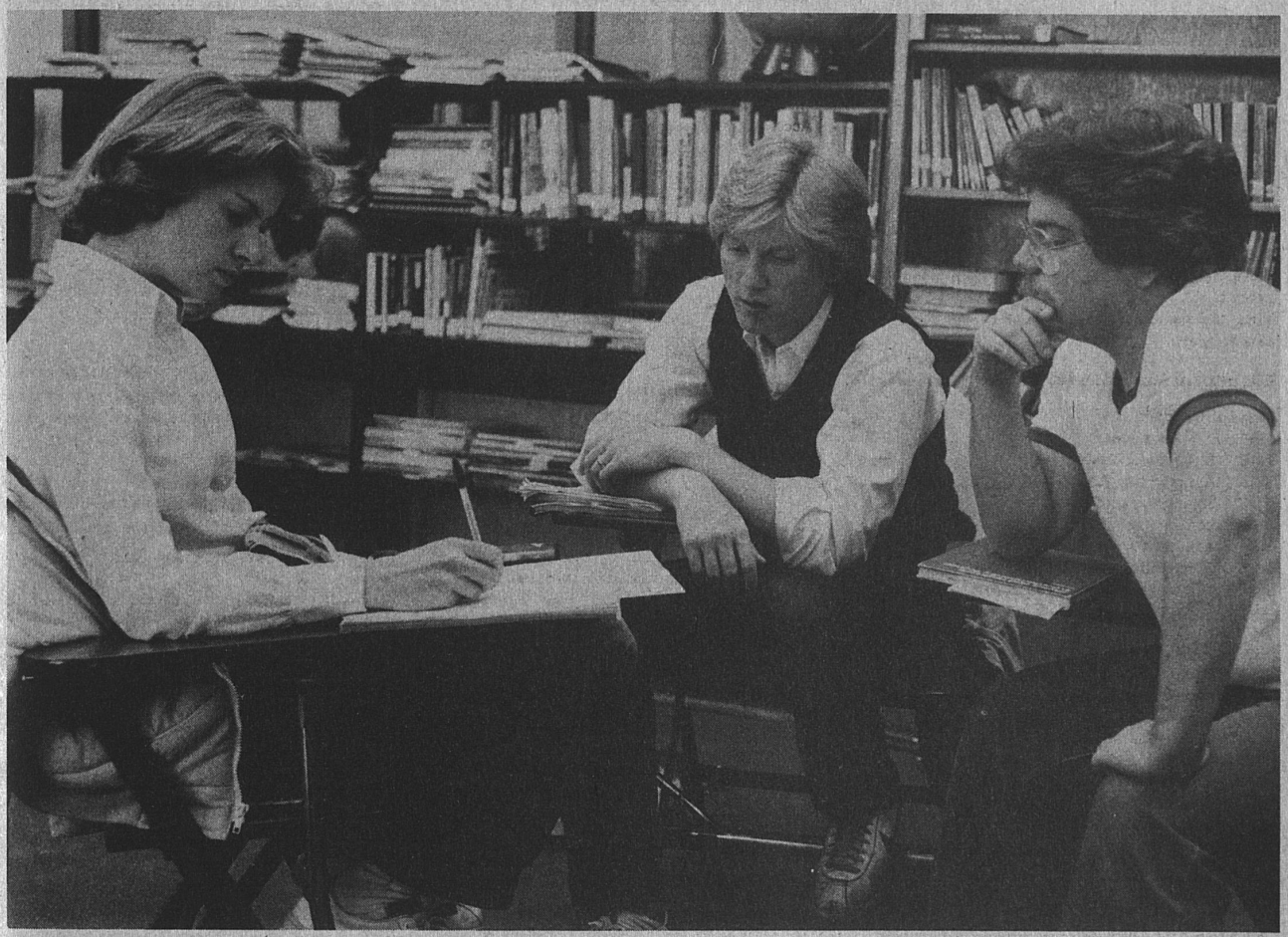
A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI and VII.

Special Studies Requirements	Hours
Freshman English	6
Communication & Humanities (If Area IV is taken, this three hours must be in literature)	3
SP 181 or COM 101	3
BIO 110, HPR 145 or NFS 101	3
Any one of these three courses will meet the health requirement for certification. However, BIO 110 will also fulfill one-half of the Area III requirement.	
PSY 100	4

Professional Education Requirements (29 hours)

	Hours
EDV 109 Instructional Materials in Industrial Education	3
EDV 110 Principles of Industrial Teaching	3
EDP 202 Human Development and Learning	3
EDU 203 Teaching Exceptional Learners in Regular Classrooms	3
EDF 301 Education in American Culture	3
EDV 210 Introduction to Vocational Education or	3
EDV 535 Principles and Philosophy of Vocational Education	3
EDV 224 Techniques of Teaching Industrial Education or	3
EDV 518 Methods in Industrial Education	3
EDV 352 Student Teaching for Industrial and Educational Training Directors	8

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 (Consult with Department head about occupational experience requirements.)	12



ENGINEERING

Roger Eichhorn, Ph.D., is Dean of the College of Engineering. Robert G. Grieves, Ph.D., is Associate Dean for Administration and for Graduate Affairs and Research. David K. Blythe, M.S., is Associate Dean of Continuing Education and Extension. Lyle N. Back, M.S., is Associate Dean for Undergraduate Affairs and Admissions.

The College of Engineering offers programs leading to the Bachelor of Science degree and graduate degrees in agricultural, chemical, civil, electrical, mechanical, metallurgical, and mining engineering and graduate degrees in engineering mechanics and nuclear engineering. 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 6000 degrees have been awarded in the various fields of engineering. Among these 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.

HIGH SCHOOL PREPARATION

While the admission policy of the College, as given below, does not require specific courses or grades in high school studies, each student is urged to complete the following as a *minimum*.

Mathematics—two units of algebra, one of geometry, and one-half unit of trigonometry.

Science—one or more units of chemistry and physics.

English—Each student should do everything possible to learn to communicate through the use of the English language, both written and oral.

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. However, certain engineering programs have additional admission requirements. These additional requirements are listed separately at the end of the common criteria for admission. 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 from a non-English speaking country is required to take the Test of English as a Foreign Language (TOEFL) and must have a mimimum 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 at least one year prior to graduation. (See Minimum Requirements for Graduation.)

Lower Division Admission

A. High school applicants or transfer applicants not covered in B. below must meet all the following minimum admission criteria: (1) An ACT composite score at or above the 50th percentile on national (college bound) norms. (However, if the ACT composite is between 35-50 percentile, admission may be *considered* if the sum of the mathematics and science ACT scores totals 100 or more using national norms.) (2) An ACT mathematics score at or above the 50th percentile on national (college bound) norms.

B. Transfer applicants with at least 24 college semester credit hours including at least nine semester hours of mathematics, chemistry, and/or physics applicable to an applicant's degree program must meet the following minimum admission criteria: (1) Students from UK Community Colleges and other UK programs: (a) Cumulative grade-point average of at least 2.0 and (b) Grade-point average of at least 2.0 in the group of courses made up of the mathematics, chemistry, physics, and English applicable to the degree program. (2) Transfer applicants from other universities and colleges will be evaluated for admission on an individual basis. Evaluation will be based on an applicant's cumulative grade-point average on all college work attempted and upon individual grades in English, mathematics, chemistry, physics, and engineering-related courses which the appli-

cant may have completed at the time application is made.

Upper Division Admission

A. **Admission from Lower Divison:** Students enrolled in the lower division of a degree program will progress to the upper division upon meeting the following criteria: (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 degree program requirements with a minimum grade-point average of 2.0: freshman English, freshman chemistry course sequence, physics course sequence, calculus course sequence.

B. **University of Kentucky Transfer Admissions:** Students in other degree program areas within the College, students identified as being enrolled in a pre-engineering program in a UK Community College, and students in other on-campus UK colleges, will be admitted to the upper division on the same basis as A. above.

C. **Dual Degree Transfer Admission:** Students who have been identified as being officially enrolled in a formal dual degree program (3-2 program) in an institution having such program agreement with the College of Engineering will be admitted to the upper division on the same basis as A. above if they are recommended by the program director at their first institution.

D. **General Transfer Admission:** A student from outside the University of Kentucky who wishes to transfer to the College of Engineering and be accepted directly into the upper division of a degree program must submit application along with official transcripts showing all college work attempted. Each applicant will be considered on an individual basis and will be admitted based on his or her qualifications and available space in the specific upper division engineering program for which application is made.

Additional Specific Program Admission Requirements

Civil Engineering and Mining Engineering
Lower Division Admission of transfer applicants from other universities and colleges: Space available in the program will also be considered.

Upper Division Admission, from Lower Division (2): Include Statics (EM 221) in addition to other already listed required program courses, and earn a grade of C or better in any civil engineering or mining engineering (or equivalent) course used to satisfy a degree requirement.

Electrical Engineering
Upper Division Admission from Lower Divison: Completion of EE 211, EE 221, and EE 222 with a grade of C or better in each course.

Admission Application Deadlines

This admission process requires strict observance of the University's normal application deadlines. Applications for admission to one of these programs in the College of Engineering must be received by the University of Kentucky Dean of Admissions according to the following schedule:

For Fall Semester by June 1
For Spring Semester by October 15
For Summer School by April 1

REGULAR PROGRAM OF CONTINUOUS STUDY

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 at either summer school or an additional semester to complete the requirements for a degree.

Students who are required to complete courses not listed in the degree programs of their choice will find it increasingly difficult to complete these requirements in four years as the number of nondegree courses increases. This is particularly true of the transfer student who attended an institution requiring basic ROTC, one year of physical education, and additional courses such as health, Bible, etc. While these are excellent courses, most of which are offered by the University of Kentucky, such a group usually adds 12 or more credits of work which is approximately four-fifths of an average semester load. For other than the exceptional student, this will add an additional semester to the time required for the degree. These time periods may be shortened by attending summer sessions, provided the desired courses are offered.

COMBINED DEGREE PROGRAM

The College of Engineering has initiated formal three-two-year combination dual degree programs with other academic institutions throughout the state. Joint programs are presently being offered with Centre College, Cumberland College, Eastern Kentucky University, Georgetown College, Kentucky State University, Morehead State University, Northern Kentucky University, Thomas More College, Transylvania University and Union College. The program enables students to enroll in a prescribed 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 PROGRAM OF WORK-STUDY

The College participates in a cooperative education program administered by the University Placement Service. Those students wishing to take part in such a program should contact the Placement Service.

CONTINUING EDUCATION AND EXTENSION

The College 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 "up-to-date" 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 include the following:

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 will be 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 Mechanical Engineering
Bachelor of Science in Metallurgical Engineering
Bachelor of Science in Mining Engineering

All of these programs except the Mining Engineering Program are fully accredited by the Accreditation Board for Engineering and Technology. The mining program, being only recently reactivated, must wait a prescribed interval of time before it can seek accreditation.

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. This is designed to allow each student to apply the fundamentals of a particular department to an area of special interest during the senior year.

A student in any department interested in biomedical engineering may make special arrangements with their adviser to include a limited amount of such studies in his 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 math or PHY 211.

Graduate programs in the engineering fields of study are listed in the *Graduate School* section of the University Bulletin.

MINIMUM REQUIREMENTS FOR GRADUATION

To be awarded the Bachelor of Science degree in any of the fields of engineering a student must meet the following requirements:

1. Complete the University and College requirements relating to English and General Studies.

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 30 of the last 36 credit hours *after* being admitted to the upper division of that program.

Additional Departmental Graduation 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 graduation requirement for completion of 30 of the last 36 credit hours after being admitted to the upper division will be waived for the second degree provided the student completes a minimum of 15 credit hours of departmentally approved courses after being admitted to the upper division of that program.

3. To earn a second degree, a student must complete all degree requirements in that program.

General Studies and ABET Requirements

The General Studies component, required by the University of all students, stipulates a specified sequence of courses from at least five of eight areas listed. Approved General Studies courses are listed below.

A student who expects to graduate from the College of Engineering also must meet a requirement of the Accreditation Board for Engineering and Technology (ABET), the accrediting agency for engineering colleges. All programs must include at least 18 credits of humanistic-social studies.

The engineering student, in meeting the technical requirements of the department in which he wishes to earn a degree, will automatically complete two of the five required General Studies sequences—Area I, Mathematics-Philosophy, and Area II, Physical Sciences. This leaves a requirement of a sequence of three of the remaining six general study areas.

Courses listed in Areas IV through VIII of the General Studies meet the ABET definition of humanistic-social studies, but courses listed in Area III do not meet that definition. Therefore, if the student restricts the remaining 18 credit hours to Areas IV through VIII, both requirements will be completed. The student who wishes to elect courses in the biological sciences, Area III, may do so. However, those courses cannot be used to meet degree requirements unless they are specified in the curriculum of the student's choice, as is shown in agricultural engineering, or unless they are used as "supportive electives."

It should be noted that the foreign language requirements may be met by completing the fourth semester in one language. Freshman foreign language does not meet either of the requirements discussed herein.

AGRICULTURAL ENGINEERING

The curriculum in agricultural engineering is administered jointly by the College of Engineering and the College of Agriculture. Course descriptions are listed under agriculture in the University catalog.

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

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, the

following curriculum meets the requirements for a B.S. in agricultural engineering.

Freshman Year

First Semester	Hours
ENG 101 Freshman Composition	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
General Studies*	3
Second Semester	
MA 114 Calculus II	4
CHE 107 General College Chemistry II	3
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
CS 221 First Course in Computer Science for Engineers	2
General Studies*	3

Sophomore Year

First Semester	Hours
MA 213 Calculus III	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
EM 221 Statics	3
AEN 100 Introduction to Surveying	1
ENG 104 Technical Writing	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
General Studies*	3

Junior Year

First Semester	Hours
ME 330 Fluid Mechanics	3
EM 313 Dynamics	3
EE 305 Electrical Circuits and Electronics **or** EE 306 Electrical Circuits and Machinery	3
General Studies*	3
Technical Elective††	3
Second Semester	
AEN 417G Intro to Design of Agri Machinery	3
AEN 437G Soil and Water Conservation Engr	3
ME 325 Elements of Heat Transfer	3
General Studies*	3
Biological Science Elective**	3
Supportive 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
General Studies*	3
Elective (MA, STA, or CS)***	3
Technical Electives††	4-6
Second Semester	
Supportive Elective†	3
Technical Electives††	12
Total	129-131

*Select from General Studies Areas IV-VIII in consultation with academic adviser. It is suggested that one of these sequences be in economics and one in humanities or history.

**Select from an approved list of biological science electives.

***Select from an approved list of mathematics, statistics or computer science electives.

†Supportive electives are to be chosen from any University courses, excluding more elementary versions of required courses such as pre-calculus math or PHY 211.

††A minimum of 19 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 six hours must be in courses classified as engineering or basic science and at least six hours must be in those classified as engineering design.

Technical Electives 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.

1. Engineering and Basic Science: AEN 406G, 503, 536, AGR 366, 575, ASC 378, 530, 534, BIO 476G, CHE 236, CME 412, 462, CE 301, 425G, 550, 553, EE 305, 306, EM 351, 513, 531, ME 321, 343, 565, 566, MET 201.
2. Engineering Design and Analysis: AEN 505, 519, 525, 536, 548, 550, 568, 599, CE 351, 355, 380, 385, 559, 568, ME 341, 344.
3. General: AEN 450, ASC 536, 538; BIO 350, 530; CE 555; ME 358.

Biological Science Electives: The listed courses are recommended; however, other courses will be considered, each on its individual merit. AGR 386, 366; BIO 103, 104, 106, 108, 109, 276; 476G, GEN 104, 106.

Mathematics, Statistics or Computer Science: The listed courses are recommended; however, other courses will be considered, each on its individual merit. MA 262; MA/STA 320; CS/MA 321; MA 322, 432G, 481G; STA 381.

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 satisfies requirements for the B.S. in chemical engineering, including the general requirements of the University.

Freshman Year

First Semester	Hours
CME 001 The Engineering Profession	0
CHE 105 General College Chemistry I	3
ENG 101 Freshman Composition	3
MA 113 Calculus I	4
General Studies*	3
General Studies*	3
Second Semester	
CME 002 The Engineering Profession	0
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
MA 114 Calculus II	4
General Studies*	3
General Studies*	3

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	3
PHY 241 General University Physics Laboratory	2
Supportive Elective**	3
Second Semester	
CME 210 Process Principles II	2
CHE 231 Organic Chemistry Laboratory	1
CHE 232 Organic Chemistry	3
EM 221 Statics	3
MA 214 Calculus IV	3
PHY 232 General University Physics	3

Junior Year

First Semester	Hours
CME 220 Engineering Thermodynamics	3
CHE 440G Physical Chemistry	3
CS 221 Computer Science for Engineers	2
ME 330 Fluid Mechanics	3
General Studies*	3
Supportive Elective**	3
Second Semester	
CME 006 The Engineering Profession	0
CME 412 Staged Mass Transfer Processes	2
CME 422 Rate Mass Transfer Processes	3
CHE 441G Physical Chemistry Lab	2
ENG 104 Technical Writing	3
ME 325 Elements of Heat Transfer	3
MET 201 Materials Science	3

Senior Year

First Semester	Hours
CME 007 The Engineering Profession	0
CME 431 Chemical Engineering Laboratory I	2
CME 455 Chemical Engineering Process Design I	3
CME 550 Chemical Reactor Design	3
CME 570 Chem Sep and Measure for Chem Engr	3
Elective (Mathematics)	3
General Studies*	3
Second Semester	
CME 008 The Engineering Profession	0
CME 432 Chemical Engineering Laboratory II	2
CME 456 Chemical Engineering Process Design II	3
CME 462 Process Control	3
EE 305 Electrical Circuits and Electronics	3
Elective (CME)	3
Supportive Elective**	3

*Select from General Studies areas IV, V, VI, VII, or VIII in consultation with academic adviser.

**Supportive Electives are to be chosen from any University courses, excluding more elementary versions of required courses, such as precalculus math or PHY 211.

Technical Electives: Courses recommended as Chemical Engineering technical 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 Prob
CME 515 Air Pollution Control
CME 520 Equilibrium Thermodynamics

CME 530 Transport I
CME 552 Polymeric Materials
CME 555 Advanced Chem 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, mining engineering, structural engineering, surveying and photogrammetry, transportation engineering, and water quality engineering.

Degree Requirements

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, the following curriculum meets the requirements for a B.S. in civil engineering.

Freshman Year

First Semester	Hours
CE 101 The Civil Engineering Profession	1
MA 113 Calculus I	4
ME 105 Basic Engineering Graphics	2
CHE 105 General College Chemistry I	3
ENG 101 Freshman Composition	3
General Studies Elective*	3
Second Semester	
CE 100 Plane Surveying	3
MA 114 Calculus II	4
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
CHE 107 General College Chemistry II	3

Four-Week Intersession

CE 215 Route, Control, and Topographic Surveying	4

Sophomore Year

First Semester	Hour
CS 221 Computer Science for Engineers	2
EM 221 Statics	3
MA 213 Calculus III	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
ENG 104 Technical Writing	3
Second Semester	
CE 206 Descriptive Geometry	2
EM 302 Mechanics of Deformable Solids	3
EM 303 Deformable Solids Laboratory	1
MA 214 Calculus IV	3
ME 220 Engineering Thermodynamics I	3
MET 201 Materials Science	3
General Studies Elective*	3

Junior Year

First Semester	Hours
CE 301 CE Materials I	2
CE 380 Structural Mechanics	3
EM 313 Dynamics	3
GLY 240 Elementary Geology for Engineers	4
ME 330 Fluid Mechanics	3
General Studies Elective*	3
Second Semester	
CE 340 Transportation Engineering	3
CE 351 Hydraulic Applications and Experiments	2
CE 355 Water Quality Engineering	3
CE 425G Soil Mechanics	3
Math Elective**	3
Technical Elective†	3

Senior Year

First Semester	Hours
Technical Elective†	3
Electrical Engineering Elective††	3
Supportive Elective†††	3
General Studies Electives*	6
Second Semester	
CE 371 Seminar	1
Design Elective††††	3
Supportive Elective†††	3
General Studies Elective*	3
Technical Electives†	6

*Three areas from General Studies areas IV, V, VI, VII, or VIII.

**The mathematics elective is to be chosen from the following: MA 432G, 433G, 481G; STA 320, 381, 482G; CS/MA 416G, 321.

†The technical electives are to be chosen from the courses listed below.

††The electrical engineering elective is to be chosen from EE 305 or EE 306.

†††The supportive electives are to be chosen from any University courses excluding more elementary versions of required courses, such as precalculus math or PHY 211.

††††The engineering design elective is to be chosen from the following: CE 489G, 528, 543, 550, 559, MIN 562.

Technical Electives: Courses recommended as technical electives are listed below. Other courses will be considered, each on its individual merit.

CE 305 Construction Planning and Management
CE 395 Independent Work in Civil Engineering
CE 483 Civil Engineering Systems Analysis
CE 485G Design of Timber Structures, Formwork and Falsework
CE 487G Steel Structures
CE 489G Design of Structures
CE 492G Reinforced Concrete
CE 515 Advanced Surveying
CE 519 Boundary Location Principles
CE 523 Photogrammetry
CE 528 Geotechnical Engineering
CE 529 Intermediate Fluid Mechanics
CE 540 Pavement Analysis and Design
CE 543 Development of Transportation Facilities
CE 545 Civil Engineering Materials II
CE 550 Engineering Hydraulics
CE 553 Hydrology
CE 554 Hydraulic Structures
CE 555 Engineering Economy
CE 559 Water Quality Control Facilities Design
CE 568 Water Quality Control Laboratory I
CE 580 Advanced Structural Mechanics
CE 599 Topics in Civil Engineering
EM 503 Introduction to Continuum Mechanics
EM 513 Mechanical Vibrations
EM 531 Advanced Strength of Materials
EM 532 Experimental Stress Analysis
MIN 222 Mine Law and Safety
MIN 322 Coal Preparation
MIN 332 Mine Plant Machinery
MIN 341 Mine Ventilation
MIN 395 Independent Work in Mining Engineering
MIN 451G Physical Properties of Rock
MIN 551 Rock Mechanics
MIN 561 Underground Construction I
MIN 562 Mine Design Project*
MIN 563 Surface Mining
MIN 572 Advanced Coal Preparation
MIN 581 Mine Valuation
MIN 599 Topic in Mining Engineering

ELECTRICAL ENGINEERING

The Electrical Engineering program includes courses dealing with the analysis and design of equipment ranging from electronic circuits and machinery to microwave and optical devices. Fundamentals of communication theories, electronic devices, quantum electronic devices, computers, digital engineering, and fields and waves are also concerns of the electrical engineering program.

Degree Requirements

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, the following curriculum meets the requirements for a B.S. in electrical engineering.

Freshman Year

First Semester	Hours
EE 001 The Engineering Profession	0
MA 113 Calculus I	4
CHE 105 General College Chemistry I	3
ME 105 Basic Engineering Graphics	2
ENG 101 Freshman Composition	3
General Studies*	3
Second Semester	
MA 114 Calculus II	4
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2

Sophomore Year

First Semester	Hours
CS 221 Computer Science for Engineers	2
MA 213 Calculus III	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
EE 211 Circuits I	3
General Studies*	3
Second Semester	
MA 214 Calculus IV	3
EM 221 Statics	3
EE 221 Circuits II	3
EE 222 Electrical Engineering Laboratory I	2
ENG 104 Technical Writing	3
General Studies*	3

Junior Year

First Semester	Hours
EE 420G Electrical Engineering Analysis I	3
EE 461G Electronic Circuits I	3
EE 462G Electrical Engineering Laboratory II	2
EE 467G Electrical and Magnetic Fields	3
EM 313 Dynamics	3
MET 412 Electronic Properties of Materials	3
Second Semester	
EE 415G Electromechanics I	3
EE 416G Electrical Engineering Laboratory III	2
EE 480G Logical Design	3
EE 468G Fields and Waves	3
ME 220 Engineering Thermodynamics I	3
General Studies*	3

Senior Year

First Semester	
Technical Elective**	3
EE 471G Linear Feedback Control Systems	3
EE 403G Advanced EE Laboratory I	2
General Studies*	3
Supportive Elective***	3
Technical Elective**	3
Second Semester	
EE 371 Seminar	1

Technical Elective** 3
Technical Elective** 3
Technical Elective** 3
Supportive Elective*** 3
General Studies* 3

*Select from General Studies areas IV, V, VI, VII, or VIII in consultation with academic adviser.

**All electives are to be selected in consultation with the academic adviser.

***Supportive electives are to be chosen from any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

Technical Electives

The courses recommended as technical electives are listed below. Other courses will be considered, each on its individual merit.

EE 503 Advanced Electrical Engineering Lab II
EE 511 Introduction to Communication Systems
EE 512 Digital Communication Systems
EE 517 Electrical Machinery II
EE 520 Electrical Engineering Analysis II
EE 522 Antenna Design
EE 523 Microwave Circuit Design
EE 537 Electric Power Systems I
EE 538 Electric Power Systems II
EE 560 Semiconductor Device Design
EE 561 Solid State Engineering
EE 562 Electronics Circuits II
EE 563 Communication Circuits Design
EE 564 Electronic Circuits III
EE 567 Introduction to Lasers and Masers
EE 571 Nonlinear Sampled-Data Control Systems
EE 581 Advanced Logical Design
EE 583 Microprocessors
EE 595 Independent Problems
EE 599 Topics in Electrical Engineering

Students may use up to six hours of upper division mathematics, statistics, computer science, physics or other technically related fields.

ENGINEERING MECHANICS

The Department teaches undergraduate courses in the general area of solid mechanics, some of which are required by most of the curricula in the other engineering departments and others which 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. See The Graduate School Bulletin for more information.

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 thermodynamics, fluid mechanics, dynamics, 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

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, the following curriculum meets the requirements for a B.S. degree in mechanical engineering.

Freshman Year

First Semester	Hours
ME 001 The Engineering Profession	0
ME 105 Basic Engineering Graphics	2
CHE 105 General College Chemistry I	3
MA 113 Calculus I	4
ENG 101, 102, 105 Freshman Composition	3
General Studies*	3
Second Semester	
ME 151 Manufacturing Engineering	3
CHE 107 General College Chemistry II	3
CHE 115 General Chemistry Laboratory	3
MA 114 Calculus II	4
General Studies	3

Sophomore Year

First Semester	Hours
PHY 231 General University Physics	3
PHY 241 General University Physics Laboratory	2
MA 213 Calculus III	4
ECO 260 Principles of Economics I	3
CS 221 Computer Science for Engineers	2
ENG 104 Technical Writing	3
Second Semester	
ME 220 Engineering Thermodynamics I	3
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2
MA 214 Calculus IV	3
EM 221 Statics	3
General 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
MET 201 Materials Science	3
Second Semester	
ME 310 Engineering Experimentation I	3
ME 344 Mechanical Design	3
EE 305 Electrical Circuits and Electronics	3
Elective (Mathematics)**	3
Technical Elective**	3
General Studies*	3

Senior Year

First Semester	Hours
ME 007 The Engineering Profession	0
ME 311 Engineering Experimentation II	3
ME 325 Elements of Heat Transfer	3
ME 343 Control Theory	3
ME 371 Seminar	1
EE 306 Electrical Circuits and Machinery	3
Technical Elective**	3
Second Semester	
ME 008 The Engineering Profession	0
ME 312 Engineering Experimentation III	3
Technical Elective**	3
Supportive Elective***	3
Supportive Elective or General Studies*	3
General Studies*	3

*Select from General Studies areas IV, V, VI, VII, or VIII in consultation with academic adviser.

**All electives to be selected in consultation with the academic adviser.

***The supportive electives are to be chosen from any University courses, excluding more elementary versions of required courses such as pre-calculus math or PHY 211.

Technical Electives

ME 341 Machine Design
ME 346 Mechancial Systems Design
ME 347 Dynamic Analysis of Design Problems
ME 350 Safety Engineering
ME 352 Plant Layout
ME 356 Motion and Time Study
ME 358 Economic Analysis of Mechanical Systems
ME 359 Management Engineering
ME 360 Internal Combustion Engines
ME 366 Thermal Power Systems
ME 380 Topics in Mechanical Engineering
ME 381 Topics in Mechanical Engineering
ME 395 Independent Work in Mechanical Engr
ME 475G Introduction to Nuclear Engineering
ME 480G Thermal Environmental Engineering
ME 514 Nuclear Reactor Analysis I
ME 515 Fuel Management and Economics of Nuclear Reactors
ME 517 Instrumentation for Research
ME 529 Intermediate 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 563 Basic Combustion Phenomena
ME 564 Propulsion System Design
ME 565 Energy Engineering
ME 566 Direct Energy Conversion Processes
ME 567 Air Pollution Engineering and Economics
ME 568 Solar Energy Systems
ME 583 Biotechnology
ME 590 Elements of Aerospace Technology

Of the three technical electives provided for in the undergraduate program, students are required to select at least one from the above list. The other two technical electives, chosen with the approval of the student's adviser, often can be used to fulfill specific educational goals.

Mathematics Electives: To be chosen from a number of advanced courses, such as: MA 432G, Methods of Applied Mathematics I; MA 322, Matrix Algebra and Its Applications; MA 481G, Differential Equations I; MA/CS 321, Introduction to Numerical Methods; MA/CS 416G, Principles of Operations Research I; and STA 381, Introduction to Engineering Statistics.

METALLURGICAL ENGINEERING

As an individual, 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

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, the following curriculum meets the requirements for a B.S. in metallurgical engineering.

Freshman Year

First Semester	Hours
MET 001 The Engineering Profession	0
ENG 101 Freshman Composition	3

MA 113 Calculus I 4
CHE 105 General College Chemistry I 3
General Studies* 3
General Studies* 3

Second Semester
ENG 104 Technical Writing 3
MA 114 Calculus II 4
CHE 107 General College Chemistry II 3
CHE 115 General Chemistry Laboratory 3
PHY 231 General University Physics 3
PHY 241 General University Physics Laboratory . . 2

Sophomore Year

First Semester
MET 003 The Engineering Profession 0
MA 213 Calculus III 4
PHY 232 General University Physics 3
PHY 242 General University Physics Laboratory . . 2
ECO 260 Principles of Economics I 3
ME 105 Basic Engineering Graphics 2
CS 221 Computer Science for Engineers 2

Second Semester
MA 214 Calculus IV 3
CME 220 Engineering Thermodynamics 3
ECO 261 Principles of Economics II 3
CHE 236 Organic Chemistry 4
MET 201 Materials Science 3

Junior Year

First Semester
MET 361 Structure and Properties of Alloys I 3
MET 302 Materials Laboratory I 3
CHE 440G Physical Chemistry 3
EE 305 Electrical Circuits and Electronics 3
EM 221 Statics 3
General Studies* 3

Second Semester
MET 362 Structure and Properties of Alloys II 3
MET 442 Extractive Metallurgy 3
MET 303 Materials Laboratory II 3
MET 371 Seminar 1
EM 302 Mechanics of Deformable Solids 3
ME 330 Fluid Mechanics 3

Senior Year

First Semester	Hours
MET 412 Electronic Properties of Materials	3
MET 304 Materials Laboratory III	2
MET 535 Mechanical Metallurgy	3
Metallurgical Elective	3
Technical Elective	3
Supportive Elective**	3

Second Semester
MET 314 Metallurgical Analysis 2
MET 538 Deformation Processing 3
General Studies* 3
Metallurgical Elective 3
Technical Elective 3
Supportive Elective** 3

*Select from General Studies areas IV-VIII in consultation with your academic adviser.

**Supportive electives are to be chosen from any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

Metallurgical Electives: Courses recommended as metallurgical engineering Technical Electives are listed below. Other courses will be considered, each on its individual merit.

CHE 580 Topics in Chemistry
CME 560 Non-Newtonian Flow and Heat Transfer
MET 372 Seminar
MET 395 Independent Work in MET Engineering
MET 421 Solidification and Casting
MET 425 Ferrous Alloys Processing
MET 426 Nonferrous Alloys Processing
MET 443 Minerals Beneficiation
MET 451 Metallurgical Thermodynamics and Kinetics
MET 505 Viscoelasticity
MET 506 Mechanics of Composite Materials
MET 531 Powder Metallurgy
MET 532 Composite Materials
MET 534 Physical Structure of Polymers
MET 536 Ceramic Engineering
MET 539 Nuclear Metallurgy
MET 541 Advanced Extractive Metallurgy
MET 544 Introduction to Nondestructive Testing
MET 550 Corrosion
MET 551 Advanced Chemical Metallurgy
MET 552 Polymeric Materials
MET 553 Thermodynamics of Polymer Systems
MET 566 Crystallography and X-ray Metallography
MET 580 Material Selection and Failure Analysis
MET 599 Topics in Metallurgical Engineering and Materials Science

Electives may be selected which will meet the requirements for premedicine, prebusiness, predentistry and many others. Eighteen semester credit hours of electives are available.

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 broad knowledge of the field of mining through the required and elective courses.

Degree Requirements

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, the following curriculum meets the requirements for a B.S. in mining engineering.

Freshman Year

First Semester	Hours
MA 113 Calculus I	4
ME 105 Basic Engineering Graphics	2
MIN 121 Elements of Mining	3
CHE 105 General College Chemistry I	3
ENG 101 Freshman Composition	3

Second Semester
CE 100 Plane Surveying 3
MA 114 Calculus II 4
PHY 231 General University Physics 3
PHY 241 General University Physics Lab 2
CHE 107 General College Chemistry II 3

Four-Week Intersession

CE 215 Route, Control, and Topographic Surveying 4

Sophomore Year

First Semester	Hours
CE 206 Descriptive Geometry	2
EM 221 Statics	3
ENG 104 Technical Writing	3
MA 213 Calculus III	4
PHY 232 General University Physics	3
PHY 242 General University Physics Laboratory	2

Second Semester
EM 302 Mechanics of Deformable Solids 3
EM 303 Deformable Solids Laboratory 1
GLY 240 Elementary Geology for Engineers 4
MA 214 Calculus IV 3
ME 220 Engineering Thermodynamics I 3
General Studies Elective* 3

Junior Year

First Semester	Hours
CE 380 Structural Mechanics	3
CS 221 First Course inComputer Science for Engineers	2
ME 330 Fluid Mechanics	3
MIN 451G Physical Properties of Rock	2
General Studies Elective*	3
Math Elective†	3

Second Semester
CE 351 Hydraulic Applications and Experiments . . . 2
CE 355 Water Quality Engineering 3
GLY 420G Structural Geology 3
MIN 332 Mine Plant Machinery 3
MIN 341 Mine Ventilation 3
General Studies Elective* 3

Senior Year

First Semester	Hours
EE 306 Electrical Circuits and Machinery	3
MIN 322 Coal Preparation	3
MIN 551 Rock Mechanics	3
General Studies Elective*	3
Supportive Elective††	3
Technical Elective†††	3

Second Semester
MIN 371 Seminar 1
MIN 562 Mine Design Project 3
General Studies Electives* 6
Supportive Elective†† 3
Technical Elective††† 3

*Three areas from among General Studies areas IV, V, VI, VII or VIII.

†The mathematics elective is to be chosen from the following: MA 432G, 433G, 481G; STA 320, 381, 482G; CS/MA 321, 416G.

††The supportive electives are to be chosen from any University courses excluding more elementary versions of required courses such as precalculus math or PHY 211.

†††The technical electives are to be chosen from the courses listed below.

TECHNICAL ELECTIVES

MIN 222 Mine Law and Safety
MIN 395 Independent Work in Mining Engineering
MIN 561 Underground Construction I
MIN 563 Surface Mining
MIN 572 Advanced Coal Preparation
MIN 581 Mine Valuation
MIN 599 Topics in Mining Engineering
CE 301 Civil Engineering Materials I
CE 305 Construction Planning and Management
CE 340 Transportation Engineering
CE 395 Independent Work in Mining Engineering
CE 425G Soil Mechanics
CE 483 Civil Engineering Systems Analysis
CE 485G Design of Timber Structures, Formwork and Falsework
CE 487G Steel Structures
CE 489G Design of Structures
CE 492G Reinforced Concrete
CE 515 Advanced Surveying
CE 519 Boundary Location Principles
CE 523 Photogrammetry
CE 528 Geotechnical Engineering
CE 529 Intermediate Fluid Mechanics
CE 540 Pavement Analysis and Design
CE 543 Development of Transportation Facilities
CE 545 Civil Engineering Materials II
CE 550 Engineering Hydraulics
CE 553 Hydrology
CE 554 Hydraulic Structures
CE 555 Engineering Economy
CE 559 Water Quality Control Facilities Design
CE 568 Water Quality Control Laboratory I
CE 580 Advanced Structural Mechanics
CE 599 Topics in Civil Engineering
EM 531 Advanced Strength of Materials
MET 201 Materials Science

FINE ARTS

Richard C. Domek, Jr., Ph.D., is Acting 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, and the School of Music. It offers the following undergraduate degrees: Bachelor of Arts, Bachelor of Fine Arts (in Art Studio), Bachelor of Music in Applied Music, 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.), Applied Music (B.M.), Music Education (B.M.E.), Theatre (B.A.), or Individual Study (B.A.).

Departmental Minors

Students from any college may choose to minor in Art History, Art Studio, or Theatre. Requirements for these minors may be found under the departmental listings.

Interdisciplinary Minor in the Arts

For Students outside the College

Students 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 200 Introduction to Music	3
TA 101 Introduction to Theatre	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

Students 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.

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

1. Complete two semesters of Freshman English or equivalent.
2. Complete five areas of study chosen from the eight General Studies Areas of the University's Academic Program. (See the *Academic Program* section of this Bulletin and College Requirements listed below.)

College Requirements

1. 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. General Studies: Complete at least 12 hours chosen from Areas I, II and/or III, together with at least 12 hours chosen from Areas VI, VII and/or VIII. In addition, music majors must complete Area IV. These distribution requirements can usually be fulfilled while meeting the University's General Studies component.
3. Complete either a major or an individual study program.

Requirements for a Major

The major—selected from Art Education, Art History, Art Studio, Music, or Theatre—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 the University's General Studies component 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. Students must meet these requirements:

1. Of the 120 credit hours required for this degree, at least one-half must be within the College of Fine Arts.
2. An application must be submitted for approval to enter the Individual Study Program. The application should outline a cohesive academic program which ranges beyond a departmental/school major and in which degree objectives are defined and courses selected. Such applications must be approved by the Individual Study Committee and the Dean of the College.

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. Currently, the Art Studio major is the only program leading to the Bachelor of Fine Arts. The major requirements for the Bachelor of Fine Arts in Art Studio are outlined under the Department of Art.

Requirements for the Bachelor of Music in Applied Music 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 191-194 (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 195-197 (2 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. Fifteen 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. Courses from the General Studies component and six hours of education courses may be counted, when appropriate.

Certification Requirements for Major in Art Education

General Studies Areas:

1. State regulations for certification require 12 hours in sciences, 12 hours in social sciences and 18 hours in communications and humanities. Areas II, III, IV, or V, VI, and VII fit best into these certification requirements.
2. BIO 110 **or** HPR 145 **or** NFS 101
3. PSY 100
4. SP 181 **or** COM 101

Note: ANT 120 and PSY courses are not accepted as social sciences for teacher certification.

Professional Education Requirements (24-27 hours)

1. EDP 202*
2. EDU 203*
3. EDP 301
4. EDC 325 (Required if student wants 12-grade certification)
5. EDC 344
6. EDC 342 (Student Teaching)

*All students completing a program after September 1, 1981, must have a total of six hours in human growth and development and learning theory (EDP 202 and EDU 203).

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 191-194 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 195-198 Art Professions (two credit hours required)
2. Two art studio courses
3. Fifteen additional hours of art history **or** museum training at the 300 level or above.
4. A-H 560 Art History Seminar
5. Foreign language requirement (French or German recomended)

This may be satisfied in one of two ways: 1) By passing the fourth semester course in one language or by demonstrating equivalent competency by examination, or 2) by completion of three units of one language and two units of a second.

A "unit" is one semester of college/university level work or one year of high school work. A student may apply units of a language attained in high school toward satisfaction of either alternative, but duplication of high school and college credit is not allowed. Credit attained in language at the high school level must be validated by presentation of a high school transcript. A student electing option 1 will earn credit for General Studies Area IV simultaneously. Option 2 fulfills the major requirement but does **not** satisfy General Studies Area IV.

6. At least 15 hours in courses related to the Art History major but outside the Art Department. 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 3
   A-H 106 Renaissance Through Modern Art 3
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. Language requirement

This may be satisfied in one of two ways: 1) By passing the fourth semester course in one language or by demonstrating equivalent competency by examination, or 2) by completion of three units of one language and two units of a second. (See definition of "unit" under Major Requirement 5.)

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 191-194 Art Professions (two credit hours required)
2. ART 100 Introduction to Art
3. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
4. A-S 102/103 Visual Exploration I and II
5. A-S 200/215/255 Studio I, II and III

Major Requirements

1. ART 195-198 Art Professions (two credit hours required)
2. Twenty-four hours of studio courses at or above the 300 level*
3. At least six hours of art history at or above the 300 level
4. A-S 490 Senior Seminar (taken during the final semester of study)
5. Participation in a Graduating Seniors' Exhibition for final review.

*Students may choose either an AREA PROGRAM or an ELECTIVE PROGRAM. The AREA PROGRAM requires at least 18 hours from either two-dimensional or three-dimensional work, plus six hours from the alternate dimensional emphasis. Two-dimensional work includes printmaking, design, painting, drawing, fiber. Three-dimensional work includes sculpture, ceramics, fiber. The ELECTIVE PROGRAM allows students to select any set of courses from the upper division studio sequences according to the student's individual interests and with the approval of the adviser.

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 follow a single sequence in painting, 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 191-194 Art Professions
   ART 100 Introduction to Art

2. A-H 105 Ancient Through Medieval Art
   A-H 106 Renaissance Through Modern Art
3. A-S 102/103 Visual Exploration I and II
   A-S 200/215/255 Studio I, II and III

Major Requirements

1. ART 195-198 Art Professions
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 semester 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 the University's General Studies component 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. Such a minor will consist of at least 18 credit hours of course work, distributed as follows:

	Hours
1. ART 191-192 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 Art 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 completing the theory placement test and an audition in the student's applied area.

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 area of specialization	10
5. Electives: To include 15 hours in courses related to the music 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 the General Studies component may be used to fulfill this related work, when appropriate.	

Requirements for the Bachelor of Music in Applied Music

Admission to the Bachelor of Music program in Applied Music is granted only after completing the theory placement test and audition in the student's applied area. To earn a Bachelor of Music degree in Applied Music, 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 Applied Music at the upper division level, each student must perform before the applied music faculty for approval. Each student must also present a full recital during the senior year.

In addition to fulfilling the University English and General Studies requirements, students majoring in Applied Music must complete one of the following concentrations:

Concentration in an Instrument (84 hours)	**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)	**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)	**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 (84 hours)	**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 Vocal Diction: MUS 120 (two semesters)	2
7. Vocal Solo Literature: MUS 520	3
8. Conducting: MUS 358	2
9. Appropriate Music Ensemble (each semester)	8
10. Electives	10

Note: Students in Voice Concentration are also urged to complete Area IV or the equivalent as part of the General Studies component.

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 completing the theory placement test and an audition in the student's applied area. 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 the University English and General Studies requirements, students majoring in Music Education must complete:

Certification Requirements for Major in Music Education

1. General Studies Areas: State regulations for certification require 12 hours in sciences, 12 hours in social sciences,* and 18 hours in communications

and humanities. Areas II, III, IV or V, VI and VII fit best into these requirements.
2. BIO 110 or HPR 145 or NFS 101 (BIO 110 may also be used in Area III)
3. PSY 100*
4. SP 181 or COM 101 or equivalent.

*Note: ANT 120 and PSY courses are not accepted as social sciences by the State Department.

Professional Education Requirements

1. EDP 202*
2. EDU 203*
3. EDF 301
4. EDC 325 (Required if student wants 12-grade certification)
5. EDC 344
6. EDC 377 (Student Teaching)

*All students completing a program after September 1, 1981, must have a total of six hours in human growth and development and learning (EDP 202 and EDU 203).

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 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 4
9. Music Education Courses: MUS 262, 264, 360, 362, 364, 568 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: MUC 157, 158, 161, 163 6
7. Ensembles 6
8. Music Education Courses: MUS 263, 265, 363, 365, 568 10
9. Electives (except ensembles) 6

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 co-curricular opportunities extend across the whole range of theatre, special programs 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 101 and TA 102.
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 co-curricular experiences in theatre. The necessity for co-curricular experience may be met by successful completion of five credits in practicum courses, including a minimum of two credits in TA 190 or TA 390 (Production Practicum) and a minimum of two credits in TA 191 or TA 391 (Performance Practicum). The student will select the fifth credit from TA 190, 191, 390 or 391. Substitution of comparable work for these specific courses must be approved by the student's adviser and the department chairman.
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 his/her adviser will decide how his/her competency will be measured—on the basis of courses completed, co-curricular 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 chairman is required for graduation.

Minor in Theatre

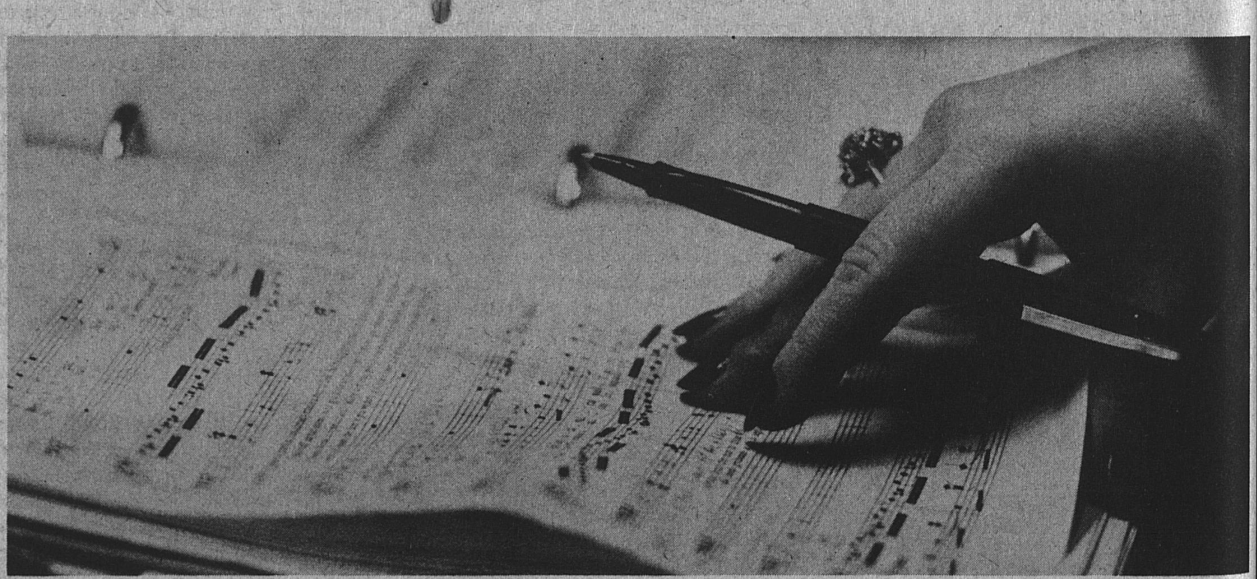
Students from any college may choose to minor in Theatre. Such a minor will consist of at least 21 hours of course work arranged as follows:

1. Prerequisites (6 hours) **Hours**
TA 101 Introduction to Theatre 3
TA 102 Design for Theatre 3

When appropriate, upper level courses may be substituted with the approval of the student's adviser and the chairman of the Department of Theatre.

2. Performance/production experience (3 hours)
TA 190 or 390 Production Practicum 1
TA 191 or 391 Performance Practicum 1
The third credit is to be selected from TA 190, 191, 390 or 391.

3. Elected Theatre Courses (12 hours)
Of these 12 hours, at least three hours must be at the 300 level or above.



GRADUATE SCHOOL

Wimberly C. Royster, Ph.D, is Dean of The Graduate School and Director of Research.

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 work is offered in most colleges in the University.

The following advanced degrees are conferred:

DOCTOR OF PHILOSOPHY
DOCTOR OF BUSINESS ADMINISTRATION
DOCTOR OF EDUCATION
DOCTOR OF MUSICAL ARTS
SPECIALIST IN EDUCATION
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 SCIENCES
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 MECHANICAL ENGINEERING
MASTER OF SCIENCE IN METALLURGICAL ENGINEERING AND MATERIALS SCIENCE
MASTER OF SCIENCE IN MINING ENGINEERING
MASTER OF SCIENCE IN NUCLEAR ENGINEERING
MASTER OF SCIENCE IN NURSING
MASTER OF SCIENCE IN RADIOLOGICAL HEALTH SPECIALTY
MASTER OF SCIENCE IN RADIOLOGICAL MEDICAL PHYSICS
MASTER OF SOCIAL WORK

The degree of Doctor of Philosophy is offered with major work in the following fields: Agricultural Economics, Agricultural Engineering, Anatomy, Animal Science, Anthropology, Biology, Biochemistry, 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, Mathematics, Mechanical Engineering, Metallurgical Engineering and Materials Science, Microbiology, Musicology, Pharmaceutical Sciences, Pharmacology, Philosophy, Physics and Astronomy, Physiology and Biophysics, Plant Pathology, Plant Physiology, Political Science, Psychology, Sociology, Soil Science, Spanish, Statistics, Toxicology, and Veterinary Science. Minor work may be carried in any department offering graduate courses.

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 12 members of the Graduate Faculty, two graduate students and the Dean of The Graduate School.

The Graduate Council approves or disapproves proposals concerning courses offered for graduate credit, and advises and lends assistance to the Dean 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, he serves as adviser to each student majoring in his area.

ADMISSION

A student who has a baccalaureate degree from a fully accredited institution of higher learning and has an undergraduate grade-point standing on all work attempted of at least 2.5 on the basis of 4.0 and an overall 3.0 on all graduate work, or who, on the recommendation of the appropriate Director of Graduate Studies, can satisfy the Dean of The Graduate School that he has the equivalent of such a background may be considered for admission to The Graduate School. All applicants for admission to degree programs in The Graduate School must submit scores on the verbal and quantitative portions of the Graduate Record Examination (GRE). Students in Accounting and Business Administration may substitute the Graduate Management Admission Test (GMAT). The Medical College Admission Test or the Dental Aptitude Test may be substituted for the verbal and quantitative portions of the GRE with the approval of the program concerned. Individual departments may establish higher requirements.

Students may apply for admission by submitting to the Graduate School Office two official transcripts of all college courses, a written application, and test scores. Consult The Graduate School Bulletin for application deadlines. Applications may be obtained from the Graduate School Office, Room 351, Patterson Office Tower.

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.

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 for one or more of the following reasons:

1. Missing transcripts or other requirements for admission such as letters of recommendation;
2. Temporary waiver of the Graduate Record Examination;
3. Deficiencies determined by the program;
4. Temporary ineligibility for regular admission status because program only reviews applications once a year;
5. Graduating University of Kentucky seniors lacking no more than six hours for graduation; the consent of the college dean and the Dean of the Graduate School and approval of the Director of Graduate Studies are necessary. The student may take no more than 12 credit hours and must complete the undergraduate degree during the semester in which he or she enrolls in the provisional status.

Provisional status is allowed for a maximum of one semester or up to 12 hours after which the work will be reviewed, and, within 30 days into the following semester, and on recommendation of the Director of Graduate Studies, the status will be moved automatically from provisional to regular program status, or removed from the provisional status entirely.

Regular Graduate Students

Applicants must satisfy all requirements for admission and be accepted by the program.

Detailed requirements for the various degrees may be found in The Graduate School Bulletin.

CORRESPONDENCE WORK

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 Registrar.

Before registering, a graduate student must obtain his or her adviser's approval of the proposed program.

FELLOWSHIPS AND ASSISTANTSHIPS

The Graduate School awards approximately 100 non-service fellowships to students in all areas of graduate work. It is also responsible for the administration of a smaller number of fellowships awarded to students in particular programs or areas of study.

Awards for the forthcoming year are made in March so those wishing to apply for fellowships should do so by February 1. Late applications for alternate status will be accepted until May 1. Additional information on fellowships may be obtained from the Graduate School Fellowship Office.

Most departments employ part-time teaching or research assistants at varying stipends. Information concerning such assistantships may be obtained from the various departments.

There is a common application form for financial assistance. Applicants interested in either fellowships or assistantships but not both may indicate their preference on the form. Those interested in a particular fellowship should write the name of the award across the top of the application form.

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.

Admission to this status may be granted to an applicant who (1) demonstrates promise but has not qualified for admission to a degree program, or (2) intends not to complete a degree program. Students may take courses for graduate credit but may not apply more than nine hours of credit with a grade of A or B earned in the post-baccalaureate status to any degree program leading to an advanced degree at this institution. All transfers of credit hours to a graduate program must be approved by that program's Director of Graduate Studies and the Graduate Dean.

An application for admission to The Graduate School as a post-baccalaureate graduate student should be on file in the Admissions Office at least 30 days in advance of the registration date for the term in which the student plans to enroll.

HOME ECONOMICS

Marjorie S. Stewart, Ph.D., is Dean of the College of Home Economics. Doris A. Tichenor, Ph.D., is Associate Dean for Extension.

Subject matter within the College of Home Economics concerns:

- Family relationships, human development, and early childhood education.
- Consumerism and other economic dimensions of personal and family living.
- Managerial behavior for goal achievement, value awareness, and resource utilization.
- The selection, preservation, preparation, and use of food to meet nutritional needs.
- Physiological requirements to meet normal and clinical nutrient needs.
- Sociological, psychological and economic aspects of design, selection, construction, care and merchandising of clothing.
- Textiles for clothing and other uses.
- Restricted shelter, public or work space, and interior components.
- Analysis of art, design, and function factors.

Admission and Advising

Requirements for admission to the College of Home Economics are the same as those outlined for the University with the exception of the Coordinated Undergraduate Program in Dietetics (see Department of Nutrition and Food Science). Each student is assigned an adviser in the subject matter area he or she has chosen.

MAJORS OFFERED

The student chooses a major in one of the seven areas of Home Economics: Individual and Family Development; Early Childhood Education; Consumer Studies; Textiles, Clothing, and Merchandising; Housing and Interior Design; Vocational Home Economics Education; and Nutrition and Food Science. Specialized degrees are offered for some majors (see department information).

DEGREES OFFERED

The College of Home Economics offers four undergraduate degrees: Bachelor of Science in Home Economics, Bachelor of Science in Family Studies, Bachelor of Arts in Housing and Interior Design and Bachelor of Science in Dietetics.

Graduation Requirements

All students in the College of Home Economics must satisfy the following requirements:

1. Complete the University English and General Studies requirements as outlined in the *Academic Program* section of this Bulletin. See each Department's recommendations for General Studies Areas to fulfill. Some recommendations are based on certification requirements within the specific departments.
2. Complete the College Requirements specified for each degree program. The College Requirements for the Bachelor of Science in Home Economics are listed below. These are also required for certain specialized degrees. College Requirements for the programs leading to other degrees are listed under the Degree Requirements sections for each department.
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.

Requirements for the Bachelor of Science in Home Economics

Students working toward the Bachelor of Science in Home Economics must meet the following requirements:

1. College Requirements:

Physical Education	2
Natural Sciences (three hours in chemistry or physics and three hours in biological sciences)	6
Humanities	3
Social and Behavioral Sciences (three hours each in psychology, sociology and economics)	9
Mathematics (MA 122 or equivalent with ACT score of 50th percentile—national norm—or below)	3
Communications (To be selected from SP 181; ENG 103, 205; JOU 203; or other approved courses)	6
Home Economics Core Requirements:	
HED 101 Visual Awareness I	3
HET 101 Introduction to the Area of Textiles, Clothing, and Merchandising*	3
NFS 101 Food and Nutrition for Man	3
FAM 101 Introduction to Family Studies	3

*Students majoring in vocational home economics education or nutrition and food science should substitute HET 220 Textiles I.

Note: State Certification requirements may alter these degree requirements in some program areas.

2. Complete 42 credit hours in home economics courses, unless majoring in vocational home economics education which requires 48 hours in home economics courses.

FAMILY STUDIES

The Department of Family Studies is committed, in terms of philosophical orientation, 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 three majors: Individual and Family Development, Consumer Studies, and Early Childhood Education. 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.

DEGREE REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN FAMILY STUDIES

Students who major in Individual and Family Development or Consumer Studies fulfill the same graduation and College requirements listed above for the B.S. in Home Economics. Students who major in Early Childhood Education fulfill the requirements of the College of Education for teacher certification. The major requirements for each Family Studies major are listed below.

A. Individual and Family Development

In addition to satisfying the University and College requirements outlined earlier, the student must complete the following:

Premajor Requirement

FAM 101 Introduction to Family Studies (included in Core Requirements)	3

Major Requirements (12 hours)

FAM 250 Consumer Issues	3
FAM 252 The Individual, Marriage and Family	3
FAM 255 Child Development	3
FAM 390 Introduction to Research in Family Studies	3

Major Electives (24 hours)

Choose a minimum of 24 credit hours from the suggested courses under the following areas of emphasis.

1. Individual Development Emphasis

FAM 253 Human Sexuality: Development, Behavior and Attitudes . . . 3
FAM 254 Developmental Psychology . . . 3
FAM 350 Guiding Children in Learning Environments . . . 3-4
FAM 357 Contemporary Adolescence . . . 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 Experience . . . 3

2. 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 402 Family Economics and Management Issues . . . 3
FAM 509 The U.S. Family in Historical Perspective . . . 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 Experience . . . 3

Recommended Specialty Support (6-9 hours)

SOC 409, 510; PSY/SOC 444G; PSY 305, 532; ANT 512, 526.

Departmental advisers will recommend additional courses.

B. Consumer Studies

In addition to satisfying the University and College requirements listed earlier, students must complete the following:

Premajor Requirement

FAM 101 Introduction to Family Studies (included in Core Requirements) . . . 3

Major Requirements (12 hours)

FAM 250 Consumer Issues . . . 3
FAM 252 The Individual, Marriage and family . . . 3
FAM 255 Child Development . . . 3
FAM 390 Introduction to Research in Family Studies . . . 3

Major Electives (24 hours)

FAM 251 Personal and Family Finance . . . 3
FAM 363 Family Energy Consumption . . . 3
FAM 402 Family Economics and Management Issues . . . 3
FAM 463 Concepts of Personal and Family Management . . . 3
FAM 464 Application of Personal and Family Management . . . 3
FAM 561 Management for Families with Limited Resources . . . 3
FAM 562 Management for Multi-Roles . . . 3
FAM 563 Families, Legislation and Public Policy . . . 3
FAM 586 Field Experience in Family Economics and Management . . . 1-6
FAM 596 Special Problems in Family Economics and Management . . . 1-3

Recommended Specialty Support (6-9 hours)

Business-Related Electives: ECO 377, 494G; BA 330, 340, 341, 351, 441; PS 240, 452G, 463G; JOU 507; SOC 549; ACC 201, 202.

Government-Related Electives: ECO 377, 494G; PS 240, 452G, 476G, 553; SOC 529, 549; SW 222, 225, 551.

Community-Related Electives: CEX 501; JOU 507, 509; SOC 220, 409, 418, 503, 517, 519, 528, 549; PSY/SOC 444G; SW 222, 225.

Departmental advisers will recommend additional courses.

C. Early Childhood Education (K-3 certification)

A student who wishes to major in Early Childhood Education must be officially admitted to the Teacher Education Program as described in the *College of Education* section of this Bulletin. Course requirements are as follows:

General Studies: By choosing Areas II, III, IV or V, VI and VII, the student will satisfy one stage of certification requirements in addition to meeting the University General Studies requirements.

Special Studies Requirements (19 hours)

	Hours
Freshman Composition	6
ENG elective	3
NFS 101 Food and Nutrition for Man	3
PSY 100 Introduction to Psychology	4
SP 181 Basic Public Speaking **or** COM 101 Introduction to Communications	3

Academic Requirements (18 hours)

A-E 270 Introduction to Art Education . . . 3
HPR 360 Physical Educaiton in the Elementary School . . . 3
LS 510 Children's Literature and Related Materials . . . 3
MA 201 Mathematics for Elementary Teachers I . . . 3
MA 202 Mathematics for Elementary Teachers II . . . 3
MUS 260 Music Fundamentals and Skills for Classroom Teachers . . . 3

Professional (Major) Requirements (54 hours)

FAM 252 The Individual, Marriage and Family . . . 3
EDP 202 Human Development and Learning . . . 3
FAM 255 Child Development . . . 3
EDF 301 Education in American Culture . . . 3
EDC 327 Principles and Trends in Early Childhood Education . . . 3
FAM 554 Working with Parents . . . 3
FAM 350 Guiding Children in Learning Environments . . . 4
EDC 338 Science and Social Studies for Young Children . . . 4
EDC 329 Reading and Language Arts in Elementary School . . . 3
EDC 339 Diagnostic Teaching of Reading and Language Arts in Early Childhood Education . . . 3
EDC 337 Teaching Mathematics in Early Childhood Education . . . 3
EDS 375 Introduction to Education of Exceptional Children . . . 3
EDS 510 Early Childhood Education of the Handicapped . . . 2
FAM 507 Assessment of Young Children . . . 2
EDC/FAM 411 Student Teaching in Early Childhood Education . . . 12

Electives

Six hours in social sciences are required as electives.

Minor in Family Studies

Any student wishing to minor in Family Studies should file an application with the Department prior to entering the program.

Minor Prerequisite

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 Textiles, Clothing, and Merchandising. More information on each division is outlined below.

A. Housing and Interior Design

Bachelor of Arts in Housing and Interior Design

The Design division of the Department of Human Environment provides a professional design program for students concerned with the career aspects of the personal and public environment. All facets of shelter, furnishing, equipment and functions are weighed against the aesthetic and socioeconomic needs of mankind. Studio experiences are directed toward data gathering, design resources, and presentation graphics. The program includes contact with practicing professionals, resource trips and field experiences.

Degree Requirements

Students must successfully complete 128 hours including:

University Requirements: In addition to the English requirement, the University requires each student to complete **five** areas of study chosen by the student from the list of General Studies Areas. It is recommended by the Department that the student choose two semesters from each of the following areas: V, VI, VII, VIII. The fifth area is the student's choice.

College Requirements: Nine hours of home economics courses.

Basic Textiles (two semesters) . . . 6
Home Economics Elective (other than HET or HED) . 3

Departmental Requirements—Professional Specialization (71 hours)

1. Lower Division Requirements (16 hours)

two semesters of architectural drafting (HED 103, 104)

one semester of freehand drawing (A-S 102)
one semester of two-dimensional basic design (HED 101)
one semester of three-dimensional basic design (HED 102)
One semester of professional survey, interior design (HED 100)

2. Premajor Requirements: (9 hours)

HED 203 Interior Design Studio I: Design and Single Space/Single Function 3
HED 204 Interior Design Studio II: Design and Multi Space/Multi Function 3
HED 206 En Pro I: Environmental Product Survey 3

3. Upper Division Requirements: (27 hours)

HED 305 Interior Design Studio III: Design and the Macro Space/Macro Function 3
HED 306 Interior Design Studio IV: Design and the Maxi Space/Maxi Function 3
HED 507 Interior Design Studio V: Total Design/Total Function 3
HED 508 Interior Design Studio IV: Research/Experimentation/Creativity 3
HED 401G History of Interiors I: A Survey Through 18th Century 3
HED 402G History of Interiors II: A Survey of 19th and 20th Century 3
HED 405 Interior Lighting: Fundamentals for the Designer 3
HED 528 Introductory Concepts of Restoration and Preservation 3
HED 536 En Pro II: Environmental Product Design 3

4. Professional Support (19 hours)

Courses chosen by the student as approved by the academic adviser. These courses will include two semesters of history of architecture and at least one course from each of the following areas: art, architecture, horticulture and business administration. These are above and beyond the Lower Division Requirements.

Electives (12 hours)

Unrestricted electives are to be selected by the student from any area of the University to complement and expand the requirements of the College and the Department.

B. Textiles, Clothing and Merchandising

Bachelor of Science in Home Economics

Students in the Textiles division of the Department of Human Environment study trends in clothing and textile needs, learn the newest technical developments in clothing and textiles, acquire the fundamental skills of clothing construction, and receive experience in merchandising. The Division provides opportunities for research and statewide leadership in home economics extension programs.

The major requirements for Textiles, Clothing, and Merchandising are currently being revised by the Department. Students who are interested in this major should contact the Department.

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 high school or junior high level are included in the program. Students earn the Bachelor of Science in Home Economics degree.

Admission to the Teacher Education Program

All students must apply and be admitted to the professional Teacher Education Program in order to complete the program leading to teacher certification.

To be admitted to the Teacher Education Program in Home Economics the student must: (1) have at least sophomore standing; (2) have an overall grade-point average of 2.2.; (3) have completed an appropriate education course with a grade of C or better; (4) have submitted evidence of supervised or self-initiated experiences in working with children, adolescents, or other appropriate groups; and (5) be interviewed and favorably recommended by the Program Faculty.

Degree Requirements

In addition to satisfying the University, College, and Home Economics Core requirements, each student must complete the following:

Departmental Requirements

General Studies	Hours
Humanities:	
A-H 105 or 106	3
ENG 261 or 262	3
SP 181	3
ENG 103 or 205 or JOU 203	3
Natural Sciences:	
CHE 101, 103 or 105	3
BIO 103, 104, 106, 108 or 200	3
PSY 100	4
Electives	5
Social-Behavioral Sciences:	
SOC 101, 152 or 220	3
ECO 260 or 261	3
Electives	6
Other Electives:	
Health elective	3
General elective (minimum)	3

Major Requirements

1. Home Economics Subject Matter

HET 130 Principles of Clothing Construction and Selection 3
HET 220 Textiles I (included in Home Economics Core Requirements) 3
FAM 255 Child Development 3
FAM 350 Guiding Children in Learning Environments 3-4
FAM 463 Concepts of Personal and Family Management 3
FAM 464 Application of Personal and Family Management 3
NFS 204 Principles of Food Preparation or
NFS 206 Meal Planning and Service 3

2. Professional Support

EDP 202 Human Development and Learning 3
EDU 203 Teaching Exceptional Learners in Regular Classrooms 3
EDF 301 Education in American Culture 3
EDV 362 Student Teaching in Home Economics 3-12
EDV 586 Teaching Home Economics in the Secondary School 3
EDV 588 Adult Education in Home Economics 3

3. Home Economics electives (14-16 hours)

All electives are subject to the approval of the adviser.

In addition to the General Studies and major requirements listed above, candidates for teacher certification must complete 1000 hours of work experience, under guidance, that will help develop homemaking skills and insight into the problems of homemakers as wage earners. The 1000 hours must be planned with the adviser prior to the experiences.

NUTRITION AND FOOD SCIENCE

The Department of Nutrition and Food Science provides sound, professional preparation in the various aspects of nutrition and food science, and is concerned with research and extension services. The Department offers a program in Restaurant Management for students interested in restaurant and food service management. Students in this program earn the Bachelor of Science in Home Economics. The Department also offers a program in Dietetics which leads to the Bachelor of Science in Dietetics.

Restaurant Management

In addition to fulfilling the University requirements and the College requirements listed earlier, each student must complete the following:

Major Requirements (31 hours)

	Hours
NFS 101 Food and Nutrition for Man	3
NFS 204 Principles of Food Preparation	3
NFS 206 Meal Planning and Service	3
NFS 340 Institution Marketing	3
NFS 342 Institution Foods	4
NFS 542 Institution Equipment	3
NFS 546 Institution Organization and Management	3
NFS 548 Institution Administration (repeated once)	6
NFS 594 Special Problems in Institution Management	1-3

Professional Support (36 hours)

BIO 104 Animal Biology* 3
BIO 108 Principles of Microbiology* 3
CHE 101 Chemistry: A Cultural Approach I* 3
CHE 103 Chemistry: A Cultural Approach II* 3
ECO 261 Principles of Economics II* 3
ACC 201 Principles of Accounting 3
ACC 202 Principles of Accounting or 3
NFS 344 Food Service Accounting 3
CS 150 Introduction to Algorithmic Processes or 3
BA 351 Introduction to Business Data Processing 3
BA 330 Marketing Management 3

BA 332 Behavioral Systems in Marketing 3
BA 335 Business Management (Prereq: STA 291 or consent of instructor) 3
BA 336 Survey of Personnel and Industrial Relations 3

*May also be used to fulfill General Studies requirements.

Suggested Electives

HE 100 Introduction to Home Economics 1
FAM 250 Consumer Issues 3
BIO 109 Introductory Microbiology Laboratory 2
PSY 503 Psychology of Industrial and Personnel Procedures 3
JOU 561 Newspaper and Magazine Advertising . . . 3
JOU 563 Advertising Procedures 3
CEX 501 Principles of Cooperative Extension 3
ASC 306 Selection, Evaluation and Use of Animal Food Products 4
ASC 340G Sensory Evaluation of Foods 3
ASC 530 Food Microbiology 5
STA 291 Statistical Method 3

Professional Dietetics

The Dietetics program in Nutrition and Food Science includes two options for students interested in this area. Program Option A offers students the traditional four-year academic curriculum in general dietetics. Program Option B, the Coordinated Undergraduate Program, likewise trains students for careers in general dietetics. Additionally, Option B combines academic training with clinical experiences, precluding the need for a dietetic internship or traineeship prior to the American Dietetic Association's registry examination. Both Program Options A and B fulfill the course requirements established by the A.D.A.

Students who choose Option B must make application to the Program and be accepted, after having completed required preprofessional courses. Students are admitted to the Coordinated Undergraduate Program on the basis of their cumulative grade-point average and other criteria.

Students can obtain more information about the Professional Dietetics program by contacting the Department of Nutrition and Food Science.



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 of a superior and very 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 arbitrarily 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 should generally have a high school grade-point average of 3.5 or better and an ACT composite score of 26 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; and 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 selections committee.

How to Apply

If you are interested in the Honors approach to education and think you are qualified, you are invited to write to:

Director, Honors Program
1153 Patterson Office Tower
University of Kentucky
Lexington, Kentucky 40506

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 are often housed together in separate sections of the University's dormitories. However, no student is required to live in these sections. A suite of study rooms in the Library 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. Furthermore, the program does bring 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. A considerable portion of each class is initiated into societies such as Phi Beta Kappa or Sigma Xi.

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 own 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 pursue an independent 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 an independent research project.

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 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.

Particular details concerning course offerings and program requirements will be found in the *Schedule of Classes* for the academic year 1981-1982.

LAW

Thomas P. Lewis, A.B., LL.B., S.J.D., is Dean of the College of Law; Paul C. Van Booven, B.A., J.D., is Associate Dean.

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 on behalf of the community 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 170,000 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 13,000 treatises and textbooks, all major legal reference works, and over 450 legal periodicals received annually, as well as special collections in jurisprudence and international law. The law library is growing at a rate of about 6,000 volumes per year.

The Law Building

The College of Law occupies a handsome new 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 **Kentucky Law Journal,** the Moot Court Board, the Student Bar Association, and visiting attorneys and others who come to the Law School for research and study.

Other Facilities and Information

Since 1912 the College has published the **Kentucky Law Journal,** a quarterly periodical and the 10th oldest American law review. The **Journal** is published by a student staff, and election to the staff is based on high academic achievement and the proven ability to write and conduct research. The **Journal** publishes articles, notes, and comments written by legal scholars, attorneys, and students and is subscribed to by members of the bar as well as all leading domestic and foreign libraries.

Practical training in trial and appellate advocacy is provided in Litigation Skills, the Civil Clinic, 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 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 postbaccalaureate experiences where such experiences, in the Committee's determination, indicate a development of aptitude for the study of law. The Committee will review 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.

Under regulations issued by the Kentucky Council on Higher Education, no more than 10 percent of the total number of students in the College of Law may be nonresidents 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 except that 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 Chairman, 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 February LSAT 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 in his or her 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, see 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 its equivalent) of residence and 87 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.

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, see the College of Law admission booklet, or contact the Associate Dean's Office, College of Law.

LIBRARY SCIENCE

Timothy W. Sineath is Dean of the College of Library Science.

The present College of Library 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. It is one of 68 library and information science programs in the United States and Canada accredited by the American Library Association.

The College of Library 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 advance 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 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 100 graduate students, each year elects a Student Committee to represent them in all deliberations of the College of Library Science. Students sit on all 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 science students. They are supplemented by other libraries in the area including those in Lexington Theological Seminary, a Veterans Administration Hospital, the Lexington Public Library, several nearby public regional libraries and the State Department of Library and Archives in Frankfort.

ADMISSION, REQUIREMENTS AND PROCEDURES FOR GRADUATE STUDY IN LIBRARIANSHIP

The College of Library Science offers graduate degrees only. For complete information on the M.A. and the M.S.L.S. programs and admissions procedures, consult The Graduate School Bulletin and the College of Library Science Bulletin.

Admission

The admissions philosophy of the College is that we wish 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 must 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 Science. Students are urged not to major 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 and accounting 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 Science and The Graduate School. Forms for both the College of Library Science and The Graduate School may be obtained from the Assistant Dean, College of Library Science. The College of Library 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. Library Science 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 Science does not offer any formal program of study on the undergraduate level. Students who are registered as undergraduates at the University of Kentucky may take library science 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 science if they plan to enter the College of Library Science.

MEDICINE

D. Kay Clawson, M.D., is 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 selected 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 natural 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 in an accredited college of arts and sciences. However, consideration may be given to applicants who have completed only three years of college if their academic background and other credentials demonstrate superior ability and maturity.

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 a few 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 in an undergraduate college is 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 relationship with people—with his 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 personality 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 his degree of success in the diagnosis and management of a patient's health problem and in his 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 his motivation to study medicine be sufficiently strong to sustain him in the face of difficulties.

STUDENT PROGRESS

All College of Medicine students are subject to periodic review by the appropriate Curriculum and Student Progress Committee and are under the jurisdiction of the College's Procedures for the Evaluation and Promotion of Students and the Code of Student Rights and Responsibilities for all University of Kentucky students.

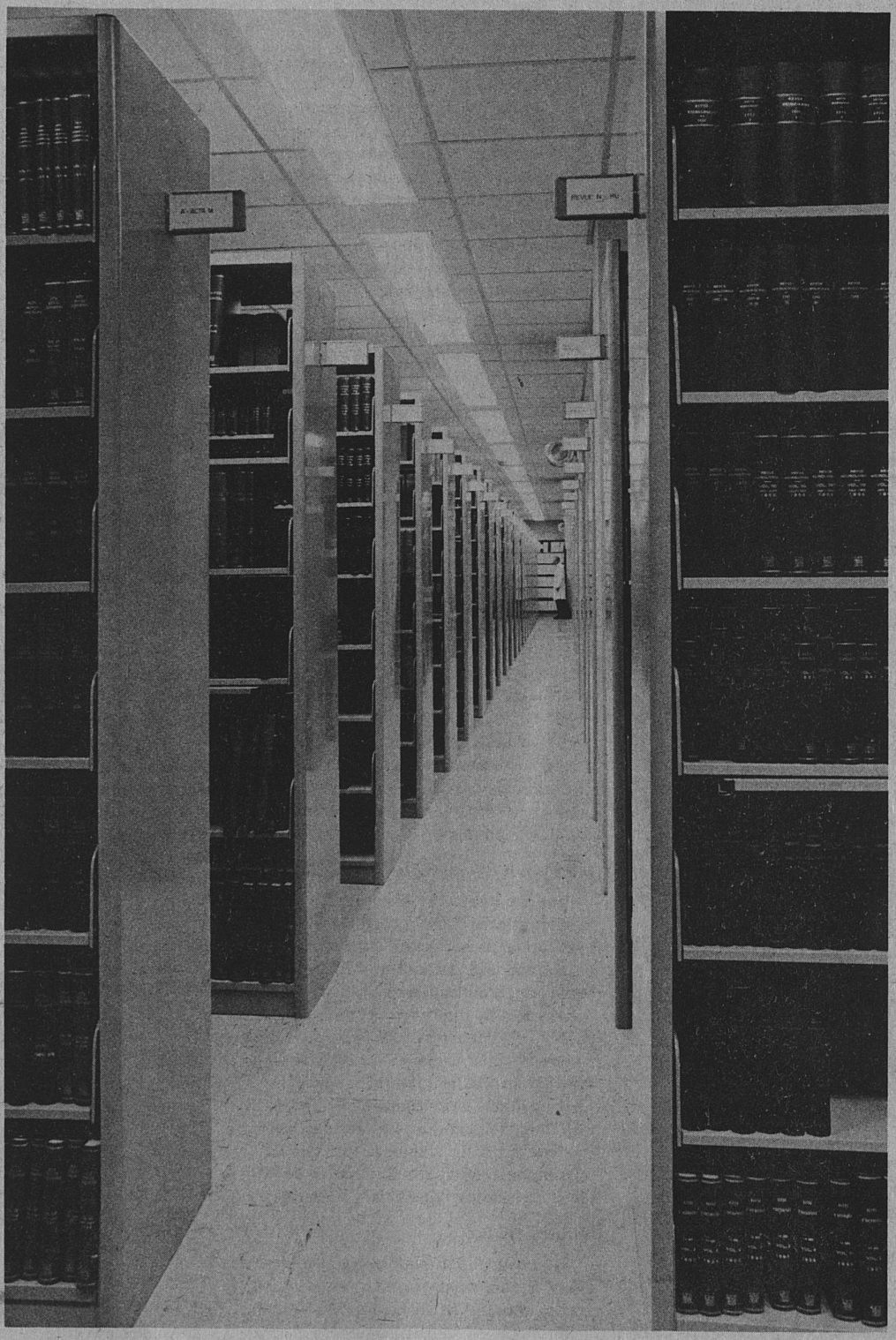
COURSE DESCRIPTIONS

Course listings for the College of Medicine may be found under the College according to departmental headings: anatomy, behavioral science, biochemistry, community medicine, conjoint, diagnostic radiology, family practice, medical microbiology and immunology, neurology, obstetrics and gynecology, pathology, pediatrics, pharmacology, physiology and biophysics, psychiatry, radiation medicine, and surgery.

For specific information about programs in the College of Medicine, see the Graduate School Bulletin or the College of Medicine Bulletin.

COMBINED MEDICAL AND GRADUATE STUDIES

Medical students who wish 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 chairmen, the Office of Academic Affairs or the Dean's Office, College of Medicine.



NURSING

Marion McKenna, Ed.D., is Dean of the College of Nursing; Juanita Fleming, Ph.D., Assistant Dean for Graduate Education; Irma Bolte, M.S.N., Assistant Dean for Continuing Education; Alma Baker, Ph.D., Assistant Dean for Undergraduate Education.

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.

ADMISSION REQUIREMENTS

Applicants meeting the following criteria will be considered for admission by the College of Nursing Admissions Committee:

1. Licensure to practice as a registered nurse in Kentucky.
2. Completion of an Associate Degree Program in Nursing from a college accredited by one of the six regional academic accrediting associations. *Exception:* 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:

	Hours
English 101 and 102 (or the equivalent)	6
Selected Natural Sciences (Anatomy 206, Physiology 206 and Biology 108 and 109—or the equivalent)	10
Behavioral Sciences (Psychology 100 and Sociology 101—or the equivalent)	7
Nursing (maternal child nursing, adult nursing, psychiatric nursing, and fundamentals of nursing—or the equivalent)	28
Electives	10

*These credits may be earned from a regionally accredited college by taking the courses or by examination (i.e., challenge or equivalency).

3. An overall grade-point average of 2.0 on a 4.0 quality point scale in all course work attempted as computed by the University of Kentucky Admissions Office.
4. The applicants' state of health must be such that the individual will be able to carry out the duties 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.

APPLICATION FOR ADMISSION

Application deadlines for the College of Nursing are the same as those for general undergraduate admission to the University. Appropriate credentials such as transcripts and verification of licensure must be received by the University Admissions Office no later than April 1 for the summer terms, June 15 for the fall semester and October 15 for the spring semester. Applicants will be notified regarding admission approximately 30 days after the deadline date. Those accepted for admission must notify the College within 30 days, in writing, of their intent to enroll.

SELECTION

Kentucky residents will be given preference. In the event of a surplus of applicants (more than 130), Kentucky residents will be randomly selected first. If there are available spaces remaining after all qualified Kentucky residents have been admitted, out-of-state students will be randomly selected. It will be the goal of the College not to exceed 15 percent of such students.

Admission to specific nursing courses will be determined by the availability of resources and facilities.

PART-TIME STUDY

Students who are working toward the completion of the B.S.N. degree on a part-time basis must plan their course of study with the appropriate College of Nursing personnel or committee.

Candidates for the degree who do not complete all requirements within a five-year period after admission will have their records reevaluated and may be required to repeat or take selected courses.

DEGREE REQUIREMENTS

In order to obtain a Bachelor of Science in Nursing, students must satisfy the University requirements for graduation (see *Academic Requirements* section in this Bulletin) 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. Major clinical nursing courses are NUR 851, 852, 868, 872, 874 and 880.

	Hours
NUR 851 Nursing Assessment	4
NUR 852 Community Health Nursing	6
NUR 853 Pathophysiologic Basis for Nursing Practice	4
NUR 854 Introduction to Philosophy and Concepts of Nursing	2
NUR 856 Concepts and Principles of Teaching and Learning in Nursing	2
NUR 858 Cultural Diversity and Implications for Nursing	2
NUR 864 Management of Nursing Care	2
NUR 866 Implications of Drug Therapy for Nurses	3
NUR 876 Issues in Nursing	3
NUR 880 Clinical Practicum	8
BSC 331 Behavioral Factors in Health and Disease	3
STA 200 Statistics: A Force in Human Judgement	3
In addition students select **one** of the following:	
NUR 868 Primary Care Nursing	6

NUR 872 Nursing in a Secondary Care Setting 7
NUR 874 Tertiary Care Nursing 7

Students must complete five of eight General Studies areas (see *Academic Program* section of this Bulletin).

The student must have a minimum of 120 credits for graduation.

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.



PHARMACY

Joseph V. Swintosky, 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. It opened its new building on the campus in the fall of 1957. On January 1, 1966, the College of Pharmacy became a part, administratively, of the Albert B. Chandler 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, which meets the requirements for licensure; and a program leading to the Doctor of Pharmacy (Pharm.D.) degree. Both programs are accredited by the American Council on Pharmaceutical Education.

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.

BACHELOR OF SCIENCE IN PHARMACY DEGREE (B.S. 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, constitute 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, general studies, and grade-point average.

Preprofessional Requirements

The preprofessional course requirements for admission to the College of Pharmacy are as follows:

One semester mathematics (Calculus I)
One semester microbiology or bacteriology (with laboratory)
One semester principles of economics
Two semesters biology (with laboratory)
Two semesters physics (with laboratory)
Two semesters general chemistry (with laboratory) including qualitative analysis
Two semesters organic chemistry (with laboratory)
Two semesters English composition and additional courses as needed to complete the University's General Studies requirement.

Applicants are to complete the General Studies Component requirements *prior to admission* to the College. Required courses in the prepharmacy curriculum satisfy requirements for Areas I, II, III and part of VII, leaving one and one-half to two areas of study to be completed.

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	Pharmacy Administration	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 Dermatological Systems	4
PHR 855	Pharmacotherapeutics: Immune Systems	4
PHR 856	Chemotherapeutics	3
PHR 870	Clinical Orientation Clerkship	8
PHR 881	Pharmacy Practice Externship	6
	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 the following courses:

		Hours
ACC 201	Principles of Accounting	3
BSC 527	Society and Health	3
PHR 303	History and Ethics of Pharmacy	3
PHR 540	Industrial Pharmaceutical Technology	4
PHR 545	Sterile Parenterals and Devices	2-3
PHR 838	Community Pharmacy Practice	3
PHR 850	Pharmaceutical Technology Clerkship	4
PHR 860	Animal Health Products	2
PHR 872	Non-prescription Pharmaceuticals and Supplies	3
PHR 873	Pharmacy Services in Long-term Care Facilities	2
PHR 880	Introduction to Institutional Practice	3
PHR 881	Pharmacy Practice Externship	3 or 6
PHR 826	Introduction to Nuclear Pharmacy	3
PHR 827	Practice of Nuclear Pharmacy	3
PHR 828	Nuclear Pharmacy Externship	3, 6 or 9

Doctor of Pharmacy Degree (Pharm.D)

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.

Recognized courses for the Pharm.D. degree follow, plus required courses for the B.S. in Pharmacy degree with the exception of PHR 870 Clinical Orientation Clerkship. Instead of taking PHR 870, the Pharm.D. student will take the more advanced clerkships—PHR 882, 883, and 884.

		Hours
STA	570 Basic Statistical Analysis	4
PHR	874 Drug Literature Evaluation	3
PHR	875 Clinical Pharmacokinetics	4
PHR	876 Disease Processes and Advanced Pharmacotherapeutics I	8
PHR	878 Disease Processes and Advanced Pharmacotherapeutics II	8
PHR	882 Pharmacy Practice Clerkship: Medicine	6
PHR	883 Pharmacy Practice Clerkship: Clinics	6
PHR	884 Pharmacy Practice Clerkship: Specialty Areas	6
PHR	881 Pharmacy Practice Externship	12

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 transcipts 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 UK B.S. in Pharmacy curriculum 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.

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 types 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 Office of the Dean of Admissions and Registrar. New students, readmission 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 Dean of the 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 shall include the prepharmacy course requirements and electives needed to complete the General Studies Component 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 pre-pharmacy 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 B.S. Admission 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. The admission of nonresidents of Kentucky to the B.S. in Pharmacy program generally will be limited to no more than 10 percent. 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 B.S. 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 are already enrolled in the program.

Each applicant is made aware that he/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 Pharm.D. 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.



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 our complex and ever-changing society.

Program Accreditation

Both the Bachelor of Arts in Social Work (B.A. in Social Work) and the Master of Social Work (M.S.W.) 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 such 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.

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.

The curriculum may serve one or more of the following purposes:

1. To help the student develop effective interpersonal relations.
2. To enrich and broaden the knowledge and understanding of all students as they face the ever-changing and urgent social problems of our society.
3. To prepare students for immediate employment in social work jobs that require skills which can be acquired at the B.A. level.
4. To prepare students for graduate professional education.
5. To contribute basic knowledge of the social services to students who are preparing for careers in other helping professions (i.e., special education, rehabilitation, nursing, law, medicine, etc.).

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.

For University requirements and General Studies Areas: See *Academic Program* section of this Bulletin.

Premajor Requirements

Anthropology—Three hours, normally chosen from the following: ANT 121, ANT 201, ANT 232

Biology—Three hours, normally chosen from the following: BIO 110, BSC 212

Economics—Three hours, normally ECO 160

Political Science—three hours, normally chosen from the following: PS 101, PS 105, PS 200, PS 201, PS 240, PS 255

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 152, SOC 201, SOC 220

Statistics—three hours, normally all the following: STA 292, STA 293, STA 294

Preprofessional Requirements (8 or 10 hours)

SW 124 Introduction to Social Services 3
SW 222 Development of Social Welfare 3
SW 225 Skills in Social Work 4
SW 322 The Social Work Profession and Social Welfare (for junior transfers only; substitutes for SW 124, SW 222) 4

Professional Requirements (32 hours)

	Hours
SW 444 Educational Practicum I	8
SW 445 Educational Practicum II	8
SW 401G Social Welfare Policy: Theory and Implementation	3
SW 411G Perspectives on Human Behavior and the Social Environment	3
SW 416 Social Work Research	3
SW 420G Interventive Methods in Social Work	4
SW 427 Senior Seminar	3

Field of Concentration Requirements (15 hours)

Fifteen hours of upper-division courses (300 and above) in no more than three of the five listed areas: anthropology, economics, political science, psychology, sociology.

Electives

Complete at least 12 hours of upper-division elective courses, and as many other elective courses as required to bring the total hours to 120 for graduation. Electives may be chosen from courses offered by any department, school and/or college, including undergraduate social work electives and up to six hours of graduate social work electives.

COURSES FOR NONMAJORS

Students from other departments are eligible to take certain of the 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 223, Basic Skills for the Social Professions, and SW 477, Field Experience for Nonmajors, are both 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 four semesters duration, leading to the Master of Social Work degree. For further information see The Graduate School Bulletin or the College of Social Work Bulletin.

COMMUNITY COLLEGES

Charles T. Wethington, Jr., Ph.D., is vice president for the Community College System.

COMMUNITY COLLEGE ADMINISTRATIVE STAFF

Ben W. Carr, Jr., Ed.D., Kentucky, 1979; assistant vice president

B.J. Burnett, M.A., Kentucky, 1958; business officer

Jack B. Jordan, D.B.A., Kentucky, 1976; fiscal affairs officer

A.J. Hauselman, Ed.D., Kentucky, 1971; coordinator, research and program planning

Marie L. Piekarski, M.S., Pennsylvania, 1957; coordinator, program planning and development

Sharon B. Jaggard, Ed.D., Penn State, 1979; coordinator, faculty and instructional development

Keith Stephens, J.D., Kentucky, 1970; coordinator, federal programs

Dan Tudor, M.A., Kentucky, 1960; coordinator, student services

Roseann Hogan, Ph.D., Kentucky, 1971; institutional studies and reports officer

Marilyn Fentress, M.A., Western Kentucky University, 1980; statewide coordinator for the Displaced Homemaker Program

Earl Damron, M.S.M.E., University of Houston, 1978; coordinator of maintenance and operations

UNIVERSITY COMMUNITY COLLEGE SYSTEM

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 12 colleges and one technical institute, located at Ashland, Cumberland, Elizabethtown, Hazard, Henderson, Hopkinsville, Louisville, Madisonville, Maysville, Paducah, Prestonsburg, Somerset, and the Lexington Technical Institute at Lexington.

The community college has 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 main campus or to another four-year institution. At the conclusion of the two-year prescribed 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 technical or semi-professional employment. These programs are usually completed in two years, and are composed of about one-half general education courses and the other half in semi-professional or technical education. The Associate Degree in Applied Science is awarded upon completion of the two-year curriculum.

3. To provide general educational opportunities for citizens within their immediate areas. These include evening classes, workshops, seminars, short courses, concert series, exhibits, lectures, dramatic presentations and festivals to meet inservice, re-education and cultural needs of the community. These programs may or may not lead to an Associate Degree.

Courses taken in the community colleges which parallel University offerings are transferable to the main campus, or to another four-year institution.

Credits earned in curricula not offered on the University campus are chiefly of a technical or semiprofessional nature, leading to an Associate Degree in Applied Science.

The community colleges also offer a variety of noncredit courses and services of a professional, vocational, or cultural nature for adults. As stated above, these activities include evening classes, workshops, seminars, short courses, concert series, exhibits, lectures and dramatic productions to meet inservice, re-education and cultural needs expressed in the community.

Complete information on the various programs may be obtained from the Community College Bulletin.

UNIVERSITY EXTENSION

Stephen L. Langston, Ph.D., Dean of 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 comprises the Off-campus Class Program; the Evening Class program, which includes the Community Education Program; the Independent Study Program; the Student Services Division, which includes Academic Advising and Continuing Education for Women; the Conferences and Institutes Program; and the Council on Aging.

OFF-CAMPUS CLASS PROGRAM

James W. Brown, M.A., director

The Off-campus Class Program offers classes and programs where there is a need for such extension and when approved instructors can be secured. Members of business and industry, agency and institutional personnel, teachers and administrators, community college faculty, and other groups throughout the State take advantage of off-campus class offerings when it is impossible or impractical to attend classes on campus.

Credit earned from off-campus classes is regular University credit and classes are taught by regular University faculty or by instructors approved by the appropriate department chairmen and deans.

Classes are organized on the basis of need as indicated by individuals or groups from a given community or area. Persons interested in organizing an off-campus class should contact the Off-campus Class Program Office, University Extension, University of Kentucky.

EVENING CLASS PROGRAM

Millard F. Allen, Jr., M.B.A., director

The University's Evening Class Program provides an opportunity for continuing education to everyone in the Central Kentucky area. This program includes credit classes in many academic areas taught by University faculty and staff.

Students may enroll in the Evening Class Program 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 was eligible for admission to the University and for the course at the time of enrollment.

Full-time University students may enroll in an evening class which carries University credit provided they have the permission of their dean and adviser.

All evening class students are subject to the University's academic policies and regulations outlined in the front section of this Bulletin.

Students who have been dropped by the University of Kentucky may not enroll for credit in the Evening Class Program 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.

WITHDRAWAL AND REFUND POLICY FOR OFF-CAMPUS AND EVENING STUDENTS

Students enrolled in the Off-campus Class Program or the Evening Class Program may withdraw from an organized class during the first two weeks of the class and receive a full tuition refund. 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 made at the appropriate office in University Extension.

Community Education Program

Dawn Ramsey, B.A., coordinator

The Community Education Program, a unit within the Evening Class Division, offers alternatives to regular University credit courses in the Bluegrass area. The Community Education Program meets the needs of the adult population for university level and general interest continuing education programs. Specific programs are developed for nontraditional students in the Lexington community and innovative scheduling in times and locations is employed to serve adult Lexingtonians.

Community Education programs are open to all adults interested in increasing their skills and knowledge. Students are awarded CEUs (Continuing Education Units) for their effort in each program, and are also presented with a Certificate of Completion. The cost for a noncredit course to each individual is determined by the number of sessions necessary to complete the course.

Current Program information can be obtained by phoning 257-2794 or writing to:

Community Education Program
103 Frazee Hall
University of Kentucky
Lexington, Kentucky 40506

INDEPENDENT STUDY PROGRAM

Earl Pfanstiel, Ed.D., director

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.

A special noncredit course, "Writing for College Credit," is offered for those returning to college who feel that they need to sharpen their writing skills. Registration forms are available upon request.

Students must meet the enrollment requirements for a course, including any prerequisites specified for a particular course. An official transcript, however, is not requisite to enrollment.

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. A student may enroll for an independent study course any time during the calendar year and has one year from the date of enrollment in which to finish an independent study course.

3. A student in residence at the University of Kentucky must have the permission of his 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. The course description may be found in the listing of courses.

Accounting		
ACC 201	ACC 301	ACC 408G
ACC 202	ACC 302	
Agriculture		
GEN 102	GEN 104	GEN 106
Agronomy		
AGR 366	AGR 386	
Animal Science		
ASC 380		
Biology		
BIO 103	BIO 108	BIO 404G
BIO 104	BIO 110	BIO 465G
BIO 106	BIO 265	BIO 508
Business Administration		
BA 330	BA 340	BA 446
BA 335	BA 341	
BA 336	BA 345	
Business and Office Education		
BOE 112	BOE 117	BOE 445
BOE 113	BOE 118	
Classical Languages and Literatures		
CLA 101	CLA 131	
CLA 102	CLA 151	
Economics		
ECO 260	ECO 261	ECO 485
Education		
EDC 544	EDP 548	
Engineering		
ME 105	ME 350	
English		
ENG 101	ENG 221	ENG 375
ENG 102	ENG 222	ENG 425G
ENG 103	ENG 261	ENG 451G
ENG 161	ENG 262	ENG 452G
ENG 201	ENG 270	
ENG 205	ENG 271	
Forestry		
FOR 100		
French		
FR 101	FR 201	
FR 102	FR 202	
Geography		
GEO 151	GEO 210	GEO 522
GEO 152	GEO 251	
German		
GER 111	GER 201	
GER 112	GER 202	
History		
HIS 104	HIS 202	HIS 558
HIS 105	HIS 203	HIS 566
HIS 108	HIS 240	HIS 578
HIS 109	HIS 260	HIS 579
Home Economics		
HE 100	FAM 252	HET 439
FAM 101	HET 220	HET 537
FAM 251	HET 337	NFS 101
Journalism		
JOU 201	JOU 203	
Mathematics		
MA 108R	MA 114	MA 123
MA 109	MA 121	MA 201
MA 112	MA 122	MA 202
MA 113		
Music		
MUS 200		
Philosophy		
PHI 100	PHI 130	PHI 440
PHI 120		
Physics and Astronomy		
AST 191	AST 192	
Political Science		
PS 101	PS 452	
PS 280	PS 470G	
Psychology		
PSY 100	PSY 503	PSY 533
PSY 223	PSY 502	
Social Work		
SW 222	SW 322	
Sociology		
SOC 101	SOC 409	SOC 528
SOC 152	SOC 436	SOC 538
SOC 220	SOC 437	SOC 542
Spanish		
SPI 141	SPI 241	SPI 242
SPI 142		
Statistics		
STA 292	STA 293	STA 294
Theatre		
TA 597		

For complete descriptions, tuition fees, and required textbooks for courses offered by independent study, the student should request a copy of the Independent Study Catalog, available from:

Director, Independent Study Program
University Extension, 103 Frazee Hall
University of Kentucky
Lexington, Kentucky 40506

ACADEMIC SUPPORT SERVICES DIVISION

Jane B. Stephenson, M.S., M.A., director

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. Once an adult student has enrolled in the University, many support programs are offered.

Each spring and fall a **Back-to-school Workshop** is conducted to meet informational needs of adults who are considering enrolling in college courses. The seminar informs prospective students of available services and covers some of the problems students may encounter.

Each semester a number of short courses and workshops are held to benefit the adult student. **Study Skills courses** are offered to improve reading speed and comprehension, note 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. Individualized instruction is emphasized in this limited-enrollment course. A **mathematics refresher** course is also offered for those students who need to work on these skills and a mini-course in **communicating more effectively** is held each semester.

Workshops are offered on Saturday mornings during each semester on test-taking and study skills. Library tours designed for returning adult students are sponsored jointly with the King Library for both graduate and undergraduate students.

Some scholarship assistance is available for adult students through this office.

A drop-in center for adult students is open Monday through Thursday, 8 a.m. to 7:30 p.m. in Room 4, Frazee Hall. Free typewriters are available as well as coffee and tea.

Academic Advising Services

Mary Ann Murray, M.A., adviser

An Academic Advising Office is maintained in the Academic Support Services Division of University Extension to provide assistance and information for all University Extension students. This office is open from 4 p.m. to 8 p.m., Monday through Thursday, to serve the needs of students in the Evening Class Program.

Early each fall an Orientation/Advising Conference is held to assist students in academic planning, in becoming familiar with the campus, and in learning about the services available to them on campus.

Continuing Education for Women Project Ahead

Dee Ellen Davis, M.S.W., director

An increasing number of mature women are returning to campus. Approximately 2000 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 to school. Printed resources such as a day care directory and monthly newsletters are made available as well as 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, phone 257-2883 or 258-8707 or write to:

Academic Support Services
University Extension
4 Frazee Hall
University of Kentucky
Lexington, Kentucky 40506

CONFERENCES AND INSTITUTES

Robert G. Figg, M.A., director

The Conferences and Institutes Program serves as an agency through which the University's resources are coordinated to extend continuing education opportunities throughout the state and nation.

In cooperation with the academic colleges, University-sponsored conferences, institutes and other types of continuing education programs can be organized for interested groups who desire specialized instruction. Each program must conform to University standards and have a clearly defined educational purpose related to the University's research and academic resources.

The meeting, housing, food service and other facilities and services of the University are made available for visiting groups participating in these programs.

Another of the major responsibilities of the Conferences and Institutes Program is operation of Carnahan House, the University's residential conference center. The center, located near the main campus, provides an ideal setting for University-sponsored continuing education programs. It offers an unusual combination of facilities and accommodations that are spacious, well equipped and conducive to relaxation as well as to learning. The center has meeting rooms to accommodate up to 125 persons and can provide overnight lodging for 20 conference participants.

COUNCIL ON AGING

Donald H. Hoffman, Ed.D., director

The University of Kentucky has a deep and abiding interest in people, including those who are nearing retirement and those who have fulfilled their obligations to their job or profession. To give substance to this concern the Board of Trustees has created the Council on Aging, an integral division of University Extension.

The Council on Aging offers multiple disciplinary activities with representatives from the colleges and departments of the University. It also works with the Kentucky Commission on Aging, a division of state government, and the principal state, regional and national associations in gerontology and adult education.

The purposes of the Council include: the development of a high degree of sensitivity among all members of the University faculty and staff to the various aspects of aging; the promotion of an interest in study and research about aging; and the extension of this interest and knowledge outward from the campus to people everywhere.

The objectives of the Council are accomplished through a variety of programs including the Herman L. Donovan Senior Citizens Fellowship Program (described below), the Writing Workshop for People Over 57, and the Forum Series.

An annual program of the Council, the Writing Workshop attracts famous writers who teach in such genres as fiction, nonfiction, poetry, and special areas. The workshop produces an annual publication, *Second Spring*.

The Forum Series consists of numerous special programs presented by the Council. All Donovan Scholars are encouraged to attend the twice-weekly sessions.

The Council also assists the community colleges in developing continuing education programs for older persons.

The Herman L. Donovan Senior Citizens Fellowship Program

The fellowship provides an opportunity for any person 65 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. They also are involved in special programs arranged for them by the DONOVEM Association—an organization of Donovan Fellows and University Emeriti.

Inquiries about the Donovan Fellowship should be addressed to:

Council on Aging
Frazee Hall
University of Kentucky
Lexington, Kentucky 40506

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 professional students in professional colleges except by permission of college dean.

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:

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 shall be limited to students who have demonstrated superior ability or preparation.

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.

No students, other than those registered in the professional schools, may be admitted to courses numbered between 800 to 999 except by permission of the dean of the college.

ABBREVIATIONS

The University of Kentucky has established the following set of standarized alphabetized 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.

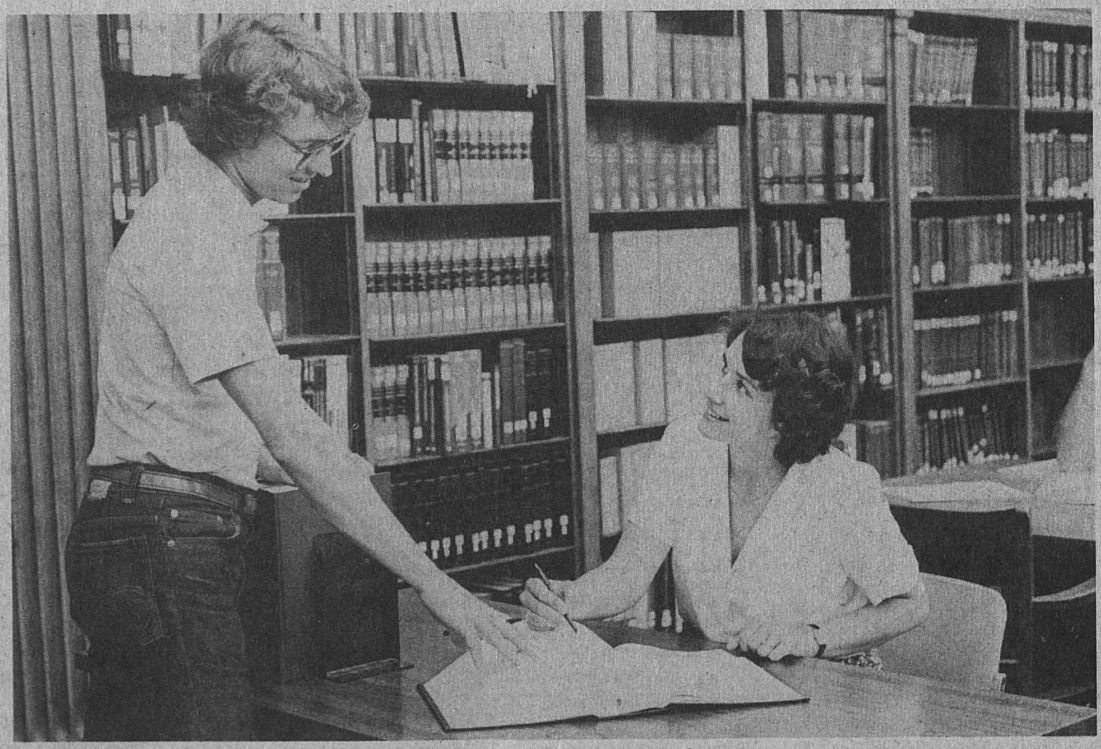
ACC—Accounting
A-E—Art-Education
AEC—Agricultural Economics
AEN—Agricultural Engineering
AGR—Agronomy
A-H—Art-History
AHE—Allied Health Education and Research
ANA—Anatomy
ANS—Anesthesiology
ANT—Anthropology
APP—Appalachian Studies
ARC—Architecture
ART—Art
A&S—Arts and Sciences
AS—Aerospace Science
A-S—Art Studio
ASC—Animal Sciences
ASK—Academic Skills
AST—Astronomy
BA—Business Administration
BCH—Biochemistry
BIO—Biology
BOE—Business and Office Education
BOT—Botany
BSC—Behavioral Science
CDE—Community Dentistry
CDS—Conjoint Dental Science
CE—Civil Engineering
CEX—Cooperative Extension
CH—Community Health
CHE—Chemistry
CLA—Classical Languages and Literatures
CLT—Comparative Literature
CM—Community Medicine
CME—Chemical Engineering
COM—Communication
CNU—Clinical Nutrition
CON—Conjoint—Medicine
CPC—Clinical Pastoral Counseling
CS—Computer Science
DH—Dental Hygiene
DIP—Patterson School of Diplomacy
DR—Diagnostic Radiology
ECO—Economics
EDA—Administration and Supervision
EDC—Curriculum and Instruction
EDF—Social and Philosophical Studies in Education
EDH—Higher Education
EDP—Educational Psychology and Counseling
EDS—Special Education
EDU—Education
EDV—Vocational Education
EE—Electrical Engineering
EM—Engineering Mechanics
END—Endodontics
ENG—English
ENT—Entomology
EXP—Experiential Education
FA—Fine Arts
FAM—Family Studies
FOR—Forestry
FP—Family Practice
FR—French Language and Literature
FS—Freshman Seminars
GEN—General Agriculture
GEO—Geography
GER—Germanic Languages and Literatures
GLY—Geology
GS—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
HSA—Human Services Administration
IND—Industrial Education (Listed under Education-Vocational)
JOU—Journalism
LA—Landscape Architecture
LAS—Latin American Studies
LAW—Law
LIN—Linguistics
LS—Library Science
MA—Mathematics
MB—Microbiology
MD—Medicine (Special Topics)
ME—Mechanical Engineering
MED—Medicine
MET—Metallurgical Engineering
MIN—Mining Engineering
MMI—Medical Microbiology and Immunology
MS—Military Science
MT—Medical Technology
MUC—Music Performance
MUP—Music Performance (Special fee)
MUS—Music
NEU—Neurology
NFS—Nutrition and Food Science
NUR—Nursing
OBI—Oral Biology
OBG—Obstetrics and Gynecology
ODM—Oral Diagnosis and Oral Medicine
OPH—Ophthalmology
OPT—Oral Pathology
ORT—Orthodontics
OSG—Oral Surgery
OTO—Otolaryngology
OTP—Orthopedics
PA—Public Administration
PAT—Pathology
PDO—Pedodontics
PED—Pediatrics
PER—Periodontics
PGY—Physiology and Biophysics
PHA—Pharmacology
PHI—Philosophy
PHR—Pharmacy
PHY—Physics
PLA—Planning
PPA—Plant Pathology
PRO—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PT—Physical Therapy
RC—Rehabilitation Counseling
RM—Radiation Medicine
RSD—Restorative Dentistry
SO—Slavic and Oriental Languages and Literatures
SOC—Sociology
SP—Speech
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

CROSS INDEX OF ABBREVIATIONS

College of Agriculture	
Agriculture—General	GEN
Agricultural Economics	AEC
Agronomy	AGR
Animal Sciences	ASC
Cooperative Extension	CEX
Entomology	ENT
Forestry	FOR
Horticulture	HOR
Landscape Architecture	LA
Plant Pathology	PPA
Veterinary Science	VS
College of Allied Health	
Allied Health Education and Research	AHE
Clinical Nutrition	CNU
Clinical Pastoral Counseling	CPC
Community Health	CH
Dental Hygiene	DH
Health Radiation Sciences	HRS
Medical Technology	MT
Physical Therapy	PT
College of Architecture	ARC
College of Arts and Sciences	
Arts and Sciences	A&S
Aerospace Studies (Air Force ROTC)	AS
Anthropology	ANT
Appalachian Studies	APP
Astronomy	AST
Biology	BIO
Botany	BOT
Chemistry	CHE
Classical Languages and Literatures	CLA
Comparative Literature	CLT
Computer Science	CS
Patterson School of Diplomacy	DIP
English	ENG
French Language and Literature	FR
Geography	GEO
Geology	GLY
Germanic Languages and Literatures	GER
History	HIS
Latin American Studies	LAS
Linguistics	LIN
Mathematics	MA
Microbiology	MB
Military Science (Army ROTC)	MS
Philosophy	PHI
Physics	PHY
Political Science	PS
Psychology	PSY
Slavic and Oriental Languages and Literature	SO
Sociology	SOC
Spanish and Italian Languages and Literatures	SPI
Statistics	STA
Women's Studies	WS
Zoology	ZOO

College of Business and Economics	
Accounting	ACC
Business Administration	BA
Economics	ECO
College of Communications	
Communication	COM
Journalism	JOU
Speech	SP
Telecommunications	TEL
College of Dentistry	
Community Dentistry	CDE
Conjoint Dental Sciences	CDS
Endodontics	END
Oral Biology	OBI
Oral Diagnosis and Oral Medicine	ODM
Oral Pathology	OPT
Oral Surgery	OSG
Orthodontics	ORT
Pedodontics	PDO
Periodontics	PER
Prosthodontics	PRO
Restorative Dentistry	RSD
College of Education	
Administration and Supervision	EDA
Business and Office Education	BOE
Curriculum and Instruction	EDC
Education	EDU
Educational Psychology and Counseling	EDP
Health, Physical Education and Recreation	HPR
Higher Education	EDH
Industrial Education	IND
Social and Philosophical Studies in Education	EDF
Special Education	EDS
Vocational Education	EDV
College of Engineering	
Agricultural Engineering	AEN
Chemical Engineering	CME
Civil Engineering	CE
Electrical Engineering	EE
Engineering Mechanics	EM
Mechanical Engineering	ME
Metallurgical Engineering and Materials Science	MET
Mining Engineering	MIN
College of Fine Arts	
Art	ART
Art Education	A-E
Art History	A-H
Art Studio	A-S
Fine Arts	FA
Music	MUC
	MUP
	MUS
Theatre	TA

College of Home Economics	HE
Family Studies	FAM
Human Environment: Design and Textiles	HED and HET
Nutrition and Food Science	NFS
Honors Program	HON
College of Law	LAW
College of Library Science	LS
College of Medicine	
Anatomy	ANA
Anesthesiology	ANS
Behavioral Science	BSC
Biochemistry	BCH
Community Medicine	CM
Conjoint-Medicine	CON
Diagnostic Radiology	DR
Family Practice	FP
Medical Microbiology and Immunology	MMI
Medicine	MED
Neurology	NEU
Obstetrics and Gynecology	OBG
Ophthamology	OPH
Otolaryngology	OTO
Orthopedics	OTP
Pathology	PAT
Pediatrics	PED
Pharmacology	PHA
Physiology and Biophysics	PGY
Psychiatry	PSC
Radiation Medicine	RM
Surgery	SUR
Medicine (Special Topics)	MD
Toxicology	TOX
College of Nursing	NUR
College of Pharmacy	PHR
College of Social Work	
Social Work	SW
Human Services Administration	HSA
Graduate School	GS
Public Administration	PA
Rehabilitation Counseling	RC
University Wide	UK
Experiential Education	EXP
Freshman Seminars	FS



COURSE DESCRIPTIONS

ACCOUNTING

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, fund statements, ratios, disclosure, price level and current value accounting. Prereq: ACC 301.

ACC 324 DATA PROCESSING IN ACCOUNTING 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 non-financial 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 chairman's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairman.

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 both internal and independent application. Emphasis is placed on the ethics, 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: Six hours of accounting.

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 422G FUNCTIONS OF ACCOUNTING. (3)
Introduction to the basic concepts and uses of accounting data. Prereq: Consent of instructor. (Not open to students who have ACC 202 or its equivalent.)

ACC 515 C.P.A. PROBLEMS. (3)
The application of generally accepted principles to representative problems from CPA examinations. Prereq: ACC 416G.

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, responsibilites, functions, organizational roles, etc. Prereq: ACC 408G and at least senior standing, or consent of instructor.

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 consent of instructor.

ACC 547 STATE AND LOCAL TAX ACCOUNTING. (2)
Taxation by state and local governments; problems of real and personal property taxation, sales and use taxes, business and personal taxes, inheritance and gift taxes. Limitations on taxation of interstate commerce. Compliance problems. Prereq: ACC 417G or 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 procedures, 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 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 ACCOUNTING FOR CONTROL AND PLANNING. (3)
A study of the application of accounting information and services in the recognition or solution of management problems in business. Prereq: Six hours of accounting.

ACC 701 SEMINAR IN ACCOUNTING. (3)
A study of accounting history and contemporary problems. Prereq: Consent of instructor.

ACC 703 TOPICAL SEMINAR IN AUDITING. (1)
A study of contemporary issues in auditing. Prereq: ACC 603 or consent of instructor.

ACC 704 TOPICAL SEMINAR IN DATA PROCESSING. (1)
An evaluation of the current literature dealing with cultural and technical shocks created by implementing changes in information systems.

ACC 705 TOPICAL SEMINAR IN STATISTICAL AND MATHEMATICAL APPLICATION IN ACCOUNTING. (1)
Examination of the current empirical research applying statistical techniques and mathematical models.

ACC 706 TOPICAL SEMINAR IN ACCOUNTING THEORY. (1)
A study of current developments in accounting theory with emphasis on the source of authority and pronouncements of the Accounting Principles Board and the Financial Accounting Standards Board. Prereq: D.B.A. student.

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 709 TOPICAL SEMINAR IN NOT-FOR-PROFIT AND REGULATORY ACCOUNTING. (1)
A study of the unique characteristics of not-for-profit and regulated industries as they relate to the practice of Accountancy. Prereq: D.B.A. student.

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

AIR FORCE ROTC GENERAL MILITARY COURSE

FIRST YEAR

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 LABORATORY. (0)
Laboratory to accompany AS 111 or AS 112.

SECOND YEAR

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 approval of PAS.

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. One lecture and one leadership laboratory per week. Prereq: AS 111, 112 or approval of PAS.

AS 213 LEADERSHIP LABORATORY. (0)
Laboratory to accompany AS 211 or AS 212.

THIRD YEAR

AS 331 AEROSPACE STUDIES III, 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 212 or approval of PAS.

AS 332 AEROSPACE STUDIES III, AFROTC. (3)
Continues the study of strategy and the mananagement 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 or approval of PAS.

AS 333 LEADERSHIP LABORATORY. (0)
Laboratory to accompany AS 331 or AS 332.

FOURTH YEAR

AS 341 AEROSPACE STUDIES IV, 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: AS 331, 332 or approval of PAS.

AS 342 AEROSPACE STUDIES IV, 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, 332, or approval of PAS.

AS 343 LEADERSHIP LABORATORY. (0)
Laboratory to accompany AS 341 or AS 342.

AS 323 AEROSPACE STUDIES—
FLIGHT INSTRUCTION PROGRAM. (3)
A program of classroom instruction leading to successful completion of the FAA private pilot written examination. Includes theory of flight, Federal Aviation Regulation, fundamentals of meteorology, and aerial navigation. Prereq: Category IP, AS 331, 332; senior standing, or approval of PAS.

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 science.

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 102A, GEN 102B, ECO 261.

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 102A, GEN 102B, ECO 261.

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 102A, GEN 102B, ECO 261, MA 123 or 113.

AEC 309 INTERNATIONAL AGRICULTURE,
WORLD FOOD NEED 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; an introduction to agricultural development problems of the less developed nations of Latin America, Africa, and Asia. Prereq: GEN 102A, GEN 102B 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 into 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 323 LINEAR PROGRAMMING
WITH AGRICULTURAL APPLICATIONS. (3)
Emphasis on the use of linear programming models as aids to analyzing agricultural problems. Problems will be solved by students using computer programs as a teaching aid. Prereq: MA 123 or 113, AEC 301 or 302.

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 102A, GEN 102B.

AEC 399 EXPERIENTIAL LEARNING IN
AGRICULTURAL ECONOMICS. (1-6)
A field experience in the application of economics to agricultural and rural problems. May be repeated once. May be repeated to a maximum of 12 credits. Prereq: GEN 102A, GEN 102B, nine hours in agricultural economics or economics, and consent of instructor, department chairman, and completion of learning agreement prior to registration.

AEC 408 FARMS' RECORDS
AND BUSINESS ANALYSIS. (3)
Concentrates on the tools, techniques, principles and measures used to analyze farm business performance over time, such as annual performance, and within a year analysis. Determination of weaknesses and strong points of a farm business for corrective action is stressed. Prereq: AEC 302 or AEC 322.

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). Prereq: AEC 302 or 322. Not open to graduate students.

AEC 412 FARM LEGAL PROBLEMS. (1)
Increases awareness of potential legal problems in operating a farm business. Topics include rights in property ownership, credit obligations, leasing, farm family corporations, wills and estates. Three hours lecture per week (one-third semester). Prereq: AEC 302 or 322. Not open to graduate students.

AEC 413 FARM RISK, UNCERTAINTY AND
INSURANCE STRATEGIES. (1)
Describes the risk environment facing farm managers and classifiesformal insurance contract and those where only informal insurance strategies are available. Subsequently insurance strategies are designed. Three hours lecture per week (one-third semester). Prereq: AEC 302 or 322. Not open to graduate students.

AEC 414 FARM ESTATE PLANNING. (1)
Investigation of farm estate planning at the individual farm level. The unique considerations regarding retirement provisions, intergenerational transfer of title, and problems of new operators in agriculture will be considered. Three hours lecture per week (one-third semester). Prereq: AEC 302 or 322. Not open to graduate students.

AEC 416 FARM INCOME TAX MANAGEMENT. (1)
Develop understanding of farm management strategies that have income tax implications in the areas of financial mangement, farm business expenses, land and depreciable property tax management. Three hours lecture per week (one-third semester). Prereq: AEC 408. Not open to graduate students.

AEC 423 ADVANCED LINEAR PROGRAMMING
APPLICATIONS. (1)
Emphasis on the utilization of linear programming models for optimization. Students will be expected to experiment with the linear programming model to learn how the model works. A report at the end of the semester detailing the students' experiment with the model required. Prereq: AEC 323. Not open to graduate students.

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 261.

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 261, 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: Consent of instructor and department chairman 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 PRODUCTION ECONOMICS. (3)
Economic analysis of agricultural production. A theoretical treatment of land and capital returns, costs and related functions of agricultural production at an elementary level. Prereq: AEC 302.

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 BA 335.

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.

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 AGRIBUSINESS LOGISTICS MANAGEMENT. (3)
Examines agribusiness logistics 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 535 ECONOMIC DEVELOPMENT OF RURAL REGIONS OF THE UNITED STATES. (3)
Develops and applies concepts useful in understanding and evaluating approaches to the economic development of rural areas. Applications are made to contemporary policies and programs. Skills in use of elementary techniques for planning and evaluating impacts of programs are developed. Prereq: ECO 260, 261.

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 261 or equivalent.

AEC 580 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. (1-3)
Directed independent study of a selected problem. Prereq: Consent of instructor and chairman 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 market organization, marketing functions, market management, and price analysis. Prereq: Consent of instructor.

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 520 or equivalent and MA 113 or ECO 590.

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. Offered even-numbered years. Alternates with AEC 661.

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 over-all 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 economics 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: BA 450 and either AEC 620 or ECO 660. Offered odd-numbered years. Alternates with AEC 621.

AEC 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours. Prereq: Consent of adviser and chairman of department.

AEC 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely. Prereq: Consent of adviser and chairman 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 for a total of nine credits. Prereq: Consent of instructor and department chairman.

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. Three hours laboratory 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 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. Two hours lecture per week; two hours lab 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. Two hours lecture per week; two hours lab per week.

AEN 252 FARM SHOP. (3)
Wood and metal work, including blueprint reading, oxy-acetylene 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 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; MA 113 or MA 122 and 123.

AEN 345 AGRICULTURAL PROCESSING AND ELECTRIFICATION. (3)
A consideration of electricity and electric power as applied to agriculture; materials handling and feed processing; crop drying and storage; environmental factors in crop storage; pumps and farmstead water systems. Prereq: Junior standing or consent of instructor.

AEN 405 PROPERTIES OF SOILS AND BIOLOGICAL MATERIALS AS RELATED TO ENGINEERING. (3)
A study of the properties of soil and biological materials which are needed in the engineering design to systems to produce, store, and process agricultural products. Lecture, two hours; laboratory, two hours. Prereq: Junior standing in agricultural engineering 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 em-

phasis on interactions between these biological systems and their environment. Lecture, two hours; laboratory, two hours. Prereq: ME 325 or consent of instructor.

AEN 417G INTRODUCTION TO DESIGN OF AGRICULTURAL MACHINERY. (3)
An introduction to analysis of forces, selection of materials and identification of geometric considerations relative to the design and development of agricultural machines. Prereq: EM 313, ME 330 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; prereq or concur: ME 325.

AEN 430 FARM WATER MANAGEMENT. (3)
Elementary surveying, mapping, and determination of land areas; consideration of preciptation, 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 431G WATERSHED HYDROLOGY. (3)
A study of that part of the hydrologic cycle pertaining to the principles of water movement into and through agricultural and forest watersheds. The effects of natural and man induced changes in watersheds on their hydrology and that of downstream areas. Prereq: Three hours of college mathematics; three hours of college physics.

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.

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, 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. Consent of the instructor is required. May be repeated to a maximum of six credits.

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 senior standing in engineering.

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: Senior standing in engineering 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.

AEN 525 ENVIRONMENTAL DESIGN FOR BIOLOGICAL SYSTEMS. (3)
The influence of environmental factors on biological efficiency, design and selection of equipment and controls for providing environmental requirements of biological systems. Lecture, two hours; laboratory, two hours. Prereq: AEN 427G 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.

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.

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. (Same as ME 568).

AEN 599 TOPICS IN AGRICULTURAL ENGINEERING. (2-3)
A detailed investigation of a topic of current significance in agricultural engineering such as: design of small earth dams, vacuum dehydration systems, small particle mechanics, environmental control in greenhouses, sprinkler irrigation, energy conversion in agriculture, bio-simulation. Prereq: Variable; given when topic identified. Equivalent of two 400 level courses in engineering and consent of instructor. 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 AEN 599 number.

AEN 606 MICROMETEOROLOGY. (3)
A study of the processes occurring at the earth-atmosphere boundary, including heat and energy balance, which are important to biological systems. Prereq: One course in thermodynamics, or physical chemistry.

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 628 ADVANCED DESIGN OF STRUCTURES FOR BIOLOGICAL SYSTEMS. (3)
The use of similitude, dimensional analysis, and statistical theory in the analysis of selected agricultural structural problems. The prediction of system performance as environmental conditions change; and the analysis of system reliability. Lecture, two hours; laboratory, two hours. Prereq: AEN 525 or consent of instructor.

AEN 635 APPLIED STATISTICAL METHODS IN WATER RESOURCES. (3)
Frequency analysis, stream flow predictions through regression analysis and multivariate techniques, simulation of water resources systems, time series analysis of hydrologic data. Prereq: MA 214 and one of the following: STA 381, 421, 423G, 524, or 681. (Same as CE 635.)

AEN 645 ELECTROMAGNETIC RADIATION IN AGRICULTURAL ENGINEERING. (3)
An advanced study of the theory and engineering aspects of electromagnetic radiation as applied to the agricultural sciences. Consideration is given to the ultraviolet, visible, infrared and radiofrequency types of electromagnetic radiation. Prereq: AEN 548 or consent of instructor.

AEN 648 ENERGY AND MASS TRANSFER IN AGRICULTURAL PROCESSING. (3)
A comphrehensive 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.

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 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 chairman 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 100 DEVELOPMENT OF AGRICULTURAL SCIENCE. (1)
A survey of the nature and scope of modern agricultural science with emphasis on its significance to mankind. Two laboratory hours per week.

GEN 102A AGRICULTURAL SOCIAL SCIENCE-AGRICULTURAL ECONOMICS. (2)
To provide 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 improved understanding of selected current social and economic issues, including the role of agriculture in both a national and international dimension.

GEN 102B AGRICULTURAL SOCIAL SCIENCE-AGRICULTURAL SOCIOLOGY. (2)
Introduces major concepts and theories in sociology. Investigates socialization, group processes, social institutions, and social change with emphasis on agriculture and nonmetropolitan settings.

GEN 104 AGRICULTURAL PLANT SCIENCE. (4)
To develop an appreciation of the plant and soil sciences as they relate to agriculture and to develop an understanding of crop plant morphology, physiology, genetics and ecology and the relation of these to soil properties, soil management and utilization for growth of crop plants. Prereq: Freshman or sophomore standing or consent of instructor.

GEN 106 AGRICULTURAL ANIMAL SCIENCE. (4)
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 trace components; characteristics of livestock species related to reproduction, weight gain and efficiency of breeds of beef and dairy cattle, sheep and swine. Lecture, three hours; laboratory, two hours.

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.

AGRONOMY

GENERAL COURSES

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 place 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 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 chairman and completion of a departmental learning contract before registration.

AGR 401 AGRI-CHEMICALS IN PEST MANAGEMENT. (3)
A study of the problems leading up to usage of pesticides followed by an introduction to the classes of pesticides, selection and use of pesticides in pest management programs. Prereq: ENT 310 or 320, CHE 230 or 236, AGR 404, PPA 375. (Same as ENT 401 and PPA 401.)

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 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 biology and one soils course. (Same as HOR 515).

AGR 554 ADVANCED CROP SCIENCE. (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 or consent of instructor.

AGR 556 SEED TECHNOLOGY. (2)
Technical aspects of production, processing, storage and marketing of genetically pure crop seed, basic understanding of seed germination, seed quality determination and seed control legislation. Lecture: two hours; laboratory: four hours (first half of semester only). 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: four hours (second half of the semester). 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 599 SPECIAL PROBLEMS IN AGRONOMY. (1-4)
May be repeated for a maximum of nine credits. Prereq: Consent of instructor.

AGR 619 CYTOGENETICS. (4)
Cytological and genetic evidence for the chromosome theory. Chromosome aberrations and their importance in heredity and evolution. The effect of ionizing radiation on chromosomes. Three lectures and two hours of lab per week. (Same as BIO 619.) Prereq: BIO 516 and 519 or equivalent.

AGR 658 ADVANCED WEED SCIENCE. (3)
Taxonomical, ecological, physiological, chemical and bio-chemical 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 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 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 and BIO 678.)

AGR 697 SPECIAL TOPICS IN CROP SCIENCE. (1-3)
Selected topics in related areas of crop science. Example topics include: (1) Cytogenetic Methods in Plant Breeding, (2) Chemical Evaluations of Crop Quality, and (3) Plant Stress as Related to Crop Yield. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

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 for a maximum of four credits.

AGR 799 RESEARCH IN AGRONOMY. (1-4)
May be repeated for a maximum of 12 credits. Prereq: Consent of instructor.

CROP SCIENCE

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: GEN 104 and AGR 366 or consent of instructor.

AGR 404 WEED SCIENCE. (3)
Identification, dissemination, growth, and ecology of weeds; techniques and principles of cultural and chemical weed control. Lecture, two hours; laboratory, three hours. Prereq: AGR 386 or consent of instructor.

AGR 406G 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. Lecture, two hours; laboratory, two hours. 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 502 ECOLOGY OF ECONOMIC PLANTS. (3)
Critical study of the response of economic plants to natural and man-modified environment. 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: BIO 201 and 203, or consent of instructor.

AGR 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constituents by centrifugation, chromatography, 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 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 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 515 or consent of instructor. (Same as BIO 732 and 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 531 or consent of instructor. (Same as BIO 734 and HOR 734.)

AGR 736 PHYLOGENY OF CULTIVATED PLANTS. (3)
Lecture and discussion of concepts and experimental techniques concerned with the origin and phylogeny of cultivated plant species. Lecture, two hours; laboratory, two hours per week. Prereq: AGR 406G, or consent of instructor. (Same as HOR 736.)

SOIL SCIENCE

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 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 473G SOIL MORPHOLOGY AND MAPPING. (3)
Study of concepts of soil horizons and soil profiles, and the chemical, physical and mineralogical parameters useful in this characterization. Use of soil survey equipment, preparation of soil maps, and development of a land use plan for an assigned area. Lecture, two hours; laboratory, three hours. Prereq: AGR 366 and 367 and GLY 144 or consent of instructor.

AGR 562 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 562.)

AGR 566 SOIL BIOLOGY. (3)
The nature and biochemical activities of soil microflora; their significance in soil genesis and structure and their role in soil fertility. Offered every spring. Prereq: AGR 366 and BIO 276, or consent of instructor.

AGR 575 SOIL PHYSICS. (3)
Physical properties of soils and their relationships to chemical, mineralogical, and biological soil properties and to plant growth. Lecture and discussion, two hours; laboratory, two hours. Prereq: AGR 366 and 367 and consent of instructor.

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, auto-tutorial, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 366 or equivalent, or consent of instructor.

AGR 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 and 581 or consent of instructor. (Same as GEO 652.)

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 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 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, auto-tutorial, one hour; discussion, one hour; laboratory, four hours. Prereq: AGR 581 or equivalent or consent of instructor. (Same as GLY 681.)

AGR 691 TOPICS IN SOIL MINERALOGY. (1-4)
Selected topics which may include applied mineralogy, surface chemistry of clays, clay mineral morphology, genesis of soil clays, mineralogy of Kentucky soils, and recent advances in mineralogy. May be repeated to a maximum of six credits. Prereq: Consent of 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. Lecture and discussion, two hours; laboratory, two hours. Prereq: AGR 560 or consent of instructor.

AGR 721 SOIL GENESIS. (3)
Critical study of theories and concepts in soil genesis and their relationships to soil morphology and classification. Analysis of soil properties and soil forming processes responsible for the development of unique soil pedons. Prereq: Consent of instructor.

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 equivalent or consent of instructor. (Same as GLY 741.)

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 PLANT METABOLISM. (3)
See course description under Biology.

ALLIED HEALTH EDUCATION AND RESEARCH

AHE 500 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.

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. Prereq: Graduate standing; consent of instructor. May be repeated for a maximum of six credits.

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. Prereq: Consent of instructor. May be repeated for a maximum of nine credits.

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 841 HEALTH CARE SYSTEM CLERKSHIP. (3)
An organized rotating clerkship in the community designed to demonstrate the elements of community influence on health care delivery and the response of the delivery system to those elements, using the team approach as the investigative mechanism. Students may elect for community-based teams or for preceptor/case presentation teams on a space available basis. Required for Allied Health baccalaureate students . Pass/Fail only. Recommend: AHE 856 or equivalent. Prereq: Consent of instructor.

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. Prereq: Admission to College of Allied Health Professions Program or permission of instructor. May be repeated to a maximum of 12 credits.

AHE 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 Clinical Associate Program.

AHE 851 INTRODUCTION TO THE PROFESSION-CLINICAL ASSOCIATE. (1)
To create an image for the new profession of Clinical Associate. Prereq: Enrollment in the Clinical Associate Program.

AHE 852 MEDICAL ETHICS FOR CLINICAL ASSOCIATES. (1)
A study of medical practice presented in lecture format. Prereq: Enrollment in the Clinical Associate Program.

AHE 853 MEDICAL TERMINOLOGY FOR CLINICAL ASSOCIATES. (2)
The basic language of medical practice. Prereq: Enrollment in the Clinical Associate Program.

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 855 ALLIED HEALTH COLLOQUIUM. (2)
Joint session for allied health professions students and faculty. This innovative course is designed to promote cohesiveness and interaction among various health professions in order better to meet the challenge of health care demands. Content of the course will include identification of major health care issues and problems. Concepts of health care teams, human relations psychology, health care delivery systems and a scientific-technical series on subjects of mutual interest. Offered on a pass/fail basis only.

AHE 856 ALLIED HEALTH COLLOQUIUM. (2)
Continuation of AHE 855. Offered on a pass/fail basis only.

AHE 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. Prereq: Enrollment in the Clinical Associate Program.

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 860 CLINICAL FAMILY PRACTICE. (5)
This is a five-week clinical rotation designed to provide the student physician assistant clinical experiences 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. Prereq: Enrollment in the Clinical Associate Program.

AHE 861 CLINICAL PEDIATRICS FOR CLINICAL ASSOCIATES. (5)
This is a five-week clinical rotation 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 in children. Prereq: Enrollment in the Clinical Associate Program.

AHE 862 CLINICAL OBSTETRICS AND GYNECOLOGY FOR CLINICAL ASSOCIATES. (5)
This is a five-week clinical rotation 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. Prereq: Enrollment in the Clinical Associate Program.

AHE 863 CLINICAL SURGERY FOR CLINICAL ASSOCIATES. (5)
This is a five-week clinical rotation 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. Prereq: Enrollment in the Clinical Associate Program.

AHE 864 ELECTROCARDIOGRAPHY FOR CLINICAL ASSOCIATES. (2)
In this course the student is taught to take, prepare for reading, and recognize gross abnormalities in the electrocardiogram. Lecture, 10 hours; laboratory, 30 hours per week. Prereq: Enrollment in the Clinical Associate Program.

AHE 865 CLINICAL RADIOLOGY FOR CLINICAL ASSOCIATES. (2)
This is a clinical rotation designed to provide the student physician assistant experiences with the clinical application of diagnostic radiology. Prereq: Enrollment in the Clinical Associate Program.

AHE 866 CLINICAL DERMATOLOGY FOR CLINICAL ASSOCIATES. (2)
This course provides the student with an experience in evaluatory dermatological conditions and helping in the medical and surgical management of the same. Prereq: Enrollment in the Clinical Associate Program.

AHE 867 CLINICAL PRECEPTORSHIPS FOR CLINICAL ASSOCIATES I. (4)
Provides the student with the opportunity to integrate his previous year of didactic training and seven months of clinical rotations into a functioning system. Prereq: Enrollment in the Clinical Associate Program.

AHE 868 CLINICAL PRECEPTORSHIPS FOR CLINICAL ASSOCIATES II. (4)
This course provides the student with the opportunity to integrate his previous year of didactic training and seven months of clinical rotations into a functioning system. This course is a continuation of Preceptorship I. Prereq: Enrollment in the Clinical Associate Program and completion of Preceptorship I.

AHE 869 CLINICAL INTERNAL MEDICINE FOR CLINICAL ASSOCIATES. (5)
This course provides the student with an experience in evaluating the adult patient with the variety of acute and chronic problems seen in an outpatient setting. Prereq: Enrollment in the Clinical Associate Program.

AHE 870 EMERGENCY MEDICINE FOR CLINICAL ASSOCIATES. (5)
This course provides the student with training in triaging, evaluating and managing the multitude of patients with a wide variety of complaints presenting today's busy emergency room. Prereq: Enrollment in the Clinical Associate Program.

AHE 871 CLINICAL PSYCHIATRY FOR CLINICAL ASSOCIATES. (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. Prereq: Enrollment in the Clinical Associate Program.

AHE 872 PRACTICAL THERAPEUTICS FOR CLINICAL ASSOCIATES. (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 Clinical Associate Program.

AHE 873 COUNSELING AND INTERVIEWING SKILLS FOR CLINICAL ASSOCIATES. (1)
This course is designed to provide Clinical Associate students with a basic understanding of individual and group dynamics, and counseling and interviewing techniques applicable to their role as a physician's assistant. 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. Prereq: Admission to the College of Allied Health Professions Program. May be repeated to a maximum of six credits.

Two other core-type courses are offered through the Department of Curriculum and Instruction:

EDC 500 CLINICAL AND LABORATORY TEACHING. (4)
Includes learning theories, motivational concepts, review of research, developing instructional objectives, human relations in the classroom, teaching methodologies, clinical instruction, performance evaluation and preparation of instruction units. This course is designed primarily for students in allied health, education, library science, home economics and social professions.

EDC 501 TEACHING INTERNSHIP. (3-12)
Supervised practice teaching under competent leadership. Observation, instruction, independent study which parallels field experience, and conferences with supervising instructor included. (May be repeated for a total of 12 hours.) This course is designed primarily for students in allied health, education, library science, home economics and social professions. Prereq: EDC 500, or consent of instructor.

ANIMAL SCIENCES

ASC 108 BEGINNING EQUITATION. (1)
For students having little or no previous experience with horses. Students learn to groom, tack up and handle horses. Introduction to basic position at the walk, sitting trot, rising trot and center with emphasis on control. Prereq: Freshman or sophomore classification or consent of instructor. (Same as HPR 108.)

ASC 109 INTERMEDIATE EQUITATION. (1)
Strengthening of skills covered in ASC 108 with emphasis on use of the aids and development of an independent seat. Individual exercises, school figures and an introduction to cavalettis are also covered. Laboratory, four hours per week. Prereq: ASC 108 and consent of instructor. (Same as HPR 109.)

ASC 286 EQUESTRIAN DRESSAGE. (2)
Principles and practices of classical theories with emphasis on becoming a more effective rider and recognizing correct forward movement in the horse. Lecture, one hour; laboratory, two hours. Prereq: ASC 109 and consent of instructor. Freshman or sophomore classification or consent of instructor. (Same as HPR 286.)

ASC 287 JUMPING (EQUITATION). (1)
Principles and practices of equitation over a variety of fences with emphasis on form of rider. Some cross country work. Prereq: ASC 286 and consent of instructor. Freshman or sophomore classification or consent of instructor. (Same as HPR 287.)

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. Prereq: GEN 106. Not open to freshmen.

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 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, cutout, 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.

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'S 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 standing 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 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.

ASC 360 GENETICS. (4)
The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, bio-chemical-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 386 APPLIED DRESSAGE. (1)
Application of skills and theory introduced in Dressage Equitation. Students will be schooling horses according to classical principles. Laboratory: two hours. Prereq: ASC 286 and consent of instructor. (Same as HPR 386.)

ASC 395 SPECIAL PROBLEMS IN ANIMAL 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.

ASC 388 EQUITATION TEACHING. (2)
Theory and practice of teaching equitation. One hour lecture and two hours laboratory. Prereq: ASC 286 and consent of instructor. (Same as HPR 388.)

ASC 399 EXPERIENTIAL LEARNING IN ANIMAL SCIENCES. (1-6)
A field-based learning experience in Animal Sciences, 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 chairman and completion of a departmental learning contract before registration.

ASC 400G SPECIAL TOPICS IN ANIMAL SCIENCE. (1-3)
Discussion of current practices and recent research information in Animal Sciences 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. (3)
History and importance of the sheep industry; application of the principles of selection, breeding, feeding and cmanagement of sheep for efficient lamb and wool production. Lecture, one hour; laboratory, four hours. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380.

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 implication 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 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 com-

mercial implications. Statistical handling of data. Lecture, one hour; laboratory, four hours. Prereq: STA 370 or consent of instructor.

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 consent of instructor.

ASC 470 ANIMAL SCIENCE SEMINAR. (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.

ASC 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.

ASC 532 ADVANCED FOOD MICROBIOLOGY. (5)
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 foodborn illness. Students will isolate and identify microorganisms from foods. Lecture, three hours; laboratory, four hours. Prereq: ASC 530 or equivalent.

ASC 534 FOOD CHEMISTRY. (4)
Chemical and physical characteristics of 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.

ASC 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.

ASC 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, ASC 530 or 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.

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 600 METHODS AND TECHNIQUES IN ANIMAL SCIENCES. (3)
A study of statistical methods and techniques applicable to animal research including selection of experimental material, allocation techniques, design analysis and interpretation of results and a critical review of selected investigations. Prereq: STA 570 required; STA 671 and STA 672 desirable.

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, 306 or equivalent; one course in histology or biochemistry or consent of instructor.

ASC 660 PHYSIOLOGY OF REPRODUCTION. (3)
Physiological processes of reproduction in farm animals, gonadal function, endocrine relationships, fertility, and factors affecting reproductive efficiency. Prereq: VS 350, ASC 362.

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 indepth 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 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: Two or more courses from ASC 681, ASC 683, ASC 685 and ASC 687 or consent of instructor.

ASC 685 MINERAL METABOLISM. (2)
An indepth 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 512 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 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 total 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.

ASC 781 SPECIAL PROBLEMS IN GENETICS OR PHYSIOLOGY. (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 790 RESEARCH IN ANIMAL DERIVED FOODS. (1-6)
Problems involving original investigation. May be repeated for a total of nine credits. Prereq: Consent of graduate adviser.

ASC 791 RESEARCH IN GENETICS OR PHYSIOLOGY. (1-6)
Problems involving original investigation. May be repeated for a total of nine credits. Prereq: Consent of graduate adviser.

ASC 792 RESEARCH IN ANIMAL NUTRITION. (1-6)
Problems involving original investigation. May be repeated for a total of nine credits. Prereq: Consent of graduate adviser.

ANTHROPOLOGY

ANT 120 HUMAN ANCESTRY. (3)
Introduction to physical anthropology, the study of human variation and human evolution. Emphasizes methods of discovery and various means available for interpreting and understanding man's biological and early cultural development.

ANT 121 INTRODUCTION TO CULTURAL ANTHROPOLOGY. (3)
Archaeological remains of prehistoric man and the arts, industrial, social organization, languages, and religions of modern primitive peoples. Meets social studies requirements.

ANT 141 INTRODUCTION TO ARCHAEOLOGY. (3)
Introduces the theories, techniques, and strategies used by archaeologists to recover and interpret information about past cultures.

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)
Emphasis is placed on the integration of the study of language with other areas of anthropological inquiry. Biological foundations of language, primate communication, elementary descriptive linguistics, linguistic models in socio-cultural anthropology and archaeology, historical linguistics and language classification, survey of major language families of the world. Credit will not be given to students who already have credit for either ENG/LIN 301 or ENG 414G.

ANT 221 TECHNOLOGY, ENVIRONMENT AND CULTURE. (3)
Mankind's cultural and technological interaction with the physical environment. An introduction to cultural ecology. Prereq: ANT 121.

ANT 232 MODERN HUMAN VARIATION (RACE). (3)
A survey of the principal aspects of human variation within and between population. Attention is focused upon the concepts of race, racial mixture, human ecology, and human biology.

ANT 241 INTRODUCTION TO WORLD PREHISTORY. (3)
A survey of man's cultural developments from the earliest times to the beginning stages of civilization. No prerequisite.

ANT 253 SOCIETIES AROUND THE WORLD. (3)
Systematic comparative study of cultural systems at various levels of socio-cultural complexity. Attention will be paid to cultures in the context of their environment. Prereq: SOC 101 or ANT 121. Open to freshmen.

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 200.

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 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. Prereq: consent of instructor and department chairman; completion of departmental learning agreement. May be repeated to a maximum of 15 credits.

ANT 402G HUMAN IDENTIFICATION. (2)
This course requires of the student a detailed and systematic knowledge of human anatomy, both of the skeleton and the soft part tissues. The first half of the course will be devoted to the positive identification of all the bones of the human skeleton. This approach involves knowing each bone and its fragements, including the identification by side (left or right). In addition, sex differences and age changes will be mastered as the student's knowledge increases. Lecture, one hour; laboratory, two hours.

ANT 421G NORTH AMERICAN INDIANS. (3)
A survey of North American Indian cultures. Both historical and contemporary cultures will be duscussed.

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 430G COMPARATIVE RELIGIOUS SYSTEMS. (3)
The origins, evolution, structure and function of religion in human groups at various levels of socio-cultural complexity. Prereq: ANT 121.

ANT 438G ETHNOLOGY OF THE NEAR EAST AND NORTH AFRICA. (3)
Survey of Islamic, Christian, and Hebraic cultures of the Near East and North Africa, with emphasis on relations between religious traditions and political systems. Prereq: ANT 120 and 121, or consent of instructor.

ANT 442G NEW WORLD PREHISTORY. (3)
Survey of the origin and growth of prehistoric American Indian cultures as revealed by archaeological data. Prereq: ANT 120, 121.

ANT 490 PRE-FIELD STUDY SEMINAR. (3)
Orients students in a specific cultural area where they will conduct field research under faculty supervision and provides training in designing anthropological research. Prereq: ANT 120, 121, major and consent of instructor.

ANT 510 HISTORY OF ANTHROPOLOGICAL THEORY. (3)
Description and analysis of significant anthropological ideas in their historical context; the growth of the theoretical concepts in physical anthropology, archaeology and ethnology. Prereq: Consent of instructor.

ANT 512 COMPARATIVE CIVILIZATIONS. (3)
Comparison of complex societies of the past and present, stressing similarities and differences in their historical development and cultural achievements.

ANT 515 PHONOLOGICAL ANALYSIS. (3)
An investigation of speech-sounds and systems of speech-sounds. Articulatory phonetics, analysis of phonological systems, phonological theories. (Same as ENG 515, LIN 515.) Prereq: Consent of instructor.

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. (Same as ENG 516, LIN 516.) Prereq: ANT (ENG, LIN) 515.

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. (Same as LIN 519.)

ANT 520 NORTH AMERICAN INDIAN LANGUAGES. (3)
A region by region overview of the Indian languages and language families of North America. Genetic classification, phonological and grammatical systems, and oral literature will be covered for each region.

ANT 523 ETHNOLOGY OF OCEANIA. (3)
A survey of the various cultures to be found on the islands of the Pacific Ocean. Both aboriginal and modern acculturated societies will be considered. Prereq: ANT 120, 121.

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 ethical 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 CULTURE AND PERSONALITY. (3)
The cultural basis of personality. Personal character considered as the result of culturally fostered patterns. The ideal personality in several selected societies. Prereq: SOC 101.

ANT 527 CULTURE CHANGE. (3)
Internal change and contact change in cultures; agents and conditions promoting change; an analysis of innovation, dissemination, integration, diffusion, acculturation, and related concepts. Prereq: ANT 121.

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 level standing. (Same as SOC 528, 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 530 CONTEMPORARY LATIN AMERICAN CULTURES. (3)
Detailed survey of societies and cultures of contemporary Latin America, utilizing contributions from anthropological research. Prereq: Consent of instructor.

ANT 531 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 to colonialism and post-colonial national development. Prereq: ANT 121, or consent of instructor.

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 functions 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: Consent of instructor; SOC 101. (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: SOC 101. (Same as SOC 534 in College of Agriculture.)

ANT 536 PEASANT SOCIETIES. (3)
Comparison of peasant populations and their modernization, with emphasis upon the dynamics of cultural stability and change encountered in relationships between national elites and peasantries in various countries. Prereq: Junior standing.

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 541 ARCHAEOLOGICAL THEORY AND METHOD. (3)
The concepts and aims of archaeology, its history as a scientific discipline and its present role in the social sciences. Attention to basic principles in field work and to recent advances.

ANT 542 NORTH AMERICAN ARCHAEOLOGY. (3)
Origin and growth of prehistoric American Indian cultures north of Mexico as revealed by archaeological data.

ANT 546 PREHISTORIC MESO-AMERICA AND PERU. (3)
An intensive study of the native American civilizations, their origins, development, and achievements.

ANT 548 EUROPEAN AND NEAR EASTERN ARCHAEOLOGY. (3)
Prehistoric cultural development in Europe and the Near East, from the earliest times to the beginning of civilizations. Prereq: ANT 120 and 121, or onsent of instructor.

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 570 REGIONAL NEW WORLD ETHNOGRAPHY. (3)
The ethnography of a selected New World culture area. Both historical and contemporary cultures will be discussed. Prereq: ANT 121. May be repeated to a maximum of six credits.

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)
Prereq: Major and a standing of 3.0 in the department. May be repeated three times to a maximum of 12 credits.

ANT 582 TUTORIAL SEMINAR. (3)
Anthropological methods and theory. May be repeated to a maximum of six credits. Prereq: Major in anthropology.

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 610 HISTORY OF ANTHROPOLOGY. (3)
Traces the development of anthropology in historical perspective, with particular attention to major theorists. Prereq: 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: Consent of instructor.

ANT 612 SEMINAR IN CULTURE HISTORY. (3)
An in-depth discussion of the theory and methods of the various approaches to the study of culture history. Prereq: Consent 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 FIELD METHODS IN LINGUISTICS. (3)
Analysis of a language by working directly with a native speaker. Prereq: ANT (ENG) 514 or 515, and ANT (ENG) 516.

ANT 670 SEMINAR ON ROLE THEORY. (3)
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology, and psychology. Emphasis is placed on the potentiality of role as unifying concept in the behavioral sciences. Prereq: SOC 101. (Same as BSC 670 and SOC 670.)

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. Prereq: Six credit hours in physical anthropology or consent of instructor. May be repeated to a maximum of six credits

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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

ANT 721 SEMINAR IN REGIONAL ETHNOGRAPHY. (3)
Intensive examination of the ethnography of a selected major geographic division of the world, on the ethnographic and/or contemporary time horizon, with emphasis on the testing of ethnological theories. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

ANT 725 SEMINAR IN APPLIED ANTHROPOLOGY. (3)
Seminar discussion and individual or group research in the applications of social anthropology theory and methods to the solution of institutional, community, regional or national problems. Attention will be given to ethics, to the role attributes of the applied anthropologist, and to the history of applied anthropology. Prereq: ANT 525 or consent of instructor.

ANT 727 SEMINAR ON SOCIO-CULTURAL CHANGE. (3)
A seminar for advanced students. Emphasizes economic, religious, political, technological, psychological, etc., factors in change, and social and cultural patterns and processes of change. Prereq: SOC 101, ANT 527 or SOC 518, or consent of instructor. (Same as SOC 727 in Arts and Sciences.)

ANT 731 SEMINAR IN COMPARATIVE SOCIAL ORGANIZATION. (3)
A seminar for advanced students. Emphasizes principles in the comparative study of social systems; the role of kinship, age, sex, locality, and voluntary associations in determining relationships between individuals and between groups in non-literate and literate societies. May be repeated once. Prereq: Consent of instructor. (Same as SOC 731.)

ANT 741 SEMINAR IN REGIONAL ARCHAEOLOGY. (3)
Intensive examination of archaeology from selected regions, emphasizing cultural reconstruction, time-space organizations, and hypothesis testing. Prereq: ANT 541.

ANT 742 ADVANCED SEMINAR IN CULTURE HISTORY. (3)
Consideration of evolutionist, diffusionist, environmentalist, and other general theories of cultural causality, and their applicability to available historical and archaeological data. Prereq: Consent of instructor.

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) History and theory of medical anthropology; (2) Research design, field work, analysis of data, and report writing. Lecture, two hours; laboratory, three hours. Prereq: Graduate status in anthropology, sociology or psychology, a concentration or minor in medical behavioral science, and 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 once.

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

ARC 232 HISTORY OF ARCHITECTURE SURVEY. (3)
A survey of the development of architecture in relation to world culture with emphasis on aesthetics, principles and philosophies of design, structure, use of materials, and the social and political backgrounds. Illustrated lectures, parallel reading, discussion, sketching and research. Not open to students in architecture. (Same as A-H 232.)

INTRODUCTORY ARCHITECTURE SEQUENCE

ARC 101 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 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 problem: 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 consent 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 consent 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 consent 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 consent 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 consent 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; techniques 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 in 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 of 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 photgraphy as a means of documentation, self-expression, and exploration of form. May be repeated to a maximum of nine credits. Prereq: Junior standing or consent 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 191-198 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.

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, discussions, 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. (3)
A lecture-studio 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, two hours; laboratory, two hours. A-E 270 and A-E 272 together satisfy the state art requirement for general elementary teacher certification. Prereq: EDP 202.

A-E 272 WORKSHOP IN DESIGN EDUCATION. (3)
Studio problems with a variety of design concepts with special attention to the nature of different media and their educational potential. Lecture, two hours; laboratory, two hours. A-E 270 and A-E 272 together satisfy the state art requirement for general elementary teacher certification. Prereq: A-E 270.

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 chairman; 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 pr 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.) Prereq: Teaching certificate or consent of the instructor.

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: Consent 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 judgements; 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 599 INDEPENDENT WORK: ART EDUCATION. (1-3)
Individual research, field experience, and practicum experience leading to the development of art education curriculum and theory, interdisciplinary teaching techniques, and related activities. By appointment. May be repeated to a maximum of six credits. 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.

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 WESTERN MEDIEVAL ART TO THE YEAR 1000. (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 ART OF THE HIGH MIDDLE AGES. (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 320 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 historical and cultural context. Prereq: A-H 106 recommended.

A-H 331 NORTHERN EUROPEAN RENAISSANCE ART. (3)
Painting, sculpture and the 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 330 recommended.

A-H 332 BAROQUE AND ROCOCO ART. (3)
An examination of Western European art from 1600-1750 with emphasis on the historical and cultural background; consideration of the interaction of painting, sculpture and architecture. Prereq: A-H 106 recommended.

A-H 340 MODERN ART AND SOCIETY. (3)
A study of the visual arts from the eighteenth through the twentieth century, with emphasis on Europe and the United States. The role of art and the artist in relation to social, political, economic, and technological conditions. Prereq: A-H 106 recommended.

A-H 341 ART NOW. (3)
Examination of form and content in the art of the immediate present, with consideration of social, technological, psychological, and economic factors. Lectures, discussions, gallery and studio visits, reading in newspapers and magazines, original research and critical reviews of exhibitions. Weekly attendance at Arts Professions (Art 191-198) required. May be repeated to a maximum of six credits. Prereq: A-H 106.

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. (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 credits. 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 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 570 ART HISTORY AND THE ARTIST. (3)
Investigation of the various sources and methods which artists have used in developing their work. Lectures, discussion, gallery and studio visits, studio exercises and original research presented in verbal and visual form. Prereq: Two art history courses and two art studio courses.

A-H 580 HISTORICAL TECHNIQUES OF DRAWING, PAINTING, AND PRINTMAKING. (3)
Close analysis of the most common two-dimensional media developed through history. Considerations 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 max-

imum 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 594 ART THEORY AND CRITICISM. (3)
Extensive reading in art theory and criticism since antiquity with close analysis of texts by major artists and critics. Prereq: A-H 105, A-H 106 or consent of the instructor.

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. (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 through a variety of traditional and non-traditional processes, materials, and methods. Nine studio hours per week. Prereq: A-S 102 and 103.

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 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 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 VISUAL COMMUNICATION DESIGN. (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 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 non-woven 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 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: A-S 200, or 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. Three-18 studio 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. Nine studio 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 chairman, 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 final semester of student's senior year. 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 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 595 INDEPENDENT WORK: ART STUDIO. (3)
Independent work in art studio. May be repeated to a total of nine hours. Prereq: Art major, senior standing, grade-point average of 3.0 in department, and 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 TRADITIONAL AND EXPERIMENTAL MEDIA IN PAINTING. (3)
A survey of historical and contemporary procedures and materials with sustained problems in mural and easel painting. Preparation of grounds and consideration of permanency in pigments, vehicles and supports.

Prereq: Three credits in advanced painting; consent of instructor.

A-S 740 PROBLEMS IN FIBER. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of fiber. May be repeated 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: Twelve 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 photographic 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 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 780 PROBLEMS IN DESIGN. (3)
Sustained individual problems and experimental work in the technical and theoretical problems of design. May be repeated 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 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 maximum 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 to a maximum of nine credits. Prereq: Twelve credits of upper division studio work and consent of instructor.

ARTS AND SCIENCES

A&S 100 SPECIAL INTRODUCTORY COURSE. (1-3)
This course permits the offering at the introductory level of special courses of an interdisciplinary, topical, or experimental nature. Each course must 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 100 number. May not be repeated. One to three hours lecture per week. Prereq: Will be set by instructor.

A&S 102 HUMAN ECOLOGY. (3)
A study of the interrelationships of man, populations, space, energy, food, mineral resources and other life on earth. (Same as BIO 102.)

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 191 DESCRIPTIVE ASTRONOMY. (3)
A descriptive course dealing with the earth, moon, sun, planets, comets, and meteors.

AST 192 DESCRIPTIVE ASTRONOMY. (3)
A descriptive course dealing with the earth, moon, solar system, the stars, the galaxy, and the universe at large. Prereq: AST 191.

AST 193 ELEMENTARY ASTRONOMY. (3)
A descriptive, non-mathematical account of the solar system, the sun and stars, our galaxy, and the universe at large. For elective credit, non-science requirement. Credit is not given for both AST 193 and either 191 or 192.

AST 291 SPHERICAL ASTRONOMY. (3)
Application of the formulae for the spherical triangle to a variety of problems on the celestial sphere. Prereq: MA 113, concurrent.

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 391 CELESTIAL MECHANICS. (3)
The mechanics of systems of gravitating particles, with emphasis upon the calculation of orbits, theory of perturbations. Prereq: MA 213, concurrent.

AST 400 SPECIAL TOPICS IN PHYSICS AND ASTRONOMY. (1-3)
Topics in undergraduate physics such as Acoustics, Kinetic Theory, History of Physics, Thermoelectricity, Laser Physics, Radioastronomy, Elementary Particles, and Nucleosynthesis. May not be applied to physics major requirements. May be repeated to a maximum of six credits. Prereq: PHY 361 and MA 214. (Same as PHY 400.)

AST 491G GALACTIC ASTRONOMY I. (3)
Consideration of stellar statistics, radio astronomy, galactic rotation, stellar populations, interstellar medium. Prereq: AST 191, 192; MA 213; PHY 201, 211 or 231.

AST 492G GALACTIC ASTRONOMY II. (3)
Study of content, organization, and evolution of our own and other galaxies. Prereq: AST 292 or consent of instructor.

AST 495G ELEMENTARY ASTROPHYSICS I. (3)
Applications of the principles of elementary physics to the problems of stellar and planetary interiors. Prereq: PHY 203, 213, or 232; MA 213, concurrent.

AST 496G ELEMENTARY ASTROPHYSICS II. (3)
Applications of the principles of elementary physics to the problems of stellar atmospheres and interstellar matter. Prereq: AST 495G; MA 214, concurrent.

AST 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.

AST 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: AST 591.

BIOLOGY

BIO 102 HUMAN ECOLOGY. (3)
A study of the interrelationships of man, populations, space, energy, food, mineral resources and other life on earth. (Same as A&S 102.)

BIO 103 PRINCIPLES 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. Prereq: One unit of chemistry or consent of instructor.

BIO 104 ANIMAL BIOLOGY. (3)
An introduction to the major areas of interest in animal biology, e.g., 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. 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. 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 non-biology 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. 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 177, 178 ORIENTATION IN MICROBIOLOGY. (1ea.)
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 200 GENERAL BIOLOGY I. (3)
An integrated study of organisms and life functions. Prereq: One year college chemistry. Must be accompanied by BIO 201 (laboratory).

BIO 201 GENERAL BIOLOGY LABORATORY I. (2)
Laboratory to accompany BIO 200. Laboratory, four hours. Prereq: Enrollment in BIO 200. Also open to students who have had BIO 101. One year college chemistry or concurrent.

BIO 202 GENERAL BIOLOGY II. (3)
Continuation of BIO 200. Prereq: BIO 200-201. Must be accompanied by BIO 203 (laboratory).

BIO 203 GENERAL BIOLOGY LABORATORY II. (2)
Laboratory to accompany BIO 202. Laboratory, four hours. Prereq: Enrollment in BIO 202. Also open to students who have completed BIO 101 and 201.

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 260 FIELD BOTANY I. (2)
The study of the flora and vegetation of Kentucky. The use of field identification keys and herbarium collections. Two two-hour laboratories (field trips in lieu of some class hours per week). Prereq: An introductory course in biology.

BIO 261 FIELD BOTANY II. (2)
The study of flora and vegetation of Kentucky. The use of field identification keys and herbarium collections. Two two-hour laboratories per week. Prereq: An introductory course in biology.

BIO 265 DENDROLOGY. (3)
Classification, nomenclature, identification and silvical characteristics of trees and other woody plants based on their morphological, phylogenetic and ecological relationships. Nominally three one-hour lectures per week, but weekend field trips will be taken in lieu of some class hours. Prereq: One semester of botany or equivalent. (Same as FOR 265.)

BIO 276 PRINCIPLES OF BACTERIOLOGY. (4)
Lecture and recitation, two hours; laboratory, four hours. (An alternative course for students who do not have the prerequisites for BIO 476.) Prereq or concur: CHE 107. (This course is a prerequisite to a significant number of courses in this area of study.)

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 200, 201; BIO 202, 203 (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 seniors. May be repeated to a maximum of four credits.

BIO 340 COMPARATIVE ANATOMY. (4)
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. Prereq: BIO 104-105 and consent of instructor, or BIO 200-202 and consent of instructor.

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 systems, and endocrine function emphasizing homeostasis. Lecture, three hours; laboratory, two hours. Prereq: BIO 200-203, CHE 105-107.

BIO 351 PLANT KINGDOM. (3)
Survey of the morphology, taxonomy, life cycles, physiology and biological relationships of groups of plants 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 to 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 the 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. (Same as MA 411G.) (Note: Not open for graduate credit to graduate students in Biological Sciences and Mathematics.)

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 non-laboratory 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 MICROBIOLOGY. (4)
Microorganisms: their morphology, classification, physiology, relation to certain fermentations, to food, to soil fertility, and to disease. Lecture, two hours; laboratory, four hours. Prereq: CHE 230 and BIO 200, 201; BIO 202, 203 (or equivalent).

BIO 502 PRINCIPLES OF PHYSIOLOGY LECTURES. (4)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems. Prereq: One year physics, general chemistry and biology. (Same as PGY 502.)

BIO 503 EXPERIMENTAL METHODS. (2)
A laboratory course in physiology utilizing advanced techniques that emphasize the development of laboratory skills, experimental design, data reduction, interpretation and presentation. Prereq: PGY/BIO 502 (or equivalent). May be taken concurrently. (Same as PGY 503.)

BIO 508 EVOLUTION. (3)
An advanced lecture course on some of the fundamental principles of organic evolution. Prereq: BIO 200-202.

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 MMI 515.)

BIO 522 INDEPENDENT WORK IN ZOOLOGY. (3)
Special problems for individual students who are capable of pursuing independent investigations. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in the department.

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)
Readings and reports on special topics. Required of all senior botany majors. May be repeated to a maximum of two credits.

BIO 525 SPECIAL PROBLEMS IN BOTANY. (1-3)
Independent work in some phase of advanced botany. May be repeated to 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 differentiation at the tissue, cell and molecule levels. Lectures and assigned readings. Prereq: BIO 104 or BIO 200-202.

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 co-requisite of organic chemistry (CHE 230-232 or CHE 236, and 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)
A comparative study of the behavioral responses of animals to cues from their environment and from other animals. Neural mechanisms underlying the responsiveness of certain unicellular, invertebrate and vertebrate species will be examined. Prereq: BIO 350 or consent of instructor.

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 intense study of vertebrate histology at the tissue, cell and subcell levels with emphasis on human tissues. Some knowledge of biochemistry, physiology and anatomy is desirable. Laboratory involves study of prepared microscope slides. Lecture: three hours per week; laboratory: four hours per week. Prereq: BIO 202 or BIO 340 or consent of instructor.

BIO 544 EMBRYOLOGY. (5)
A general course in ontogeny. Studies in maturation, fertilization, cleavage, organogenesis and anomalies of development with laboratory work based on the chick and pig. Lecture, three hours; laboratory, four hours. Prereq: BIO 200-202, CHE 107.

BIO 545 EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES. (3)
An integrated study of the comparative embryology, histology and gross anatomy of vertebrates, stressing the adaptive significance of evolutionary change, the functional significance of morphological organization and basic ontogenetic concepts. Prereq: One year of general biology or consent of instructor.

BIO 546 LABORATORY STUDIES OF THE EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES. (2)
Companion laboratory to BIO 545. Laboratory, four hours. Prereq: One year of general biology, concurrent enrollment in BIO 545 or consent of instructor.

BIO 547 EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES. (3)
An integrated study of the comparative embryology, histology and gross anatomy of vertebrates, stressing the adaptive significance of evolutionary change, the functional significance of morphological organization and basic ontogenetic concepts. Prereq: One year of general biology, BIO 545 or consent of instructor.

BIO 548 LABORATORY STUDIES OF THE EMBRYOLOGY AND MORHPOLOGY OF VERTEBRATES. (2)
Companion laboratory to BIO 547. Laboratory, four hours. Prereq: One year of general biology, BIO 545, concurrent enrollment in BIO 547 or consent of instructor.

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. (Same as PGY 549.) Prereq: BIO 350 or consent of instructor.

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 570, 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 ICHTHYOLOGY. (4)
Taxonomy of the fishes with life-histories and biology of types. Fish structure and physiology, habits, ecology. Fish-culture and economic ichthyology; care of fishes, aquaria, etc. Elements of fresh-water fishery administration. Prereq: BIO 200-202.

BIO 554 MAMMALOGY. (4)
Designed to acquaint the student with the mammals of eastern North America, their classification, adaptations and natural history. Lecture, two hours; laboratory, four hours. Prereq: BIO 200-202.

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 200-202.

BIO 557 HERPETOLOGY. (4)
Designed to acquaint the student with the amphibians and reptiles of eastern North America, their classification, adaptations and natural history. Lecture, two hours; laboratory, four hours. Prereq: BIO 200-202.

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; fields excursions; laboratory studies. Prereq: BIO 200-202.

BIO 560 GENERAL ENTOMOLOGY. (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, 200-202; three additional credits in BIO 570 or 502.

BIO 561 MEDICAL ENTOMOLOGY. (4)
Study of arthropod vectors of disease. Structure, collection, identification, and control measures and life history studies. Given alternate years. Prereq: BIO 200-202 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 200-202. (Same as ENT 563.)

BIO 564 INSECT TAXONOMY. (4)
A study of insect taxonomy including the collection, preparation, and identification of adult insect specimens. Prereq: ENT 541 or equivalent. (Same as ENT 564.)

BIO 565 LIMNOLOGY. (4)
Detailed analysis of fresh water environment with special emphasis upon biological productivity. Lecture, two hours; laboratory and field, four hours. Prereq: CHE 105, 107, PHY 211, 213; or BIO 200-202; consent of instructor.

BIO 568 PROTOZOOLOGY. (4)
A comprehensive study of the phylum protozoa emphasizing current concepts of classification, phylogeny and evolution, ultrastructure, reproduction, nutrition, growth and motile behavior. The laboratory involves collection, identification, cultivation and physiology of protozoa with extensive observation and analysis of cellular function. Lecture, two hours; laboratory, four hours. Prereq: BIO 200-202, CHE 230-232, MA 113, 211, PHY 231, 232, and at least eight hours in zoology.

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, two two-hour periods per week. Prereq: BIO 200-202.

BIO 571 ALGOLOGY. (4)
A survey of the physiology, structure, life histories, genetics and relationships of the various groups comprising the algae, with the main emphasis upon the fresh-water green algae. Lecture, two hours; laboratory, four hours. Prereq: Six credits in biology.

BIO 573 MYCOLOGY. (4)
The structure, life history, and physiology of the fungi. Lecture, three hours; laboratory, two hours. Prereq: One course in biology.

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 575 PLANT PATHOLOGY. (3)
Significance, nature, causes, and methods of control of plant diseases. Lecture and discussion, two hours; laboratory, two hours. Prereq: One semester of botany or equivalent. (Same as PPA 575.)

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)
Chemical changes produced by microorganisms; properties of their enzymes; the physiology of their growth. Lecture or conference, two hours; laboratory, four hours. Prereq: CHE 232; reading knowledge of German or French.

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 BACTERIOLOGY. (4)
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Lecture, two hours; laboratory, four hours. Prereq: BIO 276 or 476G and CHE 107.

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, consent of instructor. (Same as PHA 590.)

BIO 594 IMMUNOLOGY AND SEROLOGY. (5)
The theories and mechanisms of infection and immunity; preparation, standardization, and uses of biological products; serology. Lecture, two hours; laboratory, six hours. Prereq: BIO 585.

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 594 or equivalents and consent of instructor. (Same as PAT 611)

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 MMI 615.)

BIO 617 ADVANCED MICROTECHNIQUE. (3)
Special methods in histological technique for students of zoology, pathology or anatomy.

BIO 619 CYTOGENETICS. (4)
Ctyological and genetic evidence for the chromosome theory. Chromosome aberrations and their importance in heredity and evolution. The effect of ionizing radiation on chromosomes. Lecture, three hours; laboratory, two hours. Prereq: BIO 516, 519 or equivalent. (Same as AGR 619.)

BIO 621 TOPICS IN MODERN BOTANY. (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 three times for credit, but each time the course is taken, it must be under a different instructor. The type of course should be indicated by parentheses, i.e., (systematic botany), (cytogenetics), (morphogenesis), (mycology), (algal physiology), etc. Prereq: Consent of instructor.

BIO 625 SEMINAR IN ANIMAL NAVIGATION. (2)
Discussions of the original literature on home range, homing ability and migration of animals. Prereq: Some reading knowledge of German.

BIO 630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY. (3)
Presentation of theory and experimental techniques for the study of chemical constituents 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 635 INSECT PHYSIOLOGY. (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, and digestion. Lecture, two hours; laboratory, four 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 science 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 540, BIO 562, or two years 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 545 or equivalent.

BIO 655 VERTEBRATE NATURAL HISTORY. (4)
Behavior of vertebrate animals in their natural habitats as related to shelter, food, reproduction, and other aspects of survival. Adaptations contributing to behavioral patterns will be considered. Lecture, two hours; laboratory, two hours. Given in alternate years. Prereq: BIO 555, 502.

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 663 EXPERIMENTAL PARASITOLOGY. (4)
Experimental approach to the physiology and biochemistry of parasitism emphasizing interactions that occur between host and parasite. The laboratory will provide experience in experimental design, data analysis, and practical application of modern lab techniques. Lecture, two hours; laboratory, four hours. Prereq: BIO 563, BCH 401G.

BIO 665 INSECT ECOLOGY AND BEHAVIOR. (3)
The biotic and physical factors influencing the distribution, abundance, and behavior of insects and insect populations. Prereq: Consent of instructor. (Same as ENT 665.)

BIO 667 PRINCIPLES OF ANIMAL SYSTEMATICS. (3)
Theory and practice of animal classification, with study of applications of the International Code of Zoological Nomenclature. Prereq: At least two advanced survey courses in zoology and/or entomology; for example, BIO 555, 570, 568, 670 or BIO/ENT 672. (Same as ENT 667.)

BIO 670 SPECIATION. (3)
Mechanisms of evolution. A discussion of modern theories and problems concerning the formation of animal species.

BIO 672 GENERAL ACAROLOGY. (4)
Introduction to study of mites. Classification, morphology, physiology and ecology of mites important to the medical, veterinary and agricultural fields. Lecture, two hours; laboratory, four hours. Prereq: BIO 200-202; ENT 100 and consent of instructor. (Same as ENT 672.)

BIO 673 EXPERIMENTAL MYCOLOGY. (4)
A study of the genetics, physiology and morphogenetic

systems in the fungi. Lecture, two hours; laboratory, four hours. Prereq: BIO 573 and consent of instructor.

BIO 685 ADVANCED IMMUNOLOGY. (3)
Current trends in immunology covering the organization and structure of cells relevant to immunity, immunochemistry, types of immune responses, cellular immunology, immunogenetics, and immunopathology. Prereq: BIO 594, BCH 501, or equivalents and consent of instructor. (Same as PAT 685.)

BIO 690 BACTERIOLOGY OF WATER AND SEWAGE. (4)
Microbiology of water; methods of purification. Sewage disposal methods. Operation of swimming pools. Standard and other methods for examination. Lecture, two hours; laboratory, four hours. Prereq: BIO 276 or 476G; and CHE 107.

BIO 694 BACTERIOLOGY OF FOODS. (4)
Dairy and miscellaneous food products; food preservation; food poisoning. Standard methods for official food and public health laboratories. Lecture, two hours; laboratory, four hours. Prereq: BIO 276 or 476G and BIO 108; CHE 107.

BIO 707 CONTEMPORARY TOPICS IN IMMUNOLOGY. (3)
This course deals with controversial and evolving areas of immunology. Lectures in a given topic will be accompanied by student discussion of contemporary literature. Prereq: BCH 401G or consent of instructor. (Same as MMI 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 718 HISTORY OF BACTERIOLOGY. (2)
Conference, two hours. Prereq: BIO 594.

BIO 720 MICROBIAL STRUCTURE AND FUNCTION. (3)
Molecular basis of structure in unicellular microbes. Structural dynamics of growth, cell division and differentiation. Taxonomic aspects of cell components. Lecture and conference: 2 hours; laboratory: 2 hours per week. Prereq: Consent of instructor and BIO 476G or equivalent.

BIO 728 DEVELOPMENTAL GENETICS. (3)
Discussion of metabolism, phenogenesis, immunogenicity, and molecular evolution as relates to gene action and its modification in basic development and physiological processes of higher organisms. Prereq: Adequate background in genetics and biochemistry and/or consent of instructor.

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 relationship between these processes and plant metabolism. Prereq: BIO 735 or BCH 515 or consent of instructor. (Same as AGR 732 and 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 531 or consent of instructor. (Same as AGR 734 and HOR 734.)

BIO 735 PLANT METABOLISM. (3)
Various aspects of plant metabolism including photosynthesis, respiration, nitrogen and protein metabolism; enzyme kinetics; and relation of molecular structure of cell components to function. 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 755 BIOSYSTEMATICS. (3)
Principles in the application of data from the fields of ecology, genetics, cytology, morphology, phytogeography, and physiology to the solution of taxonomic problems. Lecture, three hours. Given in alternate years. Prereq: BIO 552, 519.

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 to 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 instructional scientific and professional societies and symposia. Required of all graduate students. Two hours. May be repeated to a maximum of ten credits.

BIO 773 SEMINAR IN PLANT PHYSIOLOGY. (1)
Reports and discussions on various topics in plant physiology. May be repeated to a maximum of eight credits.

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 topics include DNA tumor viruses, RNA tumor viruses, persistent virus infections, and interference. Emphasis 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 BACTERIOLOGY. (3-6)
Laboratory, 10 hours. May be repeated to a maximum of 24 credits. Prereq: Master's degree or equivalent.

BOT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

BOT 769 RESIDENCE CREDIT FOR THE DOCTOR' DEGREE. (1-12)
May be repeated indefinitely.

MB 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MB 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (1-12)
May be repeated indefinitely.

ZOO 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

ZOO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (1-12)
May be repeated indefinitely.

BOTANY

(See courses listed under Biology.)

BUSINESS ADMINISTRATION

BA 330 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 261 or consent of instructor.

BA 331 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: BA 330

BA 332 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: BA 330.

BA 334 INTRODUCTORY MARKETING RESEARCH (3)
Managerial applications of research in marketing decision making. The course objective is to provide students with expertise in defining needs, selecting information sources and organizing information in decision making contexts. Application of major concepts will be illustrated in marketing policy areas. Prereq: BA 330.

BA 335 BUSINESS MANAGEMENT. (3)
A study of planning, organizing and controlling; an interdisciplinary approach; actual decision-making cases. Prereq: STA 291, ECO 260, 261 and ACC 202, or consent of instructor.

BA 336 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: BA 335 or consent of instructor.

BA 340 LAW, BUSINESS AND SOCIETY. (3)
An introduction to the United States legal system, government influence on business, and the responsibility to society of both the individual and the firm. Topics to be considered include antitrust law, administrative law, employment law, ethics, and social responsibility together with the economic and social theories that undergrid those topics. Prereq: Junior standing and consent of instructor.

BA 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.

BA 345 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.

BA 346 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.

BA 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 122 and 123), STA 291 (or STA 292, 293, 294).

BA 351 INTRODUCTION TO BUSINESS DATA PROCESSING. (3)
An introduction to high speed data processing's role in business and economics. Includes methods of solving problems related to economic and business decision making and the study of managerial problems related to business computer systems. Prereq: Not open to students who are enrolled in or have received credit for courses in data processing.

BA 352 PRODUCTION AND OPERATIONS MANAGEMENT I. (3)
A study of continuous and intermittent productive process with emphasis on the planning, organizing, and controlling activities associated with manufacturing. Topics include production control, quality control, and inventory control. Prereq: ACC 201, 202, ECO 260, 261, STA 292, 293, 294.

BA 379 TOPICS IN BUSINESS ADMINISTRATION. (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.

BA 395 INDIVIDUAL WORK IN BUSINESS ADMINISTRATION. (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairman's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairman.

BA 431 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: BA 330.

BA 432 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: BA 330 and two other marketing courses.

BA 433 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 explicity attempt to develop student thinking skills, i.e., problem identification, problem analysis, and problem solving, in the area of promotion. Prereq: BA 330 and BA 332 or permission of instructor.

BA 434 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: BA 330, ECO 391, BA 334.

BA 435 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: BA 335 or consent of instructor.

BA 436 STAFFING AND DEVELOPMENT. (3)
Analysis of problems, theories, and techniques used in job analysis, performance evaluation, recruitment, selection, placement, and training and development. Prereq: BA 336.

BA 437 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: BA 336.

BA 438 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 non-union situations from a managerial perspective. Prereq: BA 336, BA 435, ECO 481G or consent of instructor.

BA 439 BUSINESS POLICY. (3)
Analysis of management problems, formulation of alternative courses of action, determination of policy decisions. Prereq: BA 330, BA 335, BA 340 or BA 341, BA 345, ECO 391 and Senior standing.

BA 441 BUSINESS LAW II. (3)
A survey of selected business law topics to include: Corporations, partnerships, secured transactions, sales, and bankruptcy. Prereq: BA 340, or 341, or consent of instructor.

BA 443 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 "non-comparable" data across firms, and the application of popular analytic techniques. Studies evaluating the usefulness of financial data will also be reviewed. Prereq: BA 345, 346, ECO 391 and ACC 301.

BA 444 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: BA 345.

BA 445G FINANCIAL MANAGEMENT. (3)
Primary emphasis on the application of financial concepts and tools of analysis. Extensive use of case analysis to simulate a "real-world" environment. Topics include working capital management, capital budgeting, cost of capital, leasing, dividend policy, and mergers and acquisitions. Prereq: BA 345.

BA 446 INVESTMENTS AND PORTFOLIO MANAGEMENT. (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 BA 346.

BA 447 LIFE INSURANCE. (3)
Economics of life insurance; organization and control; special forms of life insurance; and fundamental principles of rate-making. Prereq: ECO 261.

BA 448 PROPERTY AND CASUALTY INSURANCE. (3)
Public control; nature of contracts; analysis of reserve functions, and rate-making processes. Prereq: ECO 261.

BA 452 PRODUCTION AND OPERATIONS MANAGEMENT II. (3)
A study of the analysis of production problems, formulation of alternative courses of action, determination of the optimal course of action. Cases to be used simulate actual situations. Prereq: BA 352, ECO 391, ACC 408, BA 350.

BA 453 STATISTICAL QUALITY CONTROL. (3)
A study of the process of statistical quality control from the point of view of both the technician and the user. Relevant topics in probability and statistics, computer programming, and production are discussed. Prereq: BA 351, ECO 391.

BA 455 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: BA 330, BA 335, BA 340, BA 345 and consent of instructor.

BA 456G 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 260-261.

BA 536 APPLIED PERSONNEL MANAGEMENT. (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: BA 336 and six additional hours in personnel and industrial relations.

BA 537 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. Prereq: BA 536 and ECO 481G or consent of instructor.

BA 551 ADVANCED BUSINESS DATA PROCESSING AND INFORMATION SYSTEMS. (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: BA 351 or equivalent, BA 350.

BA 556 INTERNATIONAL COMMERCIAL POLICY. (3)
America's position in the world economy and its international accounts; United States tariff policies, war debts, financial cooperation and investment policy. Prereq: ECO 471G.

BA 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.

BA 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.

BA 600 FUNDAMENTALS OF BUSINESS ADMINISTRATION. (12)
An accelerated course providing intensive treatment of administration and the tools of analysis for policy-level decision making in organizations. Not open to students with undergraduate Business Administration degrees. To be offered summer term only. Ten clock hours per week on semester basis; 13 1/3 clock hours per week on 12 weeks summer school basis; 16 clock hours per week on 10 weeks summer school basis. Prereq: Admission to MBA program.

BA 630 ADVANCED MARKETING MANAGEMENT. (3)
A critical study of significant trends, controversial issues and advanced techniques in the fields of marketing. Prereq: MBA student or consent of instructor.

BA 631 CONSUMER BEHAVIOR. (3)
An explanation and evaluation of theory and research from the behavioral sciences in order to assess the marketing implications of the various processes and facets of consumer motivation and behavior. Prereq: BA 330 or equivalent.

BA 632 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: BA 630 or equivalent.

BA 633 QUANTITATIVE AND STATISTICAL METHODS IN MARKETING DECISION MAKING. (3)
The course will focus on the application of management science concepts and techniques for the analysis of marketing decisions within the firm. Emphasis will be placed on the current state of knowledge regarding the use of mathematical and statistical models for analyzing marketing decisions and processes. Prereq: BA 650, 630 or equivalent.

BA 635 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: MBA student or permission of the instructor.

BA 636 RESEARCH AND REPORT WRITING. (3)
An introduction to business research and formal report writing. Emphasis is placed on methodology, research design, techniques of analysis, and data sources. The actual writing of research reports is stressed. Prereq: MBA student or permission of instructor.

BA 637 ADMINISTRATIVE BEHAVIOR. (3)
A critical examination of the principles, methods, policies and procedures related to the effective utilization of human resources in business concerns, consideration being given to mutual relationships. Prereq: MBA student of permission of instructor.

BA 638 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: BA 335 or consent of instructor.

BA 639 BUSINESS POLICY AND STRATEGY. (3)
An integration of marketing, production, finance and organization behavior and application of analytical tools of statistics, accounting, economics, and mathematics in actual business cases involving planning, policies and strategies. Prereq: Six MBA courses and MBA student or permission of instructor.

BA 642 BUSINESS AND SOCIETY. (3)
An introduction to the increasingly complex set of interrelationships between the business organization and its environment. Course is developed around a series of problems selected to raise major issues involved in these relationships. Prereq: MBA student or consent of instructor.

BA 645 CORPORATE FINANCIAL POLICY. (3)
A study of financial management from the viewpoint of the corporate financial officer. Problems of planning the capital structure, issuing securities, the management of working capital, and policies with reference to reserves, surplus and dividends. Prereq: MBA student or permission of instructor.

BA 646 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.

BA 650 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 MBA student or permission of the instructor.

BA 651 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, non-linear, 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. (Same as ECO 688.)

BA 652 PRODUCTION MANAGEMENT. (3)
A study of procedures and techniques employed in manufacturing plants. An analysis of actual cases in production planning and control, time and motion study, quality control, plant layout, and budgetary control. Visits to industrial plants. Prereq: MBA student or consent of instructor.

BA 655 MANPOWER ADMINISTRATION. (3)
Critical examination of applied research, models, and methods in the management of manpower resources. Emphasis is placed on evaluation and practice in specific models and techniques employed in maximizing staffing, development, and compensation decisions. Prereq: ECO 391 or equivalent.

BA 656 INTERNATIONAL MARKETING. (3)
A comparative approach to marketing systems with emphasis on the adaptability of U.S. marketing policies in overseas areas. The nature of the foreign markets, their growth, distribution systems and government policies. The U.S. firm and its overseas activities, organization structure, management, finance, product policies, physical distribution, promotion and research. Prereq: Consent of instructor.

BA 695 INDIVIDUAL WORK IN BUSINESS ADMINISTRATION. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

BA 730 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: BA 630 or consent of instructor.

BA 731 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.

BA 732 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.

BA 735 ADMINISTRATIVE SCIENCE I. (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: BA 335 or consent of instructor.

BA 736 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.

BA 737 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.

BA 745 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: BA 645 (or equivalent MBA corporation finance course) and BA 646 (or equivalent).

BA 746 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: BA 645 (or equivalent MBA corporation finance course) and BA 646 (or equivalent).

BA 747 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: BA 645 (or equivalent MBA corporation finance course), BA 646 (or equivalent), and BA 650.

BA 750 MANAGEMENT SCIENCE II. (3)
Continuation of BA 650 to include dynamic programming, game theory, Bayesian Decision Theory, and Monte Carlo techniques. Prereq: BA 650 or equivalent.

BA 751 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: BA 651, 750.

BA 761 SEMINAR IN MANAGERIAL ECONOMICS. (3)
Each semester some topic in managerial economics such as cost analysis, capital budgeting, production management, demand analysis, forecasting will be studied intensively. Prereq: BA 635.

BA 762 RESEARCH METHODOLOGY. (3)
This course will deal with the philosophy of science, problems of scientific logic, induction and deduction and the role of theory construction in the behavioral and social sciences. It will emphasize the nature of scientific method and problems in research design.

BA 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.

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 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.

BA 772 ORGANIZATIONAL 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.

BA 773 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.

BA 774 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 BA 655 or equivalents are preferred means of satisfying the prerequisites for this seminar.

BA 781 INDEPENDENT WORK IN BUSINESS ADMINISTRATION. (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.

BUSINESS AND OFFICE EDUCATION

(See also Vocational Education.)

BOE 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.

BOE 113 INTERMEDIATE SHORTHAND AND TRANSCRIPTION. (3)
A continuation of the study of theory and principles of shorthand; development of dictation speeds and introduction to transcription and associated secretarial procedures. Prereq: BOE 112, 117 or equivalent.

BOE 117 TYPEWRITING. (3)
Principles and techniques of typewriting are integrated with a thorough study of form, style, and arrangement of typewritten materials. Prereq or concur: ENG 101.

BOE 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: BOE 117 or equivalent.

BOE 209 SECRETARIAL APPLICATIONS OF ACCOUNTING. (4)
A study of accounting systems for the professions, small businesses, and institutions in which the secretary is responsible for the financial records, with special application and practice sets. Prereq: Consent of instructor.

BOE 214 ADVANCED SHORTHAND TRANSCRIPTION. (3)
Development of transcription proficiency with exposure to a variety of secretarial responsibilities and human relations involving the use of shorthand. Open to freshmen with prerequisites. Prereq: BOE 113, 118 or equivalent.

BOE 215 ADMINISTRATIVE SECRETARIAL PROCEDURES. (3)
Development of high-level secretarial proficiency with special attention to the refinements of business communications and to the solution of office problems.

BOE 219 OFFICE MACHINES. (3)
A study of office machines processes, application, and integration and administration of office services. Prereq: BOE 117 or equivalent.

BOE 301 OFFICE INTERNSHIP. (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

BOE 302 OFFICE INTERNSHIP. (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

BOE 303 OFFICE INTERNSHIP. (1)
Laboratory and office experience for advanced students in business and office education. Prereq: BOE 215 or consent of instructor.

BOE 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.

BOE 445 OFFICE ADMINISTRATION AND SERVICES. (3)
A study of the theory, principles, and techniques of modern office administration and services with emphasis on data processing systems and information handling.

BOE 519 RECORDS MANAGEMENT. (3)
The underlying principles and procedures of records management; information storage and retrieval systems; integration and control of records systems and programs. Prereq: BOE 219, or consent of instructor.

BOE 556 BUSINESS REPORTS AND COMMUNICATIONS. (3)
Current problems in selected interest areas investigated by various research procedures with major emphasis placed upon sources of data, compilation and arrangement of data, documentation, bibliography, and effective presentation. Prereq: BOE 117 or equivalent.

CHEMICAL ENGINEERING

CME 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)
Lectures on professional growth, conduct, and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

CME 002 THE ENGINEERING PROFESSION (FRESHMAN). (0)

CME 006 THE ENGINEERING PROFESSION (JUNIOR). (0)

CME 007 THE ENGINEERING PROFESSION (SENIOR). (0)

CME 008 THE ENGINEERING PROFESSION (SENIOR). (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. CME 001-008 may be repeated indefinitely.

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: MA 114, PHY 231 prerequisite or concurrent.

CME 210 PROCESS PRINCIPLES II. (2)
A second course in material and energy balances. Applications to separation operations, processes involving equilibrium reactions, and processes requiring energy inputs. Prereq: CME 205.

CME 220 ENGINEERING THERMODYNAMICS. (3)
Fundamentals of thermodynamics, review of first law, second and third laws, phase equilibria and chemical equilibria. Prereq or concur: MA 213, PHY 232.

CME 300 ENVIRONMENTAL CONSERVATION ENGINEERING. (3)
The natural environment and air, water, and land pollution. Effects of pollutants. Energy production and conversion. Engineering systems for the control of air quality, water quality, and for ultimate waste disposal. Prereq: MA 114, CHE 107 or consent of instructor.

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: Approval of the chairman 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. Prereq: CME 210.

CME 422 RATE MASS TRANSFER PROCESSES. (3)
Fundamentals of diffusional and convective transport operations with applications to distillation, absorption, extraction and air-water contact operations. Prereq: ME 330; and prereq or concur: CME 412.

CME 430 ADVANCED PROBLEMS IN CHEMICAL ENGINEERING. (2)
Lectures and problems presenting fundamental principles and design procedures for several selected operations from the broad areas of mass, momentum, and heat transfer. Prereq: ME 325, ME 330, CME 422.

CME 431 CHEMICAL ENGINEERING LABORATORY I. (2)
A laboratory course emphasizing experimental work in fluid flow, heat transfer, evaporation, mass transfer, etc., with special consideration to mathematical and statistical data treatment, measurement techniques and report writing. Laboratory, six hours. Prereq: ME 325, ME 330, CME 422; and prereq or concur: CME 550.

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.

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. Lecture, three hours. Prereq: CME 412, CME 422, ME 325, ME 330, CS 221.

CME 456 CHEMICAL ENGINEERING PROCESS DESIGN II. (3)
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. Lecture, three hours. Prereq: CME 455, CME 550.

CME 462 PROCESS CONTROL. (3)
The theory of automatic control devices and their application in industrial chemical plants. Prereq: Consent of instructor.

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 meteorology. Prereq: CME 220 or ME 220.

CME 520 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 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 kinetic data and application in the design of chemical reactor systems. Prereq: CME 220 or ME 321.

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 MET 552.)

CME 555 ADVANCED CHEMICAL ENGINEERING PROCESS DESIGN I. (3)
An advanced chemical process and plant design course to provide the conceptual details of project engineering methods. Lectures and pertinent literature assignments will be coupled to the execution of case design problems. Lecture, two hours; laboratory, three hours. Prereq: CME 455.

CME 560 NON-NEWTONIAN FLOW AND HEAT TRANSFER. (3)
Classification of fluid behavior, determination of flow properties, laminar flow for fluids with and without a yield stress, turbulent flow, momentum boundary layer

theory, mixing and agitation, heat transfer. Prereq: ME 325 and ME 330.

CME 565 ENERGY ENGINEERING. (3)
Energy supply and demand, material and energy balances for fossil fuel conversion including thermodynamic considerations, analysis of electrical power generation by conventional methods and by potential methods. Prereq: ME 325 and either CME 220 or ME 220. (Same as ME 565.)

CME 570 CHEMICAL SEPARATION AND MEASUREMENT FOR CHEMICAL ENGINEERS. (3)
An engineering-oriented survey of modern topics in chemical measurement to include discussions of liquid extraction; liquid and gas chromatography; optical absorption; magnetic resonance absorption, including NMR and ESR; microwave spectroscopy. Prereq: CME 220, CHE 440G, 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; absorption, 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 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 617 AIR SAMPLING AND ANALYSIS. (3)
Theory and techniques of air sampling, including aerosol sampling. Instrumental, gravimetric, and volumetric analysis of gaseous and particulate air pollutants with emphasis on the most modern methods of instrumental analysis. Lecture, two hours; laboratory, three hours. Prereq or concur: CME 515, or consent of instructor.

CME 619 COMMUNITY HEALTH ASPECTS OF AIR POLLUTION CONTROL. (3)
Effects of specified air pollutants such as sulfur dioxide, particulates, and "smog" constituents on humans, materials, and on the environment. Solid waste disposal by incineration. Air pollution control and water pollution control interrrelationships. Prereq: CME 515 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 semi-theoretical 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 633 DIFFUSIONAL MASS TRANSFER OPERATIONS. (3)
An advanced course in diffusional processes depending upon the current literature for much of its content. Multicomponent diffusional processes. Turbulent diffusion. The modelling of diffusion in biological systems. 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 BIOMEDICAL MASS TRANSFER. (3)
Derivation of the transport equations for application to biomedical systems, diffusion and the mechanism of mass transport in the body, membrane transport, convective mass transfer in biomedical systems, discussion of mass transfer in artificial organs. Prereq: Consent of instructor.

CME 638 TRANSPORT PHENOMENA IN PACKED AND FLUIDIZED BEDS. (3)
A course dealing specifically with the dynamics of heat, mass and momentum transport in packed and fluidized beds. Current experimental findings and transport theories, and bed characterizations are discussed. Analytic and difference methods are used to solve model problems. 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 643 ADVANCED PROCESS CONTROL II. (3)
A continuation of CME 642. Prereq: CME 642.

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 665 EQUILIBRIUM AND RATE PROCESSES OF COAL CONVERSION. (3)
Fundamentals of coal gasification and liquefaction processes including thermodynamic, chemical kinetic, and physical rate process considerations, multiphase flow, fluidization, and integrated processes. Prereq: CME 550 or equivalent.

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 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 department research. Lecture, one hour. Required for all graduate students in chemical engineering.

CME 780 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. (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 non-science majors and deals with the relationship between chemistry and other areas of learning.

CHE 102R ELEMENTARY CHEMISTRY. (2)
This course is remedial in nature and covers material commonly covered in high school chemistry and is offered only 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 non-science 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 105 GENERAL COLLEGE CHEMISTRY I. (3)
The principles of chemistry and the properties and reactions of the more important elements and their compounds. Prereq: Composite ACT above 25 percent, or CHE 102R. If below 50 percent and no high school chemistry, CHE 102R strongly advised.

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.

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 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. Prereq or concur: CHE 230.

CHE 232 ORGANIC CHEMISTRY. (3)
A continuation of CHE 230. Prereq: CHE 230.

CHE 233 ORGANIC CHEMISTRY LABORATORY. (1-2)
Laboratory for CHE 232. Prereq: CHE 231. Prereq or concur: CHE 232.

CHE 236 ORGANIC CHEMISTRY. (4)
An elementary course for non-professional 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 of 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 or concur: 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 215, MA 113; Prereq or concurrent: MA 114.

CHE 490G CHEMISTRY FOR HIGH SCHOOL TEACHERS. (3)
Topics in modern chemistry to be selected from the following areas: atomic structure, periodic table, stoichiometry, thermodynamics, electrochemistry, chemical equilibria, macromolecules and polymers, environmental chemistry, radio-nuclear chemistry, biological chemistry, and inner transition elements. Topics to be considered will be related to the background and interests of the participants. Prereq: Certification as a secondary school science teacher.

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 non-transition 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 non-aqueous 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 concurr: 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 thermodynamics, 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 maximum 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 instructor.

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 NON-METALS. (3)
A detailed treatment of the inorganic chemistry of the non-metals. Topics include theories of bonding, spectral characteristics, reaction mechanisms, preparations, physical methods of characterization and structural determination, and applications. Prereq: CHE 510.

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 electrochemistry, 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 645 CHEMICAL THERMODYNAMICS. (3)
Principles and applications of chemical thermodynamics. Prereq: CHE 442G.

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 714 NON-AQUEOUS SOLUTIONS. (2)
A study of non-aqueous systems and of reactions in non-aqueous systems. Prereq: CHE 443G.

CHE 726 TOPICS IN ANALYTICAL CHEMISTRY. (1-3)
Selected topics which may include spectrometric methods of analysis, nuclear magnetic resonance, mass spectrometry, x-ray diffraction, microscopy, electroanalytical chemistry, use of computers in analytical chemistry. May be repeated to a maximum of six credits. Prereq: CHE 522.

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 744 STATISTICAL THERMODYNAMICS. (3)
The study of chemical thermodynamics from the viewpoint of the statistical treatment of systems rather than from the empirical classical approach. Prereq: CHE 645.

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. Prereq: CHE 442G. May be repeated to a maximum of 12 credits.

CHE 755 TOPICS IN CHEMICAL PHYSICS (SUBTITLE REQUIRED). (3)
An introduction to current research areas in chemical physics. Topics may include theory of atomic spectra, atomic and molecular processes, molecular theory, electrons and phonons in crystals, and optical properties of metals. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor. (Same as PHY 755.)

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 to a maximum 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 100 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 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 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. Six hours a week. (Same as ME 105.)

CE 199 TOPICS IN CIVIL ENGINEERING (VARIABLE TOPICS). (1-3)
An experimental, topical, department, or interdisciplinary course devoted to a special topic of current interest to civil engineering and approved by the chairman of the department of civil engineering and the dean of the college. May be repeated to a maximum of nine credits. 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: ME 105, CE 100, PHY 231 and approval of chairman of department.

CE 301 CIVIL ENGINEERING MATERIALS I. (2)
A study of materials used in civil engineering construction and their basic physical and mechanical properties with emphasis on relation to fundamental structure of the material. Lecture, one hour; laboratory, three hours. Prereq: EM 302. Prereq or concur: MET 201.

CE 305 CONSTRUCTION PLANNING AND MANAGEMENT. (3)
A study of the principles, methods and procedures involved in the administration of civil engineering construction including financial and legal fundamentals of contracts; specifications and critical path scheduling and quality control. Prereq: Senior standing.

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. (Same as ME 330.)

CE 340 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 higway facilities. Prereq: CE 215.

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: ME 330.

CE 355 WATER QUALITY ENGINEERING. (3)
Survey of water resources field with emphasis upon water, sewage and industrial waste treatment theory and practices. Prereq: ME 330 or consent of instructor.

CE 371 SEMINAR. (1)
A study of current engineering literature as related to civil engineering; assigned reading and reports. Round-table conference for two hours. Prereq: Senior classification.

CE 380 STRUCTURAL MECHANICS. (3)
Analysis of statically determinate and statically indeterminate structures including beams, trusses, cables, arches and frames. Prereq: EM 302.

CE 385 TIMBER STRUCTURES. (1)
Design of structural beams, columns and trusses as related to timber structures. Drawing room, three hours. Prereq: CE 380.

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: Consent of Department Chairman and the instructor.

CE 425G 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 483 CIVIL ENGINEERING SYSTEMS ANALYSIS. (3)
Application of systems engineering principles to analysis of civil engineering systems. Among topics to be considered are analysis of structural frames to minimize construction cost, analysis of urban highway networks to minimize travel time, analysis of materials mixtures for minimum cost design of asphalt roads, and analysis of sewer systems to minimize total construction cost. Discussion of the role of the civil engineer as a decision maker. Prereq: CS 221 and CE 380.

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 380 or consent of instructor.

CE 487G STEEL STRUCTURES. (3)
Design critiera 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 380.

CE 489G DESIGN OF STRUCTURES. (3)
Design loads and structural systems. Design concepts and overall considerations involved in planning, analysis, and design of steel and concrete structures. Detailed analysis and design of buildings, bridges and other types of structures utilizing STRUDL and other special computer programs. Lecture, two hours; drawing room, three hours. Prereq: CE 487G, CE 492G. (CE 489G may be taken concurrently with one or the other of the foregoing.)

CE 492G 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 380.

CE 515 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 plane coordinate systems; applications to the horizontal and vertical control of engineerring projects: review of modern land and surveying problems and procedures. Lecture: two hours; laboratory: three hours per week. Prereq: MA 214 and CE 215.

CE 519 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 or consent of instructor.

CE 523 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. Prereq: MA 113 and consent of instructor.

CE 528 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 425G.

CE 529 INTERMEDIATE FLUID MECHANICS. (3)
Continuation of ME 330. Ideal and viscous flows. Development and application of basic equations to engineering problems with emphasis on formulation and solution. Prereq: ME 330. (Same as ME 529.)

CE 540 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 340, 425G.

CE 543 DEVELOPMENT OF TRANSPORTATION FACILITIES. (3)
Analysis of factors affecting development of transportation facilities; basic planning and location principles; problems of highway geometrics, design standards, and traffic estimates and assignment; transportation in the urban environment; and air transport. Prereq: CE 340.

CE 545 CIVIL ENGINEERING MATERIALS II. (3)
A continuation of Civil Engineering Materials I with emphasis on material design criteria and construction applications for the major construction materials (portland cement concrete, bituminous concrete, steel, masonry, timber) and certain appurtenant materials. Economics and statistical considerations in specifying, testing, and inspecting construction materials are also stressed. Lecture: two hours; laboratory: three hours per week. Prereq: CE 301 or equivalent.

CE 550 ENGINEERING HYDRAULICS. (3)
Analysis of flow in closed conduits and natural and artificial open channels. Design of hydraulic structures. Prereq: ME 330, CE 351.

CE 553 HYDROLOGY. (3)
A study of the factors affecting the occurence, movement and utilization of water including meterological considerations, evaporation, transpiration, runoff relationships, hydrograph analysis, and ground water management. Prereq: ME 330 or consent of instructor.

CE 554 HYDRAULIC STRUCTURES. (3)
Structural and hydraulic analysis required for the design of concrete and earth dams and appurtenant structures. Prereq: CE 550 or consent of instructor.

CE 555 ENGINEERING ECONOMY. (3)
Economic evaluation and financial analysis of engineering alternatives in which the goal of economic efficiency is applied to engineering design. Prereq: ECO 261 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: ME 330, CE 351, CE 355.

CE 568 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: Consent of instructor.

CE 580 ADVANCED STRUCTURAL MECHANICS. (3)
Energy methods, non-prismatic members, indeterminate influence lines, arches, plastic analysis of rigid frames, introduction to matrix methods for plane structures, use of available computer programs for matrix operations. Prereq: CE 380.

CE 599 TOPIC IN CIVIL ENGINEERING. (2-3)
A detailed investigation of a topic of current significance in civil engineering such as design of small earth dams, man and the environment, mining methods, drilling and blasting, scheduling construction operations, construction equipment and methods, traffic safety, optimum structural design, environmental impact analysis, systems anlaysis in civil engineering, motor vehicle noise and its control. Prereq: Prerequisite variable; given when topic identified. 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 CE 599 number.

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 621 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 623 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 380, CE 425G, or consent of instructor.

CE 624 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 625 or consent of instructor.

CE 625 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 425G or consent of instructor.

CE 626 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 425G or consent of instructor.

CE 628 ADVANCED GEOTECHNICAL ENGINEERING. (3)
Application of the principles of soil mechanics to the design and analysis of foundations and earth structures. Prereq: CE 528 and CE 625 or consent of instructor.

CE 629 SOIL DYNAMICS. (3)
A study of the response of soils to dynamic loads including foundation vibration problems and the response of footings to impulse loads. Theories of wave propagation in granular and porous media and methods of measurement of the dynamic properties of soils in the laboratory are included.

CE 635 APPLIED STATISTICAL METHODS IN WATER RESOURCES. (3)
Frequency analysis, stream flow predictions through regression analysis and multivariate techniques, simulation of water resources systems, time series analysis of hydrologic data. Prereq: MA 214 and one of the following: STA 381, 421G, 423G, 524 or 681. (Same as AEN 635.)

CE 639 AIR TRANSPORT ENGINEERING. (3)
Planning location, and design of airports, STOL ports, and heliports. Air traffic operations, performance and control as related to facility requirements. Role of governmental agencies. Prereq: CE 543 or consent of instructor.

CE 640 HIGHWAY 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 340 or consent of instructor.

CE 641 HIGHWAY 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 340.

CE 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 STA 681 or equivalent statistics course. (Same as GEO 643.)

CE 644 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 340.

CE 645 HIGHWAY DESIGN, CONSTRUCTION AND MAINTENANCE. (3)
A study of highway design, construction and maintenance; including physical aspects of design, drainage, road types, structural pavement design, construction methods and supervision and maintenance methods. Prereq: CE 340 or consent of instructor.

CE 646 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 648 TRAFFIC LAW, ORDINANCES AND CONTROLS. (3)
Principles controlling the development, application and revision of traffic laws, ordnances 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 340 and CE 543 or consent of instructor.

CE 652 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: ME 330.

CE 653 STORMWATER MODELING. (3)
Introduction to deterministic and parametric modeling approaches for mathematically simulaing 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 553, and ME 330, or consent of instructor.

CE 655 WATER-RESOURCES PLANNING. (3)
Presentation of techniques for evaluating water-resources projects to meet social objectives with specific reference to such purposes as flood control, drainage, water supply, hydropower, navigation and recreation. Prereq: CE 555.

CE 660 ADVANCED WATER QUALITY CONTROL FACILITIES DESIGN. (3)
Application of advanced theoretical principles to the design of water quality control facilities. Emphasis on current developments in technology for advanced wastewater treatment. Prereq: CE 559.

CE 662 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 355 or consent of instructor.

CE 663 WATER QUALITY CONTROL LABORATORY II. (3)
Laboratory scale studies and evaluations of water pollution control processes and techniques. Lecture, one hour; laboratory, six hours. Prereq or concur: CE 664. Prereq: CE 568 or consent of instructor.

CE 664 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 355 or consent of instructor.

CE 669 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 355, or consent of instructor.

CE 674 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 550.

CE 678 FLUID DYNAMICS OF MULTIPHASE SYSTEMS. (3)
A study of the dynamics of multiphase systems consisting of mixtures of solid particles, liquid droplets, or bubbles in fluids. Prereq: ME 330; MA 214.

CE 681 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 694 or consent of instructor.

CE 682 EXPERIMENTAL STRUCTURAL ANALYSIS. (3)
Theory and practice of model analysis to facilitate the solution of unusual problems in structural engineering. Dimensional anlaysis, similitude requirements, materials, fabrication, loading and instrumentation of models, and interpretation of results. Lecture, one hour; laboratory, six hours.

CE 683 OPTIMUM DESIGN IN CIVIL ENGINEERING. (3)
Application of optimum design procedures to civil engineering. Treatment of civil engineering problems using classical minimization procedures and modern methods of mathematical programming. Prereq: Competence in computer programming, CE 489G or CE 543 or CE 550 or consent of instructor.

CE 686 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 580, EM 531, or consent of instructor.

CE 691 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 to anticipated future changes in design and construction practices. Prereq: CE 492G, EM 531 or consent of instructor.

CE 692 SLAB AND FOLDED PLATE STRUCTURES. (3)
Design and analysis of reinforced concrete floor slabs and folded plate roofs. Elastic and inelastic methods. Prereq: CE 580, EM 531, or consent of instructor.

CE 693 SHELL STRUCTURES. (3)
Design and analysis of reinforced concrete shell structures, including domes, barrel shells, hyperbolic paraboloids and cylindrical tanks. Prereq: CE 692 or consent of instructor.

CE 694 ADVANCED STRUCTURAL ANALYSIS I. (3)
Theory and application of matrix force and displacement methods to plane and space frames, trusses, and shear wall structure, geometric and material nonlinearities, mathematical programming methods for optimizing structural form and design. Prereq: CE 580 or consent of instructor.

CE 695 ADVANCED STRUCTURAL ANALYSIS II. (3)
Solution techniques for analysis of large, complex structures. Finite element methods. Two and three dimensional stress analysis. Plate bending and isoparametric elements. Nonlinear analysis of structures. Applications of finite element methods to mining structures, structural dynamics, instability of structures, and other areas in structural engineering. Prereq: CE 694 or consent of instructor.

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 780 SPECIAL DESIGN PROBLEMS IN CIVIL ENGINEERRING. (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: Approval of the chairman of the department.

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: Approval of the chairman 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 Hellenistic 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 236 GERMANIC AND CELTIC MYTHOLOGY. (3)
The Germanic and Celtic myths studied from the standpoint of their meaning for medieval and modern literature and history. Comparative viewpoint emphasized. Wide reading in source material in translation.

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 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 A-H 313)

CLA 370 THE GREEK EXPERIENCE. (3)
An examination of the approach taken by the ancient Greeks to some basic human problems: the achievement of self-expression through literature and art; the relationship between the individual and his community; the purposeful organization of society. Study materials will include the writings of the classical authors and the physical remains of the Greek world.

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 480G THE CLASSICAL TRADITION IN MANUSCRIPT AND PRINTED BOOK. (3)
A broad study of the preservation of the classical tradition in written and typographical books from the age of papyrus through Humanism and the Reformation. Outstanding examples of the great books from the second through the seventeenth century will be studied with particular attention to content, writing, and illustration. Prereq: Consent of instructor.

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. (3)
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. (3)
A continuation of CLA 101. Prereq: CLA 101 or equivalent.

CLA 103 LATIN GRAMMAR AND COMPOSITION. (1)
This course is designed as a supplement to CLA 101, Elementary Latin, in which the emphasis is placed on learning to read the language. CLA 103 will involve special study of the morphology and syntax of classical Latin; composition (the translation of English into Latin) will be a major element in the course. Prereq: To be taken concurrently with CLA 101.

CLA 104 LATIN GRAMMAR AND COMPOSITION. (1)
This course is designed as a supplement to CLA 102, Elementary Latin, in which the emphasis is placed on learning to read the language. CLA 104 will involve special study of the morphology and syntax of classical Latin; composition (the translation of English into Latin) will be a major element in the course. Prereq: To be taken concurrently with CLA 102.

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 500 LATIN LYRIC POETRY. (3)
A study of the genre as exemplified in Catullus and Horace. Emphasis on textual analysis with lectures and class discussions on the poet's literary milieu. Prereq: CLA 202 or equivalent.

CLA 501 LUCRETIUS AND EPICUREANISM. (3)
A study of the *De Rerum Natura* in terms of its Greek background and the poet's own milieu. Prereq: CLA 202 or equivalent.

CLA 502 ROMAN HISTORICAL WRITERS. (3)
Approaches to the writing of history as demonstrated by Sallust, Livy, Tacitus, and others. Major authors to be studied will vary from offering to offering. Emphasis on analysis of the works; lectures and class discussions. Prereq: CLA 301 or equivalent.

CLA 503 CICERO. (3)
A study of the orator's political and social views as expressed in his letters and philosophical works. Prereq: CLA 202 or equivalent.

CLA 504 ROMAN SATIRE. (3)
A study of the genre as exemplified in the works of Horace and Juvenal. Emphasis on textual analysis with lectures and class discussions on the poet's literary milieu. Prereq: CLA 202 or equivalent.

CLA 505 VIRGIL AND THE ROMAN EPIC. (3)
A study of the poet's work with particular emphasis on the epic form in Latin literature. Prereq: CLA 202 or equivalent.

CLA 506 MEDIEVAL LATIN. (3)
Reading of selected works in Latin prose and poetry from the Sixth Century A.D. to the 15th Century. Emphasis on textual analysis with lectures and class discussions on the thought and life of the Middle Ages. Prereq: CLA 202 or equivalent.

CLA 507 ROMAN DRAMA. (3)
A study of the genre as exemplified in Plautus, Terence, and Seneca. Emphasis on textual analysis with lectures and classroom discussions on the playwright's literary milieu. Prereq: CLA 202 or equivalent.

CLA 603 STUDIES IN LATIN LITERATURE OF THE REPUBLIC. (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 once.

CLA 604 STUDIES IN LATIN LITERATURE OF THE EMPIRE. (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 once.

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 exemplified 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. (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 once.

CLA 602 STUDIES IN GREEK LITERATURE II. (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 once.

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. 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. Prereq: Consent of instructor.

CLA 580 INDEPENDENT WORK IN CLASSICS. (3)
Courses to meet the needs of the student will be arranged in various areas. Prereq: Major standing of 3.0 in the department or consent of instructor. May be repeated to a maximum of 12 credits.

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 502 PRINCIPLES OF HUMAN PHYSIOLOGY. (5)
A basic course in human physiology including the functions and regulations of the major body systems. Prereq: One year of inorganic chemistry; one semester of college anatomy, or one year of college biology. (Same as PGY 810.)

CNU 504 PRINCIPLES OF HUMAN PHYSIOLOGY LECTURES. (4)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year, inorganic chemistry; one semester, college anatomy or one year, college biology. (Same as PGY 812.)

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 TRENDS IN NUTRITION. (1)
A seminar to review the current literature of nutrition; development of techniques for the preparation of abstracts, reviews and bibliographies on current topics. Questions of editing, editorial styles, evaluation and graphic interpretation to be discussed. Course to be taught through seminar sessions, along with reports and some lectures. Prereq: CNU 603 and 604.

CNU 701 ADVANCED CLINICAL NUTRITION. (2)
A course dealing primarily with the clinical application of the principles of nutrition, to include clinical conferences and case studies. Prereq or concur: CNU 601.

CNU 702 ADVANCED CLINICAL NUTRITION. (2)
A course 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 intepretations, patient education and the coordination with other health professionals. Laboratory, two to four hours. Prereq: CNU 601 or consent of instructor.

CNU 780, 781, 782 INDEPENDENT STUDY. (1 ea.)
Required each semester and summer school by all students enrolled in the clinical nutrition program. Topics of interest will be reviewed in depth with appropriate presentation.

CLINICAL PASTORAL COUNSELING

CPC 501 PERSPECTIVES IN RELIGION AND HEALTH. (3)
An interdisciplinary study of significant religious components in health. Prereq: Consent of instructor.

COMMUNICATIONS

COM 101 INTRODUCTION TO COMMUNICATIONS. (3)
Lectures and readings to introduce students to the basic concepts of communication, to foster an understanding of the roles and functions of communications media in our society, to present concepts and principles of journalism, and to prepare students to be intelligent users of the media.

COM 250 MASS MEDIA AND MASS CULTURE. (3)
An examination of the interplay between the technology and content of the mass communications media and popular culture.

COM 325 BUSINESS AND INDUSTRIAL COMMUNICATION. (3)
A study of the communication process as it applies to large organizations, specifically business and industries. Emphasis is placed on the speech channel presentations, conferences, and one-to-one communication. Work is evenly divided between communication theory and practical exercise. Lecture, three hours; laboratory, one hour.

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. (3)
For undergraduate majors in speech 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. May be repeated to a maximum of six credits. Prereq: Major and a standing of 3.0 in the department.

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 COMMUNICATIONS 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 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. (2)
Intensive study of a communication topic in professional, theoretical and research (methodology) areas. Lecture, three hours. 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 601 PROSEMINAR IN COMMUNICATION. (3)
Introduction to graduate study; theory and systems, research strategies. Prereq: Graduate standing in communications or consent of instructor.

COM 605 INTRODUCTION TO INFORMATION SCIENCE. (3)
Introduction to major areas of information science and technology. Consideration is given to the nature of information science and technology as a field of study, the analysis and design of information systems, basic computer systems, and specific components of information storage and retrieval systems. (Same as LS 605.)

COM 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.

COM 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.

COM 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 LS 635.)

COM 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: COM 601 or consent of instructor.

COM 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 research report-proposal. Prereq: ANT 514 or equivalent; consent of instructor.

COM 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.

COM 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 consent of instructor.

COM 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: COM 601 or consent of instructor.

COM 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.

COM 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.

COM 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.

COM 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.

COM 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

COM 781 DIRECTED STUDY IN COMMUNICATIONS. (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.

COMMUNITY HEALTH

CH 101 INTRODUCTION TO THE HEALTH SCIENCES. (1)
Limited to students contemplating a career in one of the health sciences.

CH 210 INTRODUCTION TO COMMUNITY HEALTH ECOLOGY. (3)
An introduction to community health concepts, principles, and practice in modern society. Prereq: Consent of instructor.

CH 220 EDUCATION FOR COMMUNITY HEALTH. (2)
An analysis of the role of the educational process and skills in community health programs designed to change the state(s) of health. Prereq: Community health major or consent of the department.

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 320 COMMUNITY HEALTH EDUCATION METHODOLOGY. (3)
A systematic review of research and practice literature, observation of persons serving in community health education positions, and development of skills as a community 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: Community health major or consent of department.

CH 321 SEMINAR IN COMMUNITY HEALTH EDUCATION. (3)
An educational approach to community health planning and the relationships of multiple factors affecting the planning and implementation process. Prereq: CH 320 or consent of department.

CH 420 CURRENT ISSUES IN COMMUNITY HEALTH EDUCATION. (3)
A study of conceptual approaches to diagnosis of health education needs of a community particularly those involving promoting wellness and prevention of illness. Specific process approaches to developing effective programs (change(s) in state(s) of health) are included. Prereq: CH 321 or consent of department.

CH 481 COMMUNITY HEALTH PRACTICE. (4-8)
To provide the community health specialist an opportunity to observe and practice classroom learned principles and skills in a community. Prereq: CH 321. Offered on a Pass-fail basis.

CH 500 PUBLIC HEALTH SANITATION. (3)
A consideration of the cause, prevalence, transmission, and control of preventable diseases.

CH 501 PUBLIC HEALTH. (3)
A continuation of CH 500. Administrative and organizational approach to disease prevention.

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 chairman.

CH 521 COMMUNITY HEALTH. (3)
An ecological view of community health, a study of the demographic, social, cultural and physical environmental factors that influence a community's state of health. Basic epidemiology and biostatistics are introduced as necessary instruments of community health analysis. Prereq: Upper division or graduate standing and consent of instructor.

CH 522 SCHOOL AND COMMUNITY HEALTH. (2)
A course designed to develop an idea of the cooperative nature of school health work and the importance of connecting it with adult health work.

CH 600 EPIDEMIOLOGY. (3)
A study of the natural history of disease.

CH 612 PUBLIC HEALTH ADMINISTRATION. (3)
A consideration of the principles of public health administration.

CH 841 COMMUNITY HEALTH CLERKSHIP. (3)
Community health clerkship—field experience in applying the principles of community health analysis. Prereq: CH 521 and/or consent of instructor. Offered on a pass/fail basis only.

COMPARATIVE LITERATURE

CLT 265 STUDIES IN THE CONTEMPORARY SCENE. (3)
Readings (in translation) from recent literature, especially England, France, USA, Germany, Italy, Russia, Spain, Latin America. Topics and readings to vary.

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 560 COMPARATIVE LITERATURE: GRECIAN AND ROMAN. (3)
A study in English of Greek and Latin literature from Homer to the Middle Ages. (Same as ENG 560.)

CLT 561 COMPARATIVE LITERATURE: MEDIEVAL AND RENAISSANCE. (3)
A study in English of major works of continental European literature from late medieval period to mid-17th century. (Same as ENG 561.)

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.)

Comparative literature courses. See CLA 235, 236, 261, 370, 424G; ENG 261, 262, 361, 363, 466G, 568, 569, 570; FR 261, 421G, 422G, 423G; GER 261; SO 261, 264, 380, 381, 450G, 460G; SPI 261, 263, 422G, 591, 592.

COMPUTER SCIENCE

Note: The Computer Science Department is in the process of changing the introductory sequence from CS 150 to CS 101-102. Where CS 101-102 are listed as prerequisites, CS 150 is acceptable.

CS 101 COMPUTER SCIENCE 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 102 or CS 221.

CS 102 COMPUTER SCIENCE II. (3)
Use of algorithms in a block-structured programming language. Emphasis on procedures and structuring. Introduction to internal representation, machine organization, sorting, searching, data structures. Not open to students who have credit for CS 150. Prereq: CS 101 or CS 221 or consent of instructor.

CS 150 INTRODUCTION TO ALGORITHMIC PROCESSES. (3)
The use of algorithms in a procedure-oriented language; includes an introduction to number systems, computer structure, internal representation and basic data structures. Not open to students who have received credit for CS 221.

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 235 LOGIC FOR COMPUTER SCIENCE. (3)
An introduction to principles and techniques of modern formal logic and Boolean algebra applicable to computer science. Prereq: Major in computer science or consent of instructor.

CS 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. (Same as MA 240.)

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 102 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 102.

CS 321 INTRODUCTION TO NUMERICAL METHODS. (3)
Floating point arithmetic. Numerical linear algebra: elimination with partial pivoting and scaling. Polynomial and piecewise polynominal interpolation. Least squares approximation. Numerical integration. Roots of nonlinear equations. Ordinary differential equations. Laboratory exercises using software packages available at computer center. Prereq: MA 213 or MA 217 and CS 101 or CS 221. (Same as MA 321.)

CS 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE. (3)
Applications of basic mathematical concepts to com-

puter science. Topics include algebraic structures, combinatorics, Boolean algebra, switching circuits and mathematical logic. Other topics to be drawn from applications of probability, coding theory, graph theory and recursive programming. Prereq: CS 240 and CS 270.

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.

CS 395 INDEPENDENT WORK IN COMPUTER SCIENCE. (2)
A course for computer science majors only. A problem, approved by the chairman 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 others 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. (Note: Not open for graduate credit to graduate students in Computer Science and Mathematics.) Prereq: CS 101 or equivalent. (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. (Note: Not open for graduate credit to graduate students in Computer Science and Mathematics. Prereq: MA 213 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 state 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.

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.

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.

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 102 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.

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 or consent of instructor.

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.

CS 472 SEMINAR. (1-3)
Reports on current research papers. Discussion of topics in computer science. May be repeated to a maximum of six credits. Prereq: CS 370 or consent of instructor.

CS 505 DATA BASE 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 or consent of instructor.

CS 510 DISCRETE COMPUTER MATHEMATICS I. (3)
Basic material and selected topics on combinatorial mathematics will be covered. This includes: distribution of distinct and non-distinct 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 or equivalent, CS 370 or equivalent.

CS 530 COMPUTATIONAL METHODS. (3)
A study of computational methods from the user's standpoint rather than from the designer's. Prereq: MA 321 or consent of instructor, plus ability to program a digital computer.

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.

CS 537 NUMERICAL ANALYSIS I. (3)
Computer arithmetic. Discussion of various types of errors. Solution of systems of linear algebraic equations—Gaussian elimination with partial pivoting and scaling. Iterative refinement. Polynomial and piecewise polynomial interpolation. Orthogonal polynomials. Method of least squares. Numerical differentiation. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Prereq: CS 150 or CS 221 or equivalent, or graduate standing, or consent of instructor. (Same as MA 537.)

CS 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: CS/MA 537. (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 102 or CS 221 and a course in statistics or probability.

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.

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 or consent of instructor.

CS 560 NON-NUMERICAL APPLICATIONS OF COMPUTERS. (3)
Introduction to and training in non-numerical techniques by digital computers. Prereq: CS 370.

CS 570 OPERATING SYSTEMS DESIGN. (3)
Concurrent processes, resource management, protection, file management, deadlocks, and memory management. Prereq: CS 470 or consent of instructor.

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 or consent of instructor.

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.

CS 585 INTERMEDIATE TOPICS IN COMPUTER SCIENCE. (3)
Topics to be selected by staff. Prereq: Consent of instructor. May be repeated to a maximum of six credits, but only three credits may be earned by a student under the same topic.

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 NUMERICAL LINEAR ALGEBRA. (3)
Numerical stability. Matrix factorizations, direct solution of linear systems, linear least squares problem, conditioning, iterative refinement. Updating of matrix decompositions. Algebraic eigenvalue problem, singular value decomposition. Sparse matrix techniques. Prereq: MA 462G or MA 522 or equivalent. (Same as MA 622.)

CS 630 NUMERICAL EVALUATION OF TRANSCENDENTAL FUNCTIONS. (3)
Use of analytic properties to generate numerical values of transcendental functions and to estimate their precision. Application of power, Chebyshev, factorial, and Fourier series, continued fractions, and other convergent and asymptotic infinite expansions, recurrences, convergence acceleration and rhombus algorithms. Examples will be selected from among the more important classical special functions, giving an introduction to their major properties. Prereq: MA 433G, elements of complex analysis, differential equations, or consent of instructor.

CS 631 ERROR ANALYSIS AND CERTIFICATION. (3)
Effects of inexact data and/or inexact computer arithmetic on the accuracy of the computed solution to a problem. Design of acceptance tests on the basis of which a computer program may be certified as meeting its specifications. Prereq: CS/MA 538.

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 ARTIFICIAL INTELLIGENCE. (3)
Computer models of human intelligence. Topics chosen from the following: Knowledge representation, knowledge acquisition, problem-solving and search, theorem proving, computer vision, applications to data bases, very high level programming languages. Prereq: CS 520.

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 675 THEORY OF COMPUTATION. (3)
Computability by Turing Machines and algorithms. The predicate calculus, syntax, semantics, natural deduction, and the resolution method. Program verification and flowchart schemes. The fixpoint theory of programs. Prereg: CS 575.

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 AUTOMATA THEORY. (3)
Decomposition of sequential machines, state assignment, finite memory machine, shifting operators as applied to structure machines, Turing machines, pattern classification by state machines. Prereq: EE 480G, MA 561. (Same as EE 683.)

CS 685 SPECIAL TOPICS IN COMPUTER SCIENCE. (3)
To be selected by staff. Prereq: Two 500 level computer science courses or consent of instructor.

CS 687 SPECIAL TOPICS IN SOFTWARE. (3)
To be selected by staff. Prereq: Two 500 level computer science courses or consent of instructor.

CS 689 SPECIAL TOPICS IN NUMERICAL COMPUTING. (3)
Prereq: Two 500 level computer science courses or consent of instructor.

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 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.

DENTAL HYGIENE

THIRD YEAR
Basic Dental Science

DH 811 ORAL BIOLOGY I. (3)
A composite course of introductory head and neck anatomy and physiology; oral embryology and oral histology. Three hours lecture per week. Prereq: Admission to dental hygiene curriculum.

DH 812 ORAL BIOLOGY II. (4)
Basic and current concepts in controlling pain by the use of local anesthetics and the techniques of administration will be covered; an introduction to the response of the living organism to drugs with particular emphasis on drugs used in dentistry. Prereq: Admission to the dental hygiene program.

DH 814 ORAL PATHOLOGY. (2)
An introduction to the concepts of general pathology with emphasis on common oral diseases. Prereq: Admission to dental hygiene program.

DH 815 DENTAL MORPHOLOGY AND PRINCIPLES OF OCCLUSION. (2)
A course designed to permit the study of morphological characteristics of the teeth and other oral structures. Emphasis is placed on the positional relation of teeth in the dental arch and on the practical relation of dental morphology and occlusion to preventive dentistry. Prereq: Admission to the dental hygiene program.

DH 816 GROWTH AND DEVELOPMENT. (2)
This course covers the dental, physical, emotional and environmental growth and development of the normal child from birth through adolescence and with some discussion of the aging problem. Prereq: Admission to the dental hygiene program.

DH 818 DENTAL RADIOLOGY. (1)
An introduction to dental radiology which includes processing and developing of radiographs, radiographic technic, and the principles of radiation exposure. Students expose and process intra-oral radiographs of clinic patients. Prereq: Admission to the dental hygiene program.

DH 820 INTRODUCTION TO ORAL EXAMINATION AND HOSPITAL PROCEDURES. (2)
An introduction to the philosophy and technique of history taking and of examination of oral hard and soft tissues. Lecture, two hours; laboratory, one hour.

DH 823 RESTORATIVE DENTISTRY AND DENTAL PHYSICAL SCIENCES. (2)
A course designed to introduce students to the etiology, pathology, prevention, and treatment of dental caries. Students also will be introduced to the various materials used to restore teeth and will perform the procedures used for polishing restorations. Prereq: Admission to the dental hygiene program.

DH 825 CLINICAL DENTAL HYGIENE I. (6)
An introduction to the profession and the basic concepts of prevention with emphasis on initial therapy for treatment of periodontal diseases; this course includes clinical application. Lecture, three hours; laboratory, nine hours. Prereq: Admission to the dental hygiene program.

DH 827 CLINICAL DENTAL HYGIENE II. (8)
Continuation of DH 825 to include an introduction to the principles of dental health education and the dental specialties with emphasis on observation of advanced periodontal therapy. Lecture, four hours; clinic, 12 hours. Prereq: Successful completion of DH 825.

DH 835 COMMUNITY CLINICAL DENTAL HYGIENE LABORATORY. (2)
A course designed to provide advanced clinical experience in a field setting during the summer between the third and fourth years. Each student spends two weeks caring for children in a rural county set-up in schoolrooms under faculty supervision. Prereq: Admission to the dental hygiene program, first year.

FOURTH YEAR
Basic Dental Sciences

DH 920 DENTAL RADIOLOGY: TECHNIQUE AND INTERPRETATION. (2)
Extensive experience in radiographic technique is provided through clinical practice on dental clinic patients. This course also includes instruction in dark room procedures and in radiographic interpretation. Prereq: Admission to the dental hygiene program, second year.

DH 922 PEDODONTICS I. (3)
A preclinical course designed to introduce basic dental treatment procedures for children. Lecture, two hours; laboratory, three hours. Prereq: Admission to the dental hygiene curriculum.

DH 923 PEDODONTICS II. (4)
The clinical application of treatment procedures for children (didactic portion presently taught in Pedodontics I/DH 922). Prereq: Admission to the dental hygiene curriculum.

DH 925 CLINICAL DENTAL HYGIENE III. (4)
Continuation of DH 825 and DH 827. Lecture, one hour; laboratory, nine hours. Prereq: Successful completion of DH 827.

DH 926 PRINCIPLES OF PRACTICE. (2)
Introduction to trends in dental practice including a review of relevant dental literature.

DH 927 CLINICAL DENTAL HYGIENE IV. (4)
Continuation of DH 925. Lecture, one hour; laboratory, nine hours. Prereq: Successful completion of DH 925.

DH 930 PRECLINICAL RESTORATIVE DENTISTRY. (4)
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 is presented. Procedures are done on manikins and extracted teeth in a laboratory setting. Lecture, 24 hours; laboratory, 72 hours. Corequisite: RSD 810 and RSD 812. (Same as RSD 814 in the College of Dentistry.)

DH 933 PUBLIC HEALTH AND COMMUNITY ORGANIZATION. (1)
Introduction to public health administration and organization. Consideration of community resources that can be utilized in the promotion of public health programs, especially as related to dentistry. Experience in developing dental health education materials and presenting dental health information to child and adult groups. Prereq: Admission to the dental hygiene program, second year.

DH 937 INDEPENDENT STUDY IN DENTAL AUXILIARY EDUCATION. (4)
A course designed to allow the student independent study in a special area of interest, e.g., periodontics, orthodontocis, public health or dental auxiliary education. Course content and length to be developed for individual student by the clinical departments selected in conjunction with the chairperson of the dental hygiene department. May be repeated to a maximum of three times or 12 credits. Prereq: Admission to the dental hygiene program, second year.

DH 940 ADVANCED DENTAL AUXILIARY STUDY. (1-4)
This course is designed for all qualified dental auxiliaries. It includes advanced study for clinical dental auxiliary, community dental auxiliary and the basic dental sciences. Subject areas will be arranged to meet the specific needs of the student. May be repeated to a maximum of 12 hours.

DH 950 EXPANDED DUTIES I. (4)
This course is a preclinical and clinical introduction to the treatment of dental caries. Fundamentals of operative dentistry, including the use of amalgam, composite resins, and intermediate restorative materials are presented. Most procedures require limited clinical experience and are performed on manikins. Lecture, one hour; laboratory, nine hours per week.

DH 951 EXPANDED DUTIES II. (4)
This is an advanced course in expanded duties. The preclinical component is composed of those duties involving the dental specialties, such as fixed prosthodontics, endodontics, periodontics, orthodontics, pedodontics, oral surgery, and removable prosthodontics. The clinical component will reinforce the preclinical component. Lecture, one hour; nine laboratory/clinic hours per week. Prereq: DH 950 or permission of instructor.

DH 952 CLINICAL EXPANDED DUTIES ROTATION. (2)
This is an elective clinical course in which the student rotates through a variety of dental experiences, such as fixed prosthodontics, endodontics, periodontics, orthodontics, pedodontics, and oral surgery in order to reinforce those expanded duty procedures presented in Expanded Duties. Six hours of clinical activity per week. Prereq: DH 950 and DH 951 or permission of instructor.

DEVELOPMENTAL STUDIES

ASK 010 ACADEMIC SKILLS. (0)
This course is designed to teach time management, note taking from text and lecture, organization of information, and test-taking skills. Two-hour lecture per week. Prereq: Acceptance in the Developmental Studies Program.

ASK 018 PROBING MATHEMATICAL PROCESSES. (0)
This course is designed to provide the student with concrete materials to reinforce his study of college mathematics. Students will form small study groups to explore such topics as problem solving on the intuitive level, increasing study skills in mathematics, classifying algebraic principles, specific pattern in solving word problems, applying mathematics to non-mathematical fields, etc. Two hours lecture per week. Prereq: Acceptance in the Developmental Studies Program.

DIPLOMACY AND INTERNATIONAL COMMERCE

(PATTERSON SCHOOL OF DIPLOMACY)

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: Consent of instructor.

ECONOMICS

ECO 160 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 credit in ECO 260 and/or 261.)

ECO 260 PRINCIPLES OF ECONOMICS I. (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.

ECO 261 PRINCIPLES OF ECONOMICS II. (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. Prereq: ECO 260.

ECO 300 TOPICS 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. One to three hours lecture per week. Prereq: Economics 260-261, or consent of the instructor.

ECO 365 ECONOMICS OF ENVIRONMENTAL CONTROL. (3)
Analysis of air, water, soil and noise pollution from the viewpoint of economic theory. Special attention is devoted to problems of Kentucky and surrounding areas. Prereq: ECO 261 or consent of instructor.

ECO 377 ECONOMICS AND THE URBAN CRISIS. (3)
The course will include an extensive survey of the applicability of economic analysis to urban problems. Some of the main concerns are urban sprawl, the vanishing urban tax base, and urban poverty. Prereq: ECO 261 or consent of instructor.

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 294 or equivalent.

ECO 395 INDIVIDUAL WORK IN ECONOMICS. (1-6)
Students confer individually with the instructor. Written paper usually expected and filed in chairman's office. May be repeated to a maximum of six credits. Prereq: GPA of 3.0 in major, approval of instructor and chairman.

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 BA 635. Prereq: ECO 261 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 261 or consent of instructor.

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 260 and 391, or equivalent.

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 260 and 261 or equivalent.

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 neo-Keynesian models are analyzed. This course concludes with a review of the Lange model of decentralized (market) socialism. Prereq: ECO 261.

ECO 466 SEMINAR IN COMPARATIVE SYSTEMS. (3)
A seminar designed to provide intensive study of the economic theories, institutions, and policies which provide direction and coordination for economic systems—from classical capitalism to authoritarian socialism. The focus of the course will be directed toward the latter, in particular the Soviet Union and its East European neighbors. Prereq: ECO 465G.

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 261.

ECO 468 SEMINAR IN ECONOMIC HISTORY. (3)
An extension of ECO 467 with emphasis being placed on independent study of various aspects of growth and development of the U.S. economy since 1790. Prereq: ECO 467G.

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 260, 261.

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 260-261.

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 261.

ECO 472 SEMINAR IN INTERNATIONAL ECONOMICS. (3)
An intensive study of selected problems in contemporary international commerce, with an emphasis upon student research and informal discussion. Prereq: ECO 471G.

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 261.

ECO 474 SEMINAR IN ECONOMIC DEVELOPMENT. (3)
Application of the principles of economic development to particular cases and issues. Selection of topics based on contemporaneity and student interest, as well as susceptibility to analytical treatment. Prereq: ECO 473G.

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 261.

ECO 478 SEMINAR IN LABOR ECONOMICS. (3)
The seminar will focus on contemporary issues and problems of economics and social interest in the field of labor economics. An exploration and evaluation of selected topics may include labor law, weapons of conflict, collective bargaining in the public and private sectors of the economy, technology and labor market imperfections, manpower policy, wage determination, and trade union philosophy and development. Prereq: ECO 477G or consent of instructor.

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 261.

ECO 480 SEMINAR IN PUBLIC FINANCE. (3)
Selected readings on public finance problems will be discussed in seminar. Prereq: ECO 479G.

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 483G REGIONAL ECONOMICS. (3)
A survey of the major tools, measurements, and theories utilized in studying the regional economy. The topics covered include the basic elements of location theory, regional growth theory, and such economic models as economic base, input-output, and shift-share. Prereq: ECO 260, 261.

ECO 484 SEMINAR IN REGIONAL ECONOMICS. (3)
A further extension of the basic theoretical framework of regional economics particularly with reference to the spatial and interdisciplinary aspects of the theoretical structure, supervised independent study will concentrate on the application of the theoretic analysis to various policy questions. Prereq: ECO 483G.

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 260.

ECO 486 SEMINAR IN MONETARY ECONOMICS. (3)
Recent developments and contemporary issues in monetary economics. Prereq: ECO 485G.

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 260, 261.

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 260, 261.

ECO 489 SEMINAR IN ECONOMIC THEORY. (3)
An advanced undergraduate seminar in economic theory, including micro and macro. Each semester one or two topics will be selected for intensive study. May be repeated to a maximum of six credits. Prereq: ECO 487G and 488G, and senior level standing.

ECO 491G SURVEY SAMPLING DESIGN. (3)
Sampling theory applied to research design and data collection in economics. Covers simple random, stratified random, systematic, and cluster sampling. Prereq: ECO 391 or consent of instructor.

ECO 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. (Note: Not open for graduate credit to graduate students in Economics and Sociology.) Prereq: SOC 101; ECO 261. (Same as SOC 493G.)

ECO 494G ECONOMICS OF ENERGY PRODUCTION AND DISTRIBUTION. (3)
Economics of energy production, distribution, and consumption. Emphasis on the role of government policy and current problems regarding coal and petroleum. Prereq: ECO 261 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 592 INTRODUCTION TO QUANTITATIVE ECONOMICS II. (3)
An introduction to the use of mathematical statistics in econometrics. Emphasis on statistical decision theory and linear regression analysis. Prereq: ECO 590 or consent of instructor.

ECO 595 SOCIAL ACCOUNTING. (3)
An analysis of social accounts and use of accounts in creating development plans for underdeveloped and developed economies. Topics include the measurement of national income and its use in development planning; the qualitative and quantitative aspects of a development plan; the planning of economic policy and implementation of economic programs. Prereq: ECO 487G or equivalent.

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 autoregressive-moving average processes; linear non-stationary 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 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 standpoint 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 664 ECONOMICS OF REGULATED INDUSTRIES. (3)
The literature pertaining to regulated natural monopolies will be reviewed, commencing with the traditional Averch-Johnson model up to the more recent Joskow model and culminating with a synthesis of both. The role of uncertainty, inflation, and the financial structure of the firm as pertaining to regulation will be included. Prereq: ECO 760 and 762.

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 667 SEMINAR IN HISTORICAL STUDIES IN ECONOMIC CHANGE. (3)
Growth and development hypotheses will be tested on a wide range of historical materials drawn from the experience of Western Europe and America as bases for comparative studies in the newer developing regions.

ECO 668 AMERICAN ECONOMIC CHANGE IN HISTORICAL PERSPECTIVE. (3)
A wide range of statistical and historical studies will be used as bases to test various hypotheses concerning economic growth and development in the United States since the Revolution. Prereq: ECO 487G and 488G, or consent of instructor.

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 673 SEMINAR IN ECONOMIC DEVELOPMENT I. (3)
An intensive study of growth models, with special attention to problems associated with capital accumulation, balanced growth, and low-level equilibrium. Prereq: ECO 473G or equivalent.

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 682 THE ECONOMICS OF SPATIAL RELATIONS. (3)
A study of the spatial aspects of the economy with emphasis on location theory in a static equilibrium and dynamic framework. Empirical evidence and public policy considerations are also included. Prereq: ECO 488G or equivalent.

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 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 692 ECONOMETRIC METHODS. (3)
An introduction to econometrics with an emphasis on the applications of regression analysis, time series analysis, and the simultaneous equations model. Prereq: ECO 592 or consent of instructor.

ECO 697 THEORIES OF COMPARATIVE ECONOMIC SYSTEMS. (3)
The theories of the classical systems of capitalism and socialism and their contemporary variants—managed capitalism, democratic socialism, centralism, and revisional communism. Prereq: ECO 465G or consent of instructor.

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 763 SEMINAR IN MACROECONOMIC THEORY. (3)
Recent developments and major issues in contemporary macroeconomic theory. Prereq: ECO 761 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 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 776 ECONOMICS OF TRADE UNIONISM AND LABOR LAW. (3)
Origin and growth of labor organizations; trade union philosophy, organization and administration. Foreign labor movements. A detailed analysis of industrial rela-

tions and economic security legislation. Prereq: ECO 676 or consent of instructor.

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 783 SEMINAR IN REGIONAL ECONOMICS.(3)
A critical study of recent extensions in regional economic analysis and regional policy programs. Individual research paper is required. Prereq: ECO 682 and 683.

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 791 PROBLEMS IN ECONOMETRICS. (3)
Empirical estimation of multi-equation models. Bayesian estimation theory and techniques. Non-linear estimation techniques. Supervised empirical work requiring a major research paper. Prereq: ECO 792.

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 795 SEMINAR IN COMPARATIVE ECONOMIC SYSTEMS. (3)
A comprehensive review of studies and articles that deal with the performance of selected national economies and their systems; with emphasis on capitalist and non-capitalist systems alike. Prereq: ECO 696 or consent of instructor.

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

EDU 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 minimum of six weeks. Prereq: Successful completion of EDP 202 with an earned grade of C or higher.

EDU 300 SPECIAL COURSE. (1-3)
This course provides 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 announced each time the course is offered. Prereq: Consent of instructor.

EDUCATION—ADMINISTRATION AND SUPERVISION

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 602 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 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 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 to a maximum of six credits. Prereq: Admission to program in administration and supervision.

EDA 628 FIELD STUDIES IN EDUCATIONAL ADMINISTRATION AND SUPERVISION. (3)
Study and evaluation of the major areas of school operation in actual field situations. Emphasis upon the synthesis of knowledge through surveying, evaluating and developing recommendations for the improvement of the school operation. Prereq: Consent of instructor.

EDA 629 THE PRINCIPAL. (3)
An analysis of the building unit as a 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)
Consideration 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 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 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDA 771 SEMINAR IN ADMININSTRATION. (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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

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 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 video-tape television. Prereq: Admission to a Teacher Education Program.

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 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, FHR 255, or equivalent; or consent of instructor; admission to the Teacher Education Program.

EDC 329 READING AND LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. (3)
Development of competencies for the teaching of reading and other language arts skills to groups. One hour of laboratory work per week in the public schools is required. Lecture, three hours. Prereq: Junior standing and admission to the Teacher Education Program.

EDC 330 DIAGNOSTIC TEACHING OF READING AND LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. (3)
A study of materials and techniques that are useful for the classroom teacher in the diagnostic teaching of reading and other language arts. The course will emphasize materials, techniques, and procedures which diagnose individual skill 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 333 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. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 337 TEACHING MATHEMATICS IN EARLY CHILDHOOD EDUCATION. (3)
Fundamental concepts about numbers and their relationships will be taught with an emphasis on the use of concrete experiences from the world around the young child and of the gradual development of the language related to mathematics. Prereq: EDP 202, FHR 255, admission to TEP, and junior standing.

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: 4 hours per week. Prereq: EDP 202, FHR 255, admission to TEP and junior standing.

EDC 339 DIAGNOSTIC TEACHING OF READING AND LANGUAGE ARTS IN EARLY CHILDHOOD EDUCATION. (3)
A study of materials and procedures for developing reading and language arts skills with pre-school and primary students. Course will emphasize how to diagnose individual student skill strengths and weaknesses and build a prescriptive program based upon the diagnosis. Lecture, three hours; laboratory, one hour. Prereq: EDC 329; admission to the Teacher Education Program or permission of instructor.

EDC 340 TEACHING IN THE JUNIOR HIGH SCHOOL. (2-4)
A course designed, with laboratory experiences, to consider the philosophy and organization of the modern junior high school; approaches to teaching in the subject field areas: selection of materials and books for young adolescents and the guidance role of the junior high school teacher. Prereq: Admission to the Teacher Education Program or permission of instructor.

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. Prereq: Admission to the Teacher Education Program or permission of instructor.

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 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. 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. 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. 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. 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. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDC 358 STUDENT TEACHING IN PSYCHOLOGY. (3-12)
Culminating 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 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. 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. 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.)

*Offered on a pass-fail basis only.

EDC 500 CLINICAL AND LABORATORY TEACHING. (4)
Includes learning theories, motivational concepts, review of research, developing instructional objectives, human relations in the classroom, teaching methodologies, clinical instruction, performance evaluation and preparation of instructional units. This course is designed primarily for students in allied health, education, library science, home economics and social professions.

EDC 501 TEACHING INTERNSHIP. (3-12)
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, education, library science, home economics, and social professions. Prereq: EDC 500 or consent of instructor. May be repeated to a maximum of 12 hours.

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. 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. (Same as A-E 538.) Prereq: Teaching certificate or permission of the instructor.

EDC 540 PROBLEMS IN TEACHING READING. (3)
An in-depth analysis of selected problems in the teaching of reading. Areas of investigation will be determined by student needs and significant developments of the reading curriculum. Prereq: EDC 330, EDC 533, EDC 534, or consent of instructor.

EDC 542 CHILDREN'S LITERATURE. (3)
Planned to acquaint students with literature for children, kindergarten through grade eight. Review of interests at different ages. Discussion of types of literature—folklore, modern fairy tales, myths and legends, realistic stories, biography, and poetry.

EDC 543 TEACHING IN THE KINDERGARTEN. (3)
The nature, development and education of the child of kindergarten age. Organization, equipment, curriculum, and procedures used with children of this age. Regular periods are scheduled for observing and participating in the kindergarten.

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. (Same as LS 586.)

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 non-projected use. Sources of free and inexpensive materials will be identified and evaluated. Lecture, two hours; laboratory, two hours.

EDC 546 INTRODUCTION TO EARLY CHILDHOOD EDUCATION. (3)
Survey of early childhood educational programs with emphasis on principles, purposes, values and contemporary problems. A study of current literature and research related to these aspects for developing programs for young children. Prereq: Consent of instructor.

EDC 549 SOCIOLOGICAL ASPECTS 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 communications are studied within a context of theory and research. Prereq: Six hours of sociology; SOC 101. (Same as 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 552 MODERN EDUCATIONAL PROBLEMS. (3)
A brief survey of some of the problems in modern education.

EDC 562 MODERN EDUCATIONAL PROBLEMS. (3)
A brief survey of some of the problems in modern education.

EDC 563 MODERN EDUCATION PROBLEMS. (GENERAL ELEMENTARY CURRICULUM). (3)

EDC 564 MODERN EDUCATIONAL PROBLEMS. (GENERAL SECONDARY CURRICULUM). (3)

EDC 565 MODERN EDUCATIONAL PROBLEMS. (GENERAL CURRICULUM). (3)

EDC 575, 576 MODERN EDUCATIONAL PROBLEMS. (UNCLASSIFIED). (3 ea.)

EDC 596 SCIENCE IN THE ELEMENTARY SCHOOL. (3)
A background of elementary science usable with children in the first six grades. Includes planning units of work, organizing and using materials and references, making bibliographies for teachers and children, use of illustrative materials, and excursions.

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 one to three weeks, eight hours per day. May be repeated to a maximum of three hours. Prereq: Undergraduate degree.

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 instruction 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 EDP 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 instruction 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 DIAGNOSIS OF READING DISABILITIES. (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. Lecture, two hours; laboratory, two hours. Prereq: EDC 330 or 533, or 534 or consent of instructor.

EDC 620 READING REMEDIATION. (3)
Clinical techniques used in the remediation of reading problems. A course designed to develop individualized remedial procedures related to diagnosis. 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 IN THE ELEMENTARY SCHOOL. (3)
A systematic study of the research and theory and their application to the teaching of listening, oral and written communication, spelling, and handwriting in the elementary school. Attention will be given to new developments in the field. Prereq: EDC 330 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 646 ORGANIZING READING PROGRAMS. (3)
Procedures in establishing and administering reading programs in elementary and secondary schools. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

EDC 650 A STUDY OF RESEARCH AND THEORY IN TEACHING THE DISADVANTAGED. (3)
An ordered examination of the research and theory developed for teaching disadvantaged children and adolescents. Particular emphasis will be placed on research and theoretical developments in the field. Prereq: EDC 550.

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 HF 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 680 INTERNSHIP IN TEACHER EDUCATION. (6)
A required component of the special Five Year Program for elementary, junior high and senior high school teachers, this course is an on-the-job laboratory experience in which a teacher with a Provisional Certificate works under the direct supervision of a coordinator from the Department for Curriculum and Instruction. May be repeated to a maximum of 12 credits. Prereq: Graduate student; admission to a specially designed program in teacher education.

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 717 THE JUNIOR HIGH SCHOOL. (3)
A study of the unique functions of the junior high school. Scope and sequence of the curriculum, school organization and guidance as related to the young adolescent will be considered. A course for principals, supervisors, teachers.

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 CURRICULUM. (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 to each problem studied. May be repeated to 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. Consideration 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 745 ADMINISTRATION OF EDUCATIONAL MEDIA PROGRAMS. (3)
Stresses the operation of educational media programs considering budgeting, training of personnel, duties of staff, sources of materials, and the purchase of equipment. Previews are made of many educational media and attention is given to the special needs of the Instructional Materials Center.

EDC 746 MOTION PICTURES IN EDUCATION. (3)
The history of the educational motion picture, technique in the use of films, educational scenario writing, grading and scoring films, and motion picture appreciation.

EDC 747 SEMINAR IN READING. (3)
A seminar for advanced graduate students. Critical discussion of theory and research under investigation by graduate students and faculty. May be repeated once. (Same as EDP 747.)

EDC 748 PSYCHOLOGY OF READING. (3)
A systematic examination of the psychological basis of the reading process. A study of pscyhological theory and research related to reading. Prereq: Consent of instructor. (Same as EDP 748.)

EDC 757 COLLEGE AND ADULT READING. (3)
The study of the reading process as it pertains to college students and adults. Emphasis will be placed on principles and procedures for teaching reading to this group. Prereq: Consent of instructor.

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 pre-college 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 780 INDEPENDENT WORK IN ELEMENTARY EDUCATION. (2)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDC 712 or EDA 629. May be repeated to a maximum of four credits.

EDC 781 INDEPENDENT WORK IN SECONDARY EDUCATION. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDC 714, EDA 630. May be repeated to a maximum of six credits.

EDC 790 RESEARCH PROBLEMS IN SECONDARY EDUCATION
An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. May be repeated once to a maximum of six credits.

EDC 791 RESEARCH PROBLEMS IN ELEMENTARY EDUCATION. (3)
An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. May be repeated to a maximum of six credits.

EDUCATION—HIGHER EDUCATION

EDH 99 ORIENTATION SEMINAR FOR GRADUATE STUDENTS. (0)
An orientation course for students who are entering the Graduate School for the first time.

EDH 708 INTERNSHIP IN COLLEGE ADMINISTRATION. (4)
Supervised practical experience in college administration; students will be placed in appropriate administrative offices under the supervision of a key administrator; work will be integrated with weekly conferences with the instructor. Intended primarily for students who have not had previous experience in college administration. Laboratory, 20 hours. Prereq: Admission to the doctoral program in higher education and completion of 15 hours in higher education.

EDH 718 TRENDS 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.

EDH 719 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.

EDH 722 COLLEGE STUDENT PERSONNEL. (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.

EDH 733 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.

EDH 734 THE COMMUNITY AND JUNIOR COLLEGE. (3)
History, philosophy, programs, and teaching-learning climate at the junior college; patterns of control and support; a consideration of the private as well as the community junior college.

EDH 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EDH 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDH 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: EDH 718 and 733, or consent of instructor.

EDH 799 RESEARCH PROBLEMS IN HIGHER EDUCATION. (3)
An independent research course for the study of special problems in higher education. Prereq: One year of graduate work. May be repeated to a maximum of six credits.

EDUCATIONAL PSYCHOLOGY AND COUNSELING

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 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 520 THE SECONDARY SCHOOL PUPIL. (3)
The psychology of the pupil in junior and senior high school. Prereq: One course in psychology.

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 specialities. Prereq: Admission to School Psychology Program or consent of instructor.

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 evaluation 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 605 INTRODUCTION TO COUNSELING. (3)
A survey of guidance philosophy, procedures and practices; role of the counselor in relation to guidance services in the educational setting.

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 EDUCATIONAL 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 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 selection, organization, and effective use of group dynamics in the facilitation of educational goals. Prereq: EDP 605 and 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 653 APPRAISAL PROCEDURES IN GUIDANCE PRACTICE. (3)
Introduction to assessment procedures utilizing observational and group testing techniques. Study of use and interpretation of group guidance instruments. Prereq: EDP 605.

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 657.

EDP 661 TECHNIQUES OF COUNSELING. (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. Laboratory, two hours; lecture, two hours. Prereq: EDP 605 and consent of instructor.

EDP 665 PRACTICUM IN COUNSELING PSYCHOLOGY. (3-6)
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 IDENTIFYING AND PROVIDING FOR INDIVIDUAL STUDENT NEEDS. (3)
Research studies and reports on individual differences in the physical, intellectual, social and emotional development of students. Consideration of ways that have proved effective in meeting the needs of individual students and practical application of these techniques with school children. Prereq: PSY 535 or EDP 522 and 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 677 ADVANCED STUDIES IN COMMUNITY MENTAL HEALTH. (3)
Topics include cross-cultural, social and epidemiological studies; mental health delivery systems of communities and school systems; and the law of mental health, psychology, and counseling. May be repeated to a maximum of six credits. Prereq: Any two of the following: PSY 501, PSY 521, CH 521, EDP/PSY 518, ANT/SOC 526, or consent of instructor.

EDP 680 CHILD GUIDANCE AND PARENT COUNSELING. (3)
Theories, methods, and techniques of counseling of children and of counseling of parents about their children. History of the child guidance movement and of counseling in the elementary schools. Contemporary methods of counseling are studied within a framework of human development. Prereq: A graduate course in child psychology or human development, EDP 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. May be repeated to a maximum of 12 credits. Prereq or coreq: EDP 652 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; or 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 BEHAVIOR MODIFICATION IN EDUCATION. (3)
A comprehensive theoretical review and practical experience in behavior modification techniques; observational, strategy formation approaches, and evaluative procedures stressed. Prereq: Fifteen hours of work in educational psychology or counseling, 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 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 747 SEMINAR IN READING. (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: Consent of instructor. (Same as EDC 747.)

EDP 748 PSYCHOLOGY OF READING. (3)
A systematic examination of the psychological basis of the reading process. A study of psychological theory and research related to reading. Prereq: Consent of instructor. (Same as EDC 748.)

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 credential in a pupil services field or consent of instructor.

EDP 763 RESEARCH AND EVALUATION IN GUIDANCE. (3)
Research methods applied to the formulation, development, and evaluation of guidance services. Critical evaluation of current research trends.

EDP 765 INDEPENDENT WORK IN COUNSELING PSYCHOLOGY. (2)
An independent work course for advanced graduate students who desire to investigate special problems in counseling and guidance. Prereq: One year of graduate work in counseling and guidance, including EDP 600 (or PSY 610) and consent of instructor. May be repeated to a maximum of four credits.

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 WORK IN EDUCATIONAL PSYCHOLOGY. (3)
An independent work course for students who have done a minimum of 12 semester hours of graduate work including EDP 522, 520 or 658. May be repeated to a maximum of six credits.

EDUCATION—SOCIAL AND PHILOSOPHICAL STUDIES

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. Approved for offering in the community college system **only.**

EDF 301 EDUCATION IN AMERICAN CULTURE. (3)
An introduction to education based on the analysis of certain questions regarding society, man, knowledge and values.

EDF 317 HISTORY OF EDUCATION. (3)
A study of the historical foundations of American education.

EDF 395 INDEPENDENT WORK IN SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION. (3)
An independent study course open only to undergraduate students. May be repeated to a maximum of six hours.

EDF 454 CULTURE, EDUCATION AND TEACHING ABROAD. (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. Three hours lecture per week; two hours laboratory per week. Prereq: Admission to a teacher education program and consent of instructor.

EDF 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: SOC 101. (Same as SOC 532.)

EDF 533 INTRODUCTION TO THE PHILOSOPHIC STUDY OF EDUCATION. (3)
An introduction to the philosophic analysis of major concepts in education. The course is designed primarily as an elective for students in teacher-education and students in other colleges. Does not apply toward teacher certification. Prereq: Junior or senior standing, not on academic probation.

EDF 601 PROSEMINAR. (1)
Introductory survey of the bibliographic parameters and research approaches to social and philosophical inquiries in education. Graduate faculty resources and typical research problems are also introduced. Required, first semester of study, of all degree students in the department. Lecture, two hours. Prereq: Graduate standing or consent of instructor.

EDF 610 FUTURISTICS AND EDUCATION. (3)
Historical, literary, and scientific 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.

EDF 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.

EDF 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: EDF 640 or consent of instructor.

EDF 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.

EDF 645 SOCIAL ISSUES IN EDUCATION. (3)
Study of philosophical, historical, and sociological dimensions of contemporary social issues affecting educational theory and practice. Issues will be examined within such topical areas as the relationship between school and society, the provision of equal opportunity, and the teaching of moral values.

EDF 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 EDF 640, or consent of instructor.

EDF 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.

EDF 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.

EDF 652 HISTORY OF EDUCATIONAL THOUGHT. (3)
A study of the lives and writings of the world's great educators to acquaint the student with their major contributions to society and education.

EDF 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.

EDF 654 MULTICULTURAL AND INTERNATIONAL EDUCATION. (3)
Examination of the educational implications of cultural pluralism in U.S. society and the world, interdependence among nations, and the global nature of major social problems; special topics include bilingual/bicultural education, non-Western studies, world order education, world future studies, and other curricular applications. Prereq: Graduate standing.

EDF 655 COMPARATIVE EDUCATION. (3)
Analytical and comparative study of contemporary education in selected countries, with emphasis on the historical development and total cultural context of educational programs. Informal as well as formal agencies and programs will be studied with particular attention to recent reforms and innovations.

EDF 656 INTERNATIONAL DEVELOPMENT EDUCATION. (3)
Critical study of the role of education in the social, cultural, political and economic development of countries in Asia, Latin America, and Africa with particular emphasis on interdisciplinary-interprofessional planning. Problems of change in education and international cooperation for education development.

EDF 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.)

EDF 662 ANALYSIS OF EDUCATIONAL CHANGE. (3)
The history, nature, processes, and problems related to educational change, drawing upon the literature in several disciplines.

EDF 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.

EDF 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.

EDF 750 PROBLEMS IN SOCIOLOGY OF EDUCATION. (3)
Advanced study of selected problems in sociology of education, both systematic and topical. May be repeated to a maximum of six hours as subject varies. Prereq: Twelve semester hours of graduate work including EDF 661, or equivalent.

EDF 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

EDF 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDF 773 SEMINAR IN FOUNDATIONS OF EDUCATION. (Variable Topics) (1-3)
A critical study of selected problems in the foundations of education areas. May be repeated to nine credits but no more that three credits may be earned under the same title. Prereq: Consent of instructor.

EDF 778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY. (3)
A seminar for graduate students in education who are interested in developing a background and perspective upon educational problems by study of the history and development of education in Kentucky.

EDF 785 INDEPENDENT STUDY IN SOCIAL AND PHILOSOPHICAL PROBLEMS IN EDUCATION. (3)
This course will allow advanced students to study, in depth, individualized problems and issues related to social and philosophical foundations. May be repeated to a maximum of nine hours. Prereq: Permission of department chairman required.

EDUCATION—SPECIAL

EDS 250 INTRODUCTION TO SPECIAL EDUCATION. (4)
An introduction to the various contemporary areas of special education. The principal purpose of the course is to survey the educational areas, issues and problems found in today's special education. Topics include special education diagnostic categories, programming, service delivery models, child advocacy, and litigation affecting public education for the handicapped. Lecture, three hours; laboratory, five hours. Prereq or concur: EDP 202.

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 SP 285.)

EDS 358 FIELD EXPERIENCES WITH MILDLY HANDICAPPED CHILDREN. (3)
Supervised pre-student 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, concurrent enrollment in EDS 529; admission to the Teacher Education Program or permission of instructor.

EDS 359 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 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)
A survey of education and treatment of children having inferior or superior intellectual abilities; defects of vision, hearing, speech, or physical and neurological defects. Examination of research dealing with the exceptional child.

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 381 INTRODUCTION TO MANAGEMENT PROCEDURES IN SPEECH PATHOLOGY. (3)
Observations and critical analysis of principles and procedures applicable to the management of speech and language disorders. Prereq: EDS 285, EDS 378; SP/A majors only; 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 and EDS 381: 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 and EDS 381; 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 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 505 EDUCATION OF THE TRAINABLE MENTALLY RETARDED. (3)
A study of modern classroom techniques for working with the trainable, or severely mentally retarded. Private and public day and residential school programs are considered. Attention is given to educational significance of multiple disabilities of retarded children.

EDS 510 EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED. (2)
An overview of the early development of exceptional children with special emphasis on early perceptual, conceptual and social development. Emphasis is given to the maximum utilization of residual sensory capabilities. Curriculum modifications as well as methods and materials appropriate for use in the early education of handicapped children will be introduced and discussed. Prereq: EDS 250 or EDV 203 or consent of instructor; admission to the Teacher Education Program.

EDS 511 SPEECH AND LANGUAGE DEVELOPMENT. (3)
Deals with development of morphological, syntactical, and phonological aspects of language. Linguistic, learning and cognitive strategies for language acquisition are discussed with implication to education and language intervention of exceptional children. Prereq: SP 285 and Intro. to Speech Disorders (speech pathology majors) or EDS 250 and admission to Special Education Teacher Education Program (special education majors).

EDS 512 LANGUAGE DISORDERS I. (3)
An introduction to the characteristics of receptive and expressive language disorders in children including auditory, cognitive and motor components. Topics include a developmental and observational language evaluation and techniques for receptive and expressive language training. Commercially prepared language programs will be reviewed. Prereq: EDS 511; admission to the Teacher Education Program or permission of instructor.

EDS 513 PROTECTING THE HUMAN RIGHTS OF THE HANDICAPPED. (2)
Content includes the constitutional guarantees which establish the right to education for all children, recent legal precedents and their effect on current educational practice, the definition and procedures of due process, and specific demands on each member of the educational system. Teachers' specific responsibilities, and liabilities, are described and related to requirements for the development of appropriate educational programs in Kentucky and in states with similar requirements. Prereq: EDS 250 or consent of instructor; admission to the Teacher Education Program.

EDS 514 SPECIAL EDUCATION LEARNING ENVIRONMENTS. (2)
An analysis of the educational settings in which special educators work with exceptional children. Principles and practice in designing individualized learning environments for children, including writing behavioral objectives and performing task analyses. Prereq or concur: EDS 250; admission to the Teacher Education Program or permission of instructor.

EDS 515 CAREER EDUCATION IN SPECIAL EDUCATION. (2)
Overview of career emphasis and programming for special education, kindergarten-12. Emphasis on curriculum development and the selection and evaluation of instructional materials. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDS 516 PRINCIPLES OF BEHAVIOR MANAGEMENT WITH EXCEPTIONAL CHILDREN. (2)
Basic principles of behavior analysis and modification, employing social learning theory and operant conditioning models. Emphasis is placed on management strategies used by teachers of exceptional children. Prereq: EDS 250; admission to the Teacher Education Program or permission of instructor.

EDS 517 PROSTHETICS FOR HANDICAPPED CHILDREN. (2)
A general introduction to the theory, need, and use of prosthetic devices in the classroom. 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 250; admission to the Teacher Education Program or permission of instructor.

EDS 518 WORKING WITH PARENTS OF THE HANDICAPPED. (2)
The problems of parents with handicapped children, as well as resources and methods for dealing with these problems are considered. Methods of analyzing parent-child interactions, and techniques for enhancing home-school cooperation are stressed. Prereq: EDS 250; admission to the Teacher Education Program 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 525 EDUCATION OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED. (3)
A study of educational techniques, materials and equipment used in teaching crippled, brain-injured and chronically ill children. Curriculum for both classroom and individual clinical teaching is included.

EDS 526 EDUCATION OF THE EDUCABLE MENTALLY RETARDED. (3)
A study of modern classroom techniques for working with the educable, or mildly mentally retarded. Major emphasis is on curriculum development and teaching techniques.

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: EDS 329, 330, and 331; admission to the Teacher Education Program, EDS 514, 516, 528; and concurrent enrollment in EDS 358.

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 541 CHARACTERISTICS OF THE TRAINABLE MENTALLY HANDICAPPED. (2)
A survey of the contemporary issues, programs and problems of the moderately developmentally retarded or trainable mentally handicapped individuals. The course will revolve around social, legal, educational and developmental topics. Lecture, two hours; laboratory, three hours. Prereq: Admission to the Teacher Education Program and EDS 250.

EDS 547 DIRECT OBSERVATION AND ASSESSMENT PROCEDURES. (2)
A study of current issues in educational assessment for the trainable mentally handicapped individual. Legal, social, and ethical issues will be included in the assessment process. The students will be given instruction in administration, interpreting and programming with a minimum of three direct-observation educational assessment instruments. Lecture, two hours; laboratory, three hours. Prereq: Admission to the Teacher Education Program, EDS 514, EDS 516 and EDS 541.

EDS 548 CURRICULUM AND MATERIALS FOR THE TRAINABLE MENTALLY HANDICAPPED CLASSROOM. (2)
A study of the development of curricula and materials for use in a trainable mentally handicapped classroom setting. A minimum of three curricula will be utilized as models. Instructional materials and units of instruction will be field tested by the student. Lecture, two hours; laboratory, three hours. Prereq: Admission to Teacher Education Program, EDS 514, 516, 541, and 547.

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 CHARACTERISTICS OF EMOTIONALLY DISTURBED CHILDREN. (3)
The problems of emotionally disturbed school children are considered in the context of normal child development with emphasis on psychological factors correlated with behavior deviations. A survey of the major diagnostic categories include 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. Lecture, two hours; laboratory, two hours. Prereq: EDS 375, or consent of instructor.

EDS 585 SOCIOLINGUISTICS. (3)
A study of the inter-relationship of language and culture with special emphasis on Black English and the methodology for the identification and analysis of the language systems of sub-groups.

EDS 586 CLINICAL INTERVIEWING. (3)
A survey of the principles and techniques of interviewing: practical experience in conducting and analyzing clinical interviews. Lecture: two hours; laboratory: one hour per week. Prereq: Permission of instructor.

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 and permission of instructor.

EDS 589 CLEFT PALATE. (3)
Analysis, identification, and management of communication deficit 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. 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 indepth 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 Masters Program in Special Education or permission of instructor and EDS 620.

EDS 622 MODELS OF EARLY CHILDHOOD INTERVENTION FOR THE HANDICAPPED. (3)
An indept study of several service-delivery models of intervention in early childhood. Infant intervention and model programs in early childhood education of the handicapped will be presented and discussed. Components of successful mainstreaming for young children will be reviewed. Prereq: EDS 250 or 600 and EDS 510, EDS 620 or equivalent/or permission of instructor.

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 masters 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. Laboratory: Nine hours last 10 weeks of semester. Lecture: Three hours. 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. Laboratory: Nine hours last 10 weeks of semester. Lecture: Three hours. 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 655 SCREENING PROCEDURES IN SPEECH AND HEARING. (1)
Practical experience in the administration of speech, language, and hearing screening protocols. Lecture: one hour per week for eight weeks; laboratory: two hours per week for eight weeks. Prereq: EDS 384 and EDS 587.

EDS 656 CLINCIAL 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 671 EDUCATION OF EMOTIONALLY DISTURBED CHILDREN. (3)
A study of educational techniques, materials, and equipment used in teaching emotionally disturbed children. Curriculum for both classroom and individual clinical teaching is included. Lecture, two hours; laboratory, two hours. Prereq: EDS 570.

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 communications 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 instruc-

tional 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 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. 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: Twelve graduate semester hours in special education including EDP 657 or equivalent.

EDUCATION—VOCATIONAL

AGRICULTURAL EDUCATION

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. Prereq: Second semester senior; admission to the Teacher Education Program or permission of instructor. Offered on a pass-fail basis only.

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 audio-visual 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 581 ADULT-FARMER SCHOOLS AND YOUNG-FARMER COURSES IN AGRICULTURE. (3)
A general introduction to adult-farmer schools and young-farmer courses with some observation of work in both of these fields. 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 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, audio-visual 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. (3)
A study of effective teaching in shorthand, transcription, business communication, and secretarial office practice. Prereq: Admission to the Teacher Education Program or permission of instructor.

EDV 512 TEACHING BOOKKEEPING AND ACCOUNTING. (3)
Methods, materials, and techniques used in the teaching of bookkeeping and accounting. Required of business education majors. Prereq: Admission to the Teacher Education Program or permission 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 618 THE SOCIAL BUSINESS SUBJECTS IN HIGH SCHOOL. (3)
An examination of the various social business subjects, to determine their contribution to the objectives of business education.

EDV 623 ADMINISTRATION AND SUPERVISION OF BUSINESS EDUCATION. (3)
Duties and responsibilities of city and state supervisors, department heads, and others engaged in directing business education.

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. (See also Business and Office Education, BOE.)

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 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. Prereq: EDV 528; admission to the Teacher Education Program or permission of instructor. Offered on a pass-fail basis only.

EDV 515 PROBLEMS IN DISTRIBUTIVE EDUCATION. (2-3)
Problems in teaching vocational distributive education in day, part-time and evening schools. The problems are selected in accordance with the needs and desires of the students. May be repeated to a maximum of six credits. Prereq: 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 STUDENT TEACHING IN HOME ECONOMICS. (3-12)
Practical application of methods in teaching various phases of home economics. Prereq: EDV 586; admission to the Teacher Education Program or permission of instructor. Offered on a pass-fail basis only.

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 106 OCCUPATIONAL ANALYSIS. (2)
The analysis of an occupation into its various tasks and required informational topics. The student will analyze his own vocation for purposes of preparing a course of study and necessary instruction sheets, which are to be subsequently used in his teaching activities.

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 effective program of instruction. Management of shop equipment, arrangement of the shop or laboratory, and student personnel systems receive major attention.

EDV 108 CONFERENCE LEADERSHIP. (2)
Designed to develop leadership and participation skills in solving problems and planning activities in the industrial school class or in industry by the discussion method. Discussion theory will be studied and applied to problems identified by the class members.

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. Prereq: EDV 106.

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 116 AUDIO-VISUAL AIDS, THEIR USE IN TEACHING INDUSTRIAL AND DISTRIBUTIVE EDUCATION. (2)
This course is designed to meet the needs of industrial and distributive education teachers. The theory of demonstration teaching will be discussed, and practice will be done by the students in the class. The course will include instruction in the use of these aids in teaching: film projectors, mock-ups, cutaways, flannelboard, bulletin board, sample specimens, tape recorders, and field trips. Instruction will be given in the selection of various aids as a part of the teaching program.

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, nine-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. Laboratory, ten hours. May be repeated to a maximum of nine credits. Prereq: Two years of industrial experience in a single occupation or consent of instructor.

EDV 224 TECHNIQUES OF TEACHING INDUSTRIAL EDUCATION. (3)
Designed for persons preparing to teach various industrial occupations in vocational schools in Kentucky. Emphasis is given to the leading of discussions, lectures, oral questioning, written examinations, and demonstration teaching. Prereq: EDV 110.

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. May be repeated to a maximum of nine hours. 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 vocational schools. 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 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 536 SURVEYS IN INDUSTRIAL EDUCATION. (2)
This course deals with the basic methods and techniques used in making a survey to determine the needs for trade and industrial education. Emphasis is placed on gathering, evaluating, and interpreting the data.

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.

EDV 540 SUPERVISION OF STUDENT TEACHING IN INDUSTRIAL EDUCATION. (2)
Designed to prepare supervising teachers in industrial education. Includes philosophy of the job in relation to total program of teacher preparation, making teaching assignments, conferencing, evaluation and development of a list of experiences deemed necessary for developing students into effective teachers. Prereq: Hold a ten-year teaching certificate in industrial education.

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 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 523 VOCATIONAL GUIDANCE. (2-3)
A study of the philosophy of guidance, aims and purposes of vocational guidance, individual student inventory (as revealed by tests, surveys, records, case studies, interviews, and observations), and counseling techniques. Emphasis is given to securing and using occupational information, student guidance, placement, evaluation of occupational performance, and organizing and administering vocational guidance programs.

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 608 INTERNSHIP IN VOCATIONAL EDUCATION. (6)
Field experiences are provided for leadership personnel in vocational education through cooperative supervision of University personnel, superintendents, directors in the Bureau of Vocational Education and area vocational-technical schools, in Kentucky public school systems. May be repeated to a maximum of 12 credits. Lecture, three hours; laboratory, 16 hours. Prereq: Completion of Master's degree and teaching and/or administrative experience.

EDV 641 APPRAISAL OF CURRENT LITERATURE IN VOCATIONAL EDUCATION. (3)
A critical study of 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 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 course 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 001 THE ENGINEERING PROFESSION (Freshman). (0)

EE 005 THE ENGINEERING PROFESSION (Junior). (0)

EE 006 THE ENGINEERING PROFESSION (Junior). (0)

EE 007 THE ENGINEERING PROFESSION (Senior). (0)

EE 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 indefinitely.

EE 211 CIRCUITS I. (3)
Fundamental laws and principles; interpretations, physical concepts; background for linear analysis study. Prereq: MA 114; prereq or concur: PHY 232, 242.

EE 221 CIRCUITS II. (3)
Elementary circuit analysis. Study of series and parallel R-L-C circuits with single-phase sinusoidal driving functions. Prereq: EE 211.

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 371 SEMINAR. (1)
Weekly meetings with staff for oral reports on term papers. Discussion of modern practices in electrical engineering. Prereq: Senior standing.

EE 372 SEMINAR. (1)
Continuation of EE 371. Lecture, two hours. Prereq: EE 371.

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 semi-conductor 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 402.)

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 elctronic 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: Senior standing in electrical engineering.

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.

EE 416G ELECTRICAL ENGINEERING LABORATORY III. (2)
Laboratory practice and experimental studies related to EE 415. Lecture, one hour; laboratory, three hours. 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 EE 221.

EE 461G ELECTRONIC CIRCUITS I. (3)
Analysis and design of electronic circuitry incorporating nonlinear electronic elements such as transistors, FET's, and vacuum tubes. Applications to amplifiers. Prereq: 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)
Maxwell's equations; vector and scalar wave equations; bounded solutions (transmission lines, waveguides); unbounded solutions (antennas); Poynting's theorem; fields in moving media. Prereq: EE 467G.

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.

EE 480G LOGICAL DESIGN. (3)
Boolean algebra; combinational logic circuits, synchronous sequential circuits; asnychronous sequential circuits; design problems using TTL integrated circuits. Prereq: Upper division standing.

EE 503 ADVANCED ELECTRICAL ENGINEERING LABORATORY II. (3)
A continuation of advanced laboratory experimental work covering additional topics as described in EE 403. After completion of suitable introductory experiment modules, a student may complete additional modules or undertake a comprehensive experiment with the approval of an appropriate faculty member after suitable review and definition. Summary technical reports, oral and written, may be required. Laboratory, six hours. Prereq: EE 403G or consent of instructor.

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.

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 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.

EE 520 ELECTRICAL ENGINEERING ANALYSIS II. (3)
Investigation of transient and steady-state conditions in electrical and mechanical systems, using Laplace transforms, vectors, complex variables; network analysis and synthesis. Feedback system stability criteria. Lecture and recitation, three hours. Prereq: EE 420G.

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.

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.

EE 537 ELECTRIC POWER SYSTEMS I. (3)
Application of symmetrical components to power system fault studies, calculation of transmission line parameters. Prereq: 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: 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: CS 221; EE 461G or equivalent.

EE 561 SOLID STATE ENGINEERING. (3)
Molecular approach to the behavior of gaseous conductors, semiconductors, dielectrics and magnetic materials; emphasis on modern semiconductor electronic devices such as masers, lasers, Esaki diodes, Zener diodes, and micro-modules. Prereq: EE 420G, 467G.

EE 562 ELECTRONIC CIRCUITS II. (3)
Feedback amplifiers, tuned and untuned amplifiers, oscillators, AM and FM transmitters. Prereq: EE 461G.

EE 563 COMMUNICATION CIRCUITS DESIGN. (3)
Fundamental electronic principles applied to the design of typical circuits in communication systems. Such circuits include regulated power supplies, tuned amplifiers, modulation and detection circuits, and RF amplifiers. Prereq: EE 461G.

EE 564 ELECTRONIC CIRCUITS III. (3)
Timing, scanning, trigger, logic and pulse circuits; video and broadband RF amplifiers. Prereq: EE 461G.

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: Consent of instructor and senior standing. (Same as PHY 567.)

EE 571 NONLINEAR AND SAMPLED-DATA CONTROL SYSTEMS. (3)
Nonlinear control systems, approximation methods, describing functions, phase plane techniques, digital and sampled-data control systems, theory of sampling, Z-transform analysis, digital controller synthesis. Prereq: EE 471G.

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. Micro-programming. 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 595 INDEPENDENT PROBLEMS. (1-3)
For electrical engineers. A problem, approved by the chairman of the department, provides an objective for study and research. May be repeated to a maximum of six credits. Prereq: 2.5 standing.

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 net works, advanced electrical devices, digital communications, display of electronics. Prereq: Equivalent of two 400 level courses in electrical engineering and consent of in-

structor. 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.

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 606 POWER SYSTEM ANALYSIS. (3)
Digital methods for calculation of transmission line parameters; matrix models of power system components; digital methods applied to load flow, stability, and short-circuit studies. Prereq: EE 537 or consent of instructor.

EE 607 ADVANCED TOPICS IN POWER ENGINEERING. (3)
Special topics of current interest to power utilities and power systems engineering such as economic dispatch, probability analysis of the outage rates of generators, the economic evaluation of engineering projects, protection of transmission systems against lightning and transient surgers, and protective relaying of transmission systems. Prereq: EE 537 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 612 ADVANCED LINEAR SYSTEM ANALYSIS. (3)
Continuation of EE 611 on concepts of linear systems as derived from state-variable analysis: adjoint systems, equivalent systems, modal analysis, controllability and observability, realizability, canonical forms, state feedback, state estimators and feedback design. Prereq: EE 611.

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 multirate, variable-rate and non-synchronized sampled-data systems. Prereq: EE 420G or consent of instructor.

EE 616 ADVANCED TOPICS IN CONTROL. (3)
Current research and design practices in control devices and systems. May be repeated twice. Prereq: EE 613, 614 or consent of instructor.

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 functions; leaky-wave concepts; mode matching techniques; excitation of closed and open waveguides; spectral wave concepts. Prereq: EE 622.

EE 625 NUMERICAL METHODS IN RADIATION AND SCATTERING. (3)
Integral equation descriptions of antennas and scatterers; numerical solution to integral equations; the method of moments; numerical stability; reliable methods for wire and surface problems; penetrable bodies. Prereq: EE 622.

EE 629 RESEARCH TOPICS IN ELECTROMAGNETICS. (3)
This course is conducted about one or more topics of current research in applied electromagnetics. The student is brought abreast of current issues by study of selected papers and reports, by lecture (where appropriate), and by work on assigned projects. May be repeated to a maximum of nine credits.

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 611.

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 642 SIGNAL DETECTION, ESTIMATION AND CLASSIFICATION. (3)
Unified presentation of signal detection and estimation; introduction to classification and pattern recognition using statistical and probabilistic methods. Specific topics include: binary and m-ary signal detection; LMS and other estimation methods; introduction to Kalman filtering. Prereq: EE 640.

EE 650 ELECTRO-OPTICAL PROPERTIES OF MATERIALS. (3)
The effects of electric fields upon light propagation in media. Lasers, electro-optic modulation, non-linear 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: 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.

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 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: MET 412, EE 461G 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 681 DIGITAL PROCESSORS. (3)
Advanced approaches to digital design, emphasizing the use of memory in place of logic. Discussion and independent work on microprogramming and the design of systems incorporating minicomputers and microprocessors as components. Prereq: EE 581 or equivalent.

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 AUTOMATA THEORY. (3)
Decomposition of sequential machines, state assignment, finite memory machine, shifting operators as applied to structural machines, Turing machines, pattern classification by state machines. Prereq: EE 480G, MA 561. (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 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 chairman of the department. May be repeated to a maximum of nine credits.

ENGINEERING

EGR 399 COOPERATIVE ENGINEERING EDUCATION. (1)
A course to allow a co-op student to be officially identified as a continuing student while that student is assigned to work under the supervision of a sponsoring company at that company's plant. To be taken pass fail only. Full time studio hours per week on Engineering Work Assignment. May be repeated to a maximum of six credits. Prereq: Approval of Coordinator of Cooperative Engineering Education.

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 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 transformation; simple tension and compression of axial members; torsion of shafts; bending of

beams; combined loading of members, buckling of columns. Prereq: 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, three hours. Prereq or concur: EM 302.

EM 310 PROJECTS IN ENGINEERING MECHANICS. (3)
Three or four analysis and/or design projects based primarily on the subject matter of engineering mechanics are undertaken. One or two of the projects usually involve meaningful use of the computer. Emphasis is on complete engineering projects of current interest carried through to final reports. Consultants (engineers from industry or engineering professors) may be brought in to give expert advice on projects and their solutions. Student selection of projects is encouraged. Prereq: EM 313 or consent of instructor.

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: EM 221; prereq or concur: MA 214 and CS 221.

EM 351 EXPERIMENTAL SOLID MECHANICS. (3)
The fundamentals of mechanical measurement with illustrative experiments; an introduction to photoelasticity with laboratory demonstrations; the design and performance of relatively complex solid mechanics experiments. Lecture, two hours; laboratory, three hours. Prereq: EM 313.

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 or concur: MA 432G or consent of instructor.

EM 505 VISCOELASTICITY. (3)
A study of the phenomenological description of the mechanical behavior of polymeric materials. One-dimensional linear phenomena are emphasized. Topics include viscoelastic response in shear; relations between modulus and compliance; one-dimensional dynamic problems; stress analysis; and thermal effects. Prereq: EM 302 or consent of instructor. (Same as MET 505.)

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 or consent of instructor. (Same as MET 506.)

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 or consent of instructor.

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.

EM 532 EXPERIMENTAL STRESS ANALYSIS. (3)
Experimental stress analysis from an engineering viewpoint. Preliminary optics; stress-optic law; isoclinic and stress trajectories; strain gauges; rosettes; miscellaneous experimental techniques. Prereq: EM 531.

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.

EM 544 INTRODUCTION TO NONDESTRUCTIVE TESTING. (3)
Theory and practice of non-destructive testing methods, their interrelationships, uses, advantages and limitations are presented. Emphasis will be on the most common methods; liquid-penetrant, magnetic-particle, radiography, ultrasonics and eddy current. A limited discussion of the newer techniques including thermal inspection, acoustic emission, and holography is included. Prereq: EM 302 or consent of instructor. (Same as MET 544.)

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 604 MECHANICS OF PLASTIC SOLIDS II. (3)
Continuation of EM 603 with attention to a wider range of deformation processes and materials. Rate dependent materials and processes are included; thermoplasticity and plastic wave propagation are investigated. Prereq: EM 603.

EM 605 FOUNDATIONS OF INELASTICITY. (3)
Most engineering materials do not respond elastically for the entire range of their behavior. The complex nature of the response to loading beyond the elastic limit often requires a variety of inelastic models. Different inelastic models are considered from the viewpoint of the mechanist and related to specific processes and applications. Prereq: EM 604, 662.

EM 607 ADVANCED INELASTICITY. (3)
A continuation of EM 605 with a study of the latest research results in the area of inelasticity. Prereq: EM 605.

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 614 MECHANICS OF SPACE VEHICLES. (3)
Description of rigid body orientation, angular velocity, and angular acceleration in terms of Euler angles, Euler parameters, and direction cosines. Gravitational forces and torques and their effect on the attitude motions of symmetrical and unsymmetrical near-earth satellites. Effects of gyroscopic devices, energy dissipation, and elastic flexibility on the stability of space vehicles. Prereq: EM 646.

EM 631 ELASTIC STABILITY OF MECHANICAL SYSTEMS. (3)
Critical loads, speeds and vibrational frequencies that produce buckling of thin structural members are analyzed. The principles of structural stability are formulated for linear and nonlinear, conservative and nonconservative, elastic mechanical systems. Stability criteria and methods of solution for static and dynamic stability problems of deformable systems subjected to dead loads and to configuration dependent loads in compression, tension, torsion and bending are studied; buckling of slender elastic bodies is emphasized. Simple gyroscopic and flutter phenomena for thin rods, plates and membranes are introduced. Prereq: MA 432G and EM 302; or EM 531; or consent of instructor.

EM 632 FOUNDATIONS OF ELASTIC STABILITY. (3)
Engineering stability analysis of collapse loads and other instability phenomena sometimes involve bulky members and unusual material applications. Static and dynamic stability problems for thick and thick-walled highly elastic structures, including applications to incompressible and reinforced composite structures, and traditional applications to slender beams and frames, are studied. The theoretical foundations of elastic stability theory, its relation to the theory of small deformations superimposed on large strains, and a critical evaluation of criteria and methods of analysis having historical and contemporary significance, particularly variational principles and energy methods, are presented. Prereq: EM 631 and EM 503, or consent of instructor.

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 non-holonomic 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 problem 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 characteristic 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 662 NONLINEAR CONTINUUM MECHANICS II. (3)
Continuation of EM 661 to study isotropic elastic and hyperelastic materials, small deformations superimposed on large, stability and uniqueness theorems, principles of fading memory, thermodynamics of simple

materials, and elements of wave propagation theory. Prereq: EM 661.

EM 760 RESEARCH PROJECT IN ENGINEERING MECHANICS. (0)
Individual study related to a special research project supervised by the student's advisor. 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 101 FRESHMAN COMPOSITION. (3)
A basic course designed to teach students to develop their ideas in clear, effective written English. Major emphasis is on organization, development, and usage, particularly in descriptive and expository writing.

ENG 102 ADVANCED FRESHMAN COMPOSITION. (3)
This advanced writing course investigates the logical and rhetorical problems involved in argumentative, analytical, and documented papers.

ENG 103 WRITING FOR BUSINESS AND INDUSTRY. (3)
Instruction and experience in writing for business and industry. Emphasis on clarity, conciseness, and effectiveness in preparing letters, memoranda, articles, and reports for specific audiences. Credit will be given for English 103 or 104, but not both. Prereq: ENG 101 or placement based on ACT scores or consent of instructor.

ENG 104 TECHNICAL WRITING. (3)
Instruction and experience in technical writing. Emphasis on clarity, conciseness, and effectiveness in preparing reports on technical subjects. Credit will be given for ENG 103 or 104, but not both. Prereq: ENG 101, or placement based on ACT scores, or consent of instructor.

ENG 105 ADVANCED FRESHMAN COMPOSITION. (3)
This advanced course emphasizes documentation and research as well as the development of individual style in writing papers based on the critical reading of literature.

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.

ENG 165 MASTERS AND MASTERPIECES OF ENGLISH AND AMERICAN LITERATURES. (3)
A study of important works by one to three significant writers. Designed especially for non-majors.

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 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. Prereq: Freshman composition. Note: ENG 205 fulfills no requirements of the English major. Prereq: completion of freshman composition requirement.

ENG 207 IMAGINATIVE WRITING. (3)
Exercise in imaginative writing; description, character study, narrative. May be repeated to a maximum of six credits with consent of instructor, but only three credits may be used toward fulfilling requirements for English major. Prereq: Consent of instructor; normally, completion of freshman composition requirement.

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 226 INTRODUCTION TO THE BRITISH NOVEL. (3)
An aesthetic and analytical approach to selected major British novels of the 18th, 19th, and 20th centuries.

ENG 251 MAJOR AMERICAN WRITERS BEFORE 1900. (3)
An aesthetic and analytical approach to selected works by major American writers before 1900. Authors such as the following may be included: Franklin, Irving, Cooper, Poe, Hawthorne, Emerson, Thoreau, Melville, Twain, Howells, James, Whitman, Dickinson, Norris, Crane. Recommended for non-majors, the course does *not* satisfy any of the requirements of the English major.

ENG 252 MAJOR AMERICAN WRITERS OF THE 20th CENTURY. (3)
An aesthetic and analytical approach to selected works by major American writers of the 20th century. Authors such as the following may be included: Dreiser, Pound, Stevens, Hart Crane, Anderson, Hemingway, Fitzgerald, Steinbeck, O'Neil, Robert Lowell, Updike, Mailer, Bellow. Recommended for non-majors, the course does *not* satisfy any of the requirements of the major.

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, such as Wright, Baldwin, Jones, Malcolm X, Cleaver, Achebe, Ekwensi, Ngugi.

ENG 270 LITERATURE OF THE OLD TESTAMENT. (3)
Critical analysis of the canonical and apocryphal *Old Testament* in English with particular attention to Biblical ideas and symbols helpful to students of literature.

ENG 271 LITERATURE OF THE NEW TESTAMENT. (3)
Critical analysis of the canonical and apocryphal *New Testament* in English, with particular attention to Biblical ideas and symbols helpful to students of literature.

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 301 INTRODUCTION TO LINGUISTICS. (3)
Introduction to the nature of language, to theories about language structure, and to language variations and relationships. Special emphasis on languages usually studied and to the relevance of language for humanities and behavioral sciences. Credit will not be given to students who already have credit for either ANT 215 or ENG 414G. Prereq: Background in some foreign language recommended. (Same as LIN 301.)

ENG 305 ADVANCED WRITING. (3)
An intermediate-level course in the forms of non-fictional 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 THE COMIC MODE. (3)
Studies in comedy and the theories of the comic.

ENG 362 THE TRAGIC MODE. (3)
Studies in the forms of tragedy, dramatic and non-dramatic, with emphasis upon the theory of tragedy.

ENG 363 LITERARY STUDIES IN INTELLECTUAL MOVEMENTS. (3)
A survey of the growth and development in literature of one or more major intellectual movements or philosophies, such as Classicism, Romanticism, Realism, Naturalism, Existentialism. Topics announced the preceding semester. May be repeated to a maximum of six credits.

ENG 364 CONTEMPORARY FICTION OF ENGLAND AND AMERICA. (3)
Studies in British and American fiction of the post-World War II era.

ENG 365 CONTEMPORARY POETRY OF ENGLAND AND AMERICA. (3)
Studies in British and American poetry of the post-World War II era.

ENG 366 STUDIES IN FICTION. (3)
Studies in forms of fiction, with emphasis upon the novel, the novella, the short story, but including fiction before the novel and a study of the theory of fiction.

ENG 367 STUDIES IN POETRY. (3)
Studies in the forms and techniques of poetry, with emphasis on the lyric.

ENG 368 STUDIES IN DRAMA. (3)
Studies in world drama from the Greeks to the present. Emphasis on changing concepts of dramatic form and the nature of the dramatic experience.

ENG 369 STUDIES IN SOUTHERN AMERICAN LITERATURE. (3)
Studies in southern American literature with special attention to such major figures as the Southern Regionalists: Faulkner, Wolfe, Warren, O'Connor, Welty, and Dickey.

ENG 370 BLACK FOLKLORE OF NORTH AMERICA. (3)
An introduction to the narrative and other verbal forms of folklore current among English-speaking North American blacks from slavery times to the present and a brief survey of the scholarly problems related to this material.

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 IMAGES OF WOMEN IN LITERATURE. (3)
A general investigation and analysis of the images of women in literature. Special study of selected men and women writers, comparing the images of women in each.

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 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. (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 chairman. 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 414G INTRODUCTION TO MODERN ENGLISH LINGUISTICS. (3)
A study of phonemics, 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 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 non-dramatic 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. (Note: A student who takes ENG 425G may count only one Shakespeare course toward the English major. A student who takes 426G and 427G may count both toward the English major. A maximum of two Shakespeare courses may count toward the degree.)

ENG 426G SHAKESPEARE STUDIES I. (3)
A detailed study of selected works through *Hamlet*. (Note: A student who takes ENG 426G and 427G may count both toward the English major. A student who takes ENG 425G may count only one Shakespeare course toward the English major. A maximum of two Shakespeare courses may count toward the degree.)

ENG 427G SHAKESPEARE STUDIES II. (3)
A detailed study of selected works after *Hamlet*. (Note: A student who taken ENG 426G and 427G may count both toward the English major. A student who takes ENG 425G may count only one Shakespeare course toward the English major. A maximum of two Shakespeare courses may count toward the degree.)

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 World War II. Emphasis on the major figures of the pre-World War II era such as Conrad, Joyce, Lawrence, Forster, and Virginia Woolf.

ENG 443G CONTEMPORARY BRITISH NOVEL. (3)
A study of the content and technique of representative post-World War II novels, with some attention to background, especially Conrad. Selections from Waugh, Greene, Cary, Golding, Murdoch, Spark, Wilson, Burgess, and others.

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 451G AMERICAN LITERATURE: 1800-1860. (3)
A survey of American Romanticism, including such writers as Irving, Bryant, Cooper, Emerson, Thoreau, Poe, Hawthorne, Melville, and Whitman.

ENG 452G AMERICAN LITERATURE: 1860-1900. (3)
A survey of American writing from DeForest and Dickinson to the early Dreiser, with emphasis on the rise of Realism (Twain, Howells, James) and Naturalism (Norris, Crane), and related developments such as Western Humor and Local Color.

ENG 453G AMERICAN LITERATURE SINCE 1900. (3)
A survey of 20th Century writing to about 1940. Emphasis on major writers of fiction and poetry and on such developments as Imagism, the New Realism, and the Lost Generation.

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 473G SURVEY OF WORLD FOLKLORE. (3)
A survey on a world-wide 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 socio-cultural 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. (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 490G ENGLISH DRAMA I. (3)
A study of English drama, exclusive of Shakespeare, from the beginnings to the closing of the theaters. Works by such authors as Lyly, Kyd, Marlowe, Jonson, Webster, and Ford will be studied.

ENG 491G ENGLISH DRAMA II. (3)
A study of major plays from the Restoration to the 20th Century. Works by such writers as Dryden, Congreve, Wycherly, Goldsmith, Sheridan, Bulwer, Pinero, Wilde, and Shaw will be studied.

ENG 501 WORKSHOP IN IMAGINATIVE WRITING. (3)
For advanced students. This course assumes that the student has already acquired competence as a writer. Prereq: ENG 207 and consent of instructor. May be repeated to a maximum of six credits with consent of instructor, but only three credits may be used toward fulfilling requirements of the English major.

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: geographical and social dialects, levels of usage, sources of the vocabulary, and spelling. Prereq: ENG 414G.

ENG 512 MODERN ENGLISH GRAMMAR. (3)
Contemporary approaches to grammatical analysis; the interrelationships of phonology, morphology, and syntax. Prereq: ENG 414G.

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: Consent of instructor. (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: ANT (ENG/LIN) 515. (Same as ANT/LIN 516.)

ENG 518 HISTORY OF THE ENGLISH LANGUAGE. (3)
A survey tracing the development of modern standard English from its Indo-European origin. Emphasis will be placed on the history of sounds, inflections, and vocabulary and on the varying concepts of "correctness."

ENG 519 INTRODUCTION TO OLD ENGLISH. (3)
An introduction to Old English language and literature.

ENG 521 MIDDLE ENGLISH LITERATURE. (3)
A survey of Middle English literature, exclusvie of Chaucer. Major writers such as the Pearl-Poet and Langland; major genres such as the romance.

ENG 550 AMERICAN LITERATURE BEFORE 1800. (3)
A survey of the poets, diarists, polemicists, historians, and political writers from Bradstreet to Franklin, with emphasis on the intellectual life of Colonial New England and Revolutionary America.

ENG 560 COMPARATIVE LITERATURE: GRECIAN AND ROMAN. (3)
A study in English of Greek and Latin literature from Homer to the Middle Ages. (Same as CLT 560.)

ENG 561 COMPARATIVE LITERATURE: MEDIEVAL AND RENAISSANCE. (3)
A study in English of major works of continental European literature from late medieval period to mid-17th century. (Same as CLT 561.)

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 literary criticism in the 20th century. An examination of various approaches to the act of criticism as exemplified in such representative critics as Babbitt, Eliot, Richards, Ransom, Burke, Blackmur, Trilling, Crane, Frye, and Brooks.

ENG 570 SELECTED TOPICS FOR ADVANCED STUDIES IN LITERATURE. (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. Prereq: Junior standing or consent of instructor. May be repeated to a maximum of six credits.

ENG 572 STUDIES IN ENGLISH FOR TEACHERS. (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 474G 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 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 non-dramatic 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 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)
Examination of the theories supporting the modern versions of genre, genetic, and formalist criticism.

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 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 750 SEMINAR IN COLONIAL LITERATURE. (3)
Seminar in colonial literature. May be repeated to a maximum of six credits.

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 topic: symbolism and allegory. May be repeated to a maximum of six credits.

ENG 774 SEMINAR IN COMPARATIVE LITERATURE. (3)
Intensive study and research centering upon the relationship between English or American literature and that of some other country. May be repeated to a maximum of six credits.

ENG 780 DIRECTED STUDIES. (1-3)
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 chairman required.

ENTOMOLOGY

ENT 100 AGRICULTURAL ENTOMOLOGY. (3)
A general consideration of the fundamentals of insect structure, biology, and classification, with frequent discussions of current topics relating to both beneficial and destructive insects. Lecture, two hours; laboratory, two hours.

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. Two hours lecture per week; two hours laboratory 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. Two hours lecture per week; two hours laboratory 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 discussed. For students interested in livestock production, farm management, dairy science, poultry science, and pre-veterinary 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 chairman and completion of a departmental learning agreement before registration.

ENT 401 AGRI-CHEMICALS IN PEST MANAGEMENT. (3)
A study of the problems leading up to usage of pesticides followed by an introduction to the classes of pesticides, selection and use of pesticides in pest management programs. Prereq: ENT 310 or 320, CHE 230 or 236, AGR 404, PPA 375. (Same as AGR 401 and PPA 401).

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 INSECT 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 200-202 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 200-202. (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 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 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. (4)
Principles of insect physiology, function of organs, circulation, reproduction, respiration, and digestion. Lecture, two hours; laboratory, four hours. Prereq: Consent of instructor. (Same as BIO 635.)

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 AND BEHAVIOR. (3)
The biotic and physical factors influencing the distribution, abundance, and behavior of insects and insect populations. Prereq: Consent of instructor. (Same as BIO 665.)

ENT 667 PRINCIPLES OF ANIMAL SYSTEMATICS. (3)
Theory and practice of animal classification, with study of applications of the International Code of Zoological Nomenclature. Prereq: At least two advanced survey courses in zoology and/or entomology, for example, BIO 555, 570, 670, or BIO/ENT 672. (Same as BIO 667.)

ENT 670A EXPERIMENTAL METHODS IN ENTOMOLOGY. (2)
The principle and techniques of field entomological research with emphasis on problem selection and the collection, evaluation, and presentation of data. Two class hours, four laboratory hours. Taught first half of the semester.

ENT 670B EXPERIMENTAL METHODS IN ENTOMOLOGY. (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, electro-magnetic energy, pheromones, and their interactions with insecticide control programs will be discussed. Prereq: Consent of instructor.

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 chairman 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 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: FAM 153 or consent of instructor.

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)
The interrelation of physical, social, emotional, and intellectual development and its effect upon the behavior and guidance of children from conception to age eight; with directed observation of children in the Early Childhood Laboratory and primary grades. Prereq: PSY 104 or equivalent or concurrent.

FAM 350 GUIDING CHILDREN IN LEARNING ENVIRONMENTS. (3-4)
Theories and practice in guiding young children's development. Participation in early childhood programs-nursery through third grade. Majors working toward ECE certification are required to complete four credits in this course. Lecture, two hours; laboratory, two or four hours. Prereq: FAM 255 or six hours in social or behavioral science or consent of instructor.

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 153 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 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 FAMILY ENERGY CONSUMPTION. (3)
Critical examination of economical, sociological, and ecological implication of direct and indirect energy consumption practices by the family unit in the use of household and transportation equipment. Lecture, three hours. 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 economic and management issues and analysis of their impact on the well-being of families. Prereq: FAM 250, FAM 463 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 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. Prereq: Completion of professional sequence and formal admission to student teaching. (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 550 CHILD DEVELOPMENT AND FAMILY LIFE IN APPALACHIA. (3)
An examination of the contemporary state of children and families in the central Appalachia 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 status of women in terms of historical, psychological and social developments and the effects of participation in modern roles on family life. 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 153, 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 preschool and early elementary school children. Prereq: FAM 255 or equivalent or consent of instructor.

FAM 557 INFANT DEVELOPMENT. (3)
Study of development, care and guidance of the child during prenatal, natal, and infant periods. Prereq: Six hours in social or behavioral sciences or consent of instructor.

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 lifestyles. Prereq: FAM 402 or consent of instructor.

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 153 and 353 or consent of instructor.

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 econmics and management and consent of department chairman.

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. Prereq: Senior or graduate standing and consent of instructor. May be repeated to a maximum of six credits.

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 362, 462G, 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 402 and FAM 662 or consent of instructor.

FAM 604 CULTURALLY DIFFERENT CHILDREN AND THEIR 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 541 or 542 or equivalent or consent of instructor.

FAM 606 CHILD ADVOCACY. (1)
Introduction to the processes of social policies, legislation and regulations affecting early childhood education at the local, state and federal levels. A study of the current issues and needs for citizen involvement. Prereq:

12 hours in social and/or behavioral sciences and 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: SW 620 or equivalent or consent of the instructor. (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 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 DECISIONING IN THE FAMILY. (3)
Special study of social and economic decisions affecting family resource management. Prereq: FAM 364.

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 161, 360, 462G; 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; or consent of instructor. (Same as EDF 686.)

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 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. Graduate standing and consent of department chairman.

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.

FINE ARTS

FA 101 ARTS EVENTS SYMPOSIUM. (3)
A course designed to acquaint students with the arts through actual attendances of cultural events as well as preliminary orientation and subsequent discussion assisted by the working artists or related personnel. The course attempts to enhance the enjoyment and understanding of the arts and their inter-relationships. Open to all students. Pass-fail only. Two lecture hours per week plus attendance of arts event(s). May be repeated to a maximum of six credits.

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 ELEMENTS OF FORESTRY. (3)
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 219 DENDROLOGY. (2)
Classification, nomenclature, silvical characteristics of trees and other woody plants based on their morphological, phylogenetic and ecological relationships. Lecture, two hours per week. Prereq: One semester of botany or equivalent, concurrent with or completion of FOR 220.

FOR 220 DENDROLOGY LABORATORY. (1)
Field and laboratory study in Dendrology with emphasis on tree identification to accompany FOR 219. Laboratory: three hours per week. Prereq: One semester of botany or equivalent, concurrent with or completion of FOR 219.

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 between trees and other organisms comprising the community, and the interrelationships between these organisms and the physical environment. Lecture, three hours with occasional extended field trips. 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. (2)
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. (2)
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 chairman. 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 405 MECHANICS AND PHYSICS OF WOOD. (3)
Elastic behavior and mechanical properties of wood. Liquid movement, thermal, electrical, acoustical, and viscoelastic properties of wood. Timber structural design. Lecture, two hours; laboratory, two hours. Prereq: FOR 400 or consent of instructor.

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 200 and 201 or BIO 351. (Same as PPA 410.)

FOR 412 FOREST ECONOMICS. (3)
Social and economic values of forests; principles of resource allocation; demand for forest products; influencing factors and operation and planning of the forest economy. Prereq: ECO 260 and ECO 261.

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. (3)
The relation of forests 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 460 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, and water quality. Three hours lecture per week. Prereq: AGR 366 and 367, FOR 350 or 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 562 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 562.)

FOR 599 INDEPENDENT WORK IN FORESTRY. (1-3)
Study and independent work of 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 605 WOOD QUALITY. (3)
Concept of wood quality; measurement, sampling and variation of wood properties; effect of silvicultural practices and genetic manipulation on wood quality in forest management policies. Prereq: FOR 350, FOR 400, or consent of instructor.

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 influenece of disturbance upon ecosystem properties and dynamic processes in the development of ecosystems. Prereq: FOR 340 or BIO 451 and consent of instructor.

FOR 650 SILVICULTURE OF EASTERN DECIDUOUS FORESTS. (2-3)
Analysis of biological and economic factors influencing silvicultural practices applicable in the Eastern deciduous forest. Evaluation of forest stand and site parameters and development of silvicultural prescriptions for representative forest types. Prereq: AGR 366, FOR 350 or equivalent.

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.

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. (3)
The study of basic French through grammar and reading.

FR 102 ELEMENTARY FRENCH. (3)
A continuation of FR 101. The study of basic French through grammar and reading. Prereq: FR 101.

FR 106 ELEMENTARY FRENCH REVIEW. (4)
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 111 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice.

FR 112 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice. Prereq: FR 111.

FR 113 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice. Prereq: FR 112.

FR 114 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice. Prereq: FR 113.

FR 115 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice.

FR 116 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice.

FR 117 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice.

FR 118 ELEMENTARY FRENCH. (1)
The study of the basic principles of the language through grammar, reading and oral practice.

FR 121 ORAL PRACTICE IN FRENCH I. (1)
This course is designed for beginning students who wish to develop the speaking skill by practicing dialogues with the instructor and among themselves. To be taken in conjunction with 101. Prereq: Concurrent with FR 101.

FR 122 ORAL PRACTICE IN FRENCH II. (1)
This course is designed for beginning students who wish to develop the speaking skill by practicing dialogues with the instructor and among themselves. Prereq: Concurrent with FR 102.

FR 200 INTERMEDIATE GRAMMAR PRACTICE. (2)
An outline of the grammatical system of French. For potential majors in French. May be taken concurrently with FR 201. Open to French majors and others who have completed elementary college French or equivalent with a grade of B. Prereq: FR 102 or equivalent.

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 FRENCH CONVERSATION AND COMPOSITION. (2)
The course will develop conversational skill and introduce writing. Designed to be taken concurrently with FR 202. Pre-major requirement for the French major. Prereq: FR 201 or equivalent.

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. Closed to French majors.

FR 304 INTRODUCTION TO FRENCH LITERATURE I. (3)
A study of selected readings from the literature of the Middle Ages to 1800. Lecture, discussion, oral reports. Prereq: FR 202.

FR 305 INTRODUCTION TO FRENCH LITERATURE II. (3)
A study of selected readings from the literature of the 19th and 20th centuries. Lecture, discussion, oral reports. Prereq: FR 202.

FR 306 FRENCH CONVERSATION AND COMPOSITION. (3)
Discussion of selected topics and theme writing. Development of conversational skill and practice in writing stylistically appropriate formal French. Prereq: FR 203 or equivalent.

FR 361 TRANSFORMATIONS:FICTION TO FILM (in translation). (3)
A study of major French texts in English translation and their transformations through various art forms, with emphasis on film. No knowledge of French required. The course seeks to broaden the students' literary acumen by contrasting aesthetic media.

FR 375 FRENCH CANADA. (4)
A study of the heritage and culture of French Canada. Emphasis on past and present aspects of French civilization on the North American continent, with special attention to the development of French conversational skills. Course is designed as a comprehensive study of the province of Quebec and includes escorted tours and directed study sessions on francophonic life. Offered in Four-week Intersession only. Prereq: FR 201 and consent of instructor.

FR 395 INDEPENDENT WORK IN FRENCH. (3)
Directed study in French literature and linguistics. May be repeated once. Prereq: 3.0 standing in the department and consent of instructor.

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 pronunciation drill on an individual basis, primarily in the laboratory. Lecture, three hours; laboratory, one hour. Prereq: FR 202 or equivalent.

FR 412 ADVANCED FRENCH CONVERSATION. (3)
A study of intonation and elocution in French. Three-minute speeches in French will be prepared for each recitation. Prereq: FR 306.

FR 421G TOPICS IN FRENCH LITERATURE IN TRANSLATION I. (3)
The study of an aspect of French literature (genre, theme, etc.) with emphasis on the earlier periods. No

knowledge of French required. Not open to French majors. Topics are announced prior to pre-registration.

FR 422G TOPICS IN FRENCH LITERATURE IN TRANSLATION II. (3)
The study of an aspect of French literature (genre, theme, etc.) with emphasis on the later periods. No knowledge of French required. Not open to French majors. Topics are announced prior to pre-registration.

FR 423G FRENCH LITERATURE IN TRANSLATION: 20th CENTURY. (3)
A study of selected prose and poetry (in English translation) representative of the major trends in modern French literature. No knowledge of French required. Not open to French majors.

FR 436G A SURVEY OF FRENCH LITERATURE OF THE MIDDLE AGES AND RENAISSANCE. (3)
A study of the major medieval genres (narrative, drama, lyric poetry) and of Renaissance literature from Marot to Montaigne. Prereq: FR 304 and 305.

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 460G MASTERPIECES OF THE FRENCH NOVEL. (3)
A critical and historical study of the development of the French novel from the 17th century to the present. Offered every third semester. 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. Offered every third semester. Prereq: FR 304 and 305.

FR 462G MASTERPIECES OF FRENCH POETRY. (3)
A critical and historical study of the development of French poetry from Villon to the present. Offered every third semester. Prereq: FR 304 and 305.

FR 500 INTRODUCTION TO FRENCH FILM. (3)
A study of the evolution of the distinctive forms and styles of French film. Class conducted in English. A knowledge of French is desirable.

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. (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 TRANSLATION AND INTERPRETATION. (3)
Contrastive study of French and English style with attention to written and oral expression. Taught in French.

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.

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A course for teachers and prospective teachers of French, Spanish, or German.

FR 600 SPECIAL TOPICS IN FRENCH FILM. (3)
Study of a limited subject in French film such as the work of Jean Renoir, the Nouvelle Vague, etc. Prereq: Consent of instructor.

FR 601 POETIC VISION. (3)
Examination of the major trends in French poetics; attention will focus on esthetic problems, generic concerns, and various approaches to the nature of poetry. Prereq: Consent of instructor.

FR 602 NARRATIVE TRADITION. (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. (3)
A study of the concept of the tragic 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. (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. (3)
Special topics in French literature from the period 1050-1500. Prereq: Consent of instructor.

FR 608 RENAISSANCE STORYTELLERS. (3)
A study of 16th century narrative imagination and major storytellers.

FR 609 CLASSIC THEATRE. (3)
A study of French theatre of the 17th century with a main emphasis on Corneille, Racine and Moliere. Prereq: Consent of instructor.

FR 615 THE AGE OF VOLTAIRE. (3)
A survey of the 18th century literature is its primary content but music, architecture, painting, scientific achievements, and history of that period will form a background for the literature. It is centured around Voltaire as the dominant figure of that century. Prereq: Consent of instructor.

FR 617 ROMANTICISM. (3)
A study of the major theme 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 absurb and of the revolution, anti-poetry) with close attention to modern critical trends (structuralism, post-structuralism, semiotics). 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 714 SEMINAR IN FRENCH LINGUISTICS. (3)
Intensive study of a particular aspect of the linguistic structure of modern French or of its historical development. May be repeated to a total of six credits.

FR 715 SEMINAR IN MEDIEVAL FRENCH STUDIES. (3)
Special and intensive study of a single problem in medieval French literature or of paleography and the editing of Old French texts. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 716 SEMINAR IN FRENCH LITERATURE OF THE RENAISSANCE. (3)
Special and intensive study of a particular aspect of French Renaissance literature, according to the needs of the students enrolled. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 717 SEMINAR IN 17th CENTURY FRENCH LITERATURE. (3)
Intensive study of a special problem in 17th-century French literature. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 718 SEMINAR IN 18th CENTURY FRENCH LITERATURE. (3)
Special and intensive study of a single problem in 18th-century French literature. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 719 SEMINAR IN 19th CENTURY FRENCH LITERATURE. (3)
Intensive study of a special topic in 19th-century French literature. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 720 SEMINAR IN 20th CENTURY FRENCH LITERATURE. (3)
Special and intensive study of a single problem in 20th-century French literature. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

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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.

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FS 100-199 FRESHMAN SEMINAR. (1-3)
A series of seminars in selected topics proposed by faculty, approved by a committee of the Undergraduate Council, and taught in classes of no more than 15 students. Emphasis on independent learning, interaction and intellectual challenge among students and faculty. Open to freshmen only.

GEOGRAPHY

GEO 151 ELEMENTS OF PHYSICAL GEOGRAPHY. (3)
The basic earth environment discussed from the standpoint of process. Weather, landforms, climates, vegetation, and soils are emphasized. Fulfills elementary certification requirements for Education requirements.

GEO 152 REGIONAL GEOGRAPHY OF THE WORLD. (3)
A study of the geography of the world by region 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 201 INTRODUCTORY FIELD STUDIES IN GEOGRAPHY. (3)
Techniques of obtaining and verifying data in the field, association of geographic names, technical and descriptive terms of geographic phenomena with classification and report. May be repeated to a maximum of six credits.

GEO 210 GEOGRAPHY OF ENVIRONMENTAL QUALITY. (3)
Interactions of man and the ecosystem; deterioration of environmental quality in the context of physical processes and spatial distributions; case studies of the effects of pollution and outlook for future control.

GEO 221 MAP READING AND MILITARY GEOGRAPHY. (1)
A course in map and aerial photograph reading to include military geography and land navigation. Prereq: None, except ROTC students who must enroll in MS 221 and 201 concurrently. (Same as MS 221.)

GEO 251 INTRODUCTION TO WEATHER AND CLIMATE. (3)
A study of the atmosphere directed toward a basic understanding of the elements and controls of weather and climate. Attention is given to instruments, maps and observation techniques.

GEO 252 ELEMENTS OF HUMAN GEOGRAPHY. (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 255 ECONOMIC GEOGRAPHY. (3)
Analysis of factors which influence the spatial organization of economic activities. Special attention is given to agriculture, industry and transportation. Emphasis on concepts and models with regional examples.

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 405 CARTOGRAPHIC DESIGN. (3)
A course involving the modern techniques of designing, drafting and reproducing commercial quality, multicolor 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 INTRODUCTION TO PLANNING. (3)
An introduction to the modern planning process, current trends and issues; means and objectives of the planning process; interrelationships among resources, facilities and activities; and understanding of the development of policies and implementation of programs. Prereq: 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 contemprary 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 collection, analysis and projection as a basis for planning and decision-making. Preparation of written planning reports including graphics. Prereq: GEO 430G or equivalent.

GEO 460G TOPICS IN PLANNING. (3)
Lecture and discussion, courses in specific areas of planning such as energy, environmental planning, growth planning, site planning, housing, urban renewal, recreation and open space planning. May be repeated to a maximum of six credits. Prereq: GEO 410G or 420G or consent of the 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 500 INTRODUCTION TO ANALYTIC TECHNIQUES IN GEOGRAPHY. (3)
An introduction to the gathering, presentation, and analysis of geographic information. Prereq: Geography major or consent of instructor.

GEO 501 FIELD STUDIES IN GEOGRAPHY. (3)
Introduction to geography in the field. Student participation in use of topographic maps, aerial photographs, and sampling techniques for the study of rural land use and urban, industrial, and recreational location rationale. Organized local and regional field trips. May be repeated to a maximum of six hours.

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. 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 FOR GEOGRAPHERS AND PLANNERS. (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. Prereq: GEO 305 or consent of instructor.

GEO 520 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, 152, or 252, or consent of instructor.

GEO 521 GEOGRAPHY OF 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, 152, or 252, or consent of instructor.

GEO 522 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, 152, or 252, or consent of instructor.

GEO 524 GEOGRAPHY OF LATIN AMERICA. (3)
An examination of Latin America's physical environment followed by a survey of the region's political units with special emphasis on their viability and key development problems. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 526 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 151, 152, or 252, or consent of instructor.

GEO 528 GEOGRAPHY OF ASIA. (3)
A systematic study of the physical, cultural, economic, and political patterns and processes in the five main realms of Asia-Southwest, South, Southeast, East, and Soviet Union; with more intensive analysis of particular regions or dynamic changes. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 530 GEOGRAPHY OF SOUTH ASIA. (3)
A study of the human and economic geography of India, Pakistan, Bangladesh, Ceylon, Nepal, Sikkim and Bhutan, including the basic physical and cultural regionalisms, land use and population problems, patterns of industrialization, and urban growth and economic development. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 532 GEOGRAPHY OF SOUTHEAST ASIA. (3)
A study of the human, economic, and political patterns and processes in mainland and insular Southeast Asia, emphasizing the basic regions and subregions and the dynamic changes affecting them. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 534 GEOGRAPHY OF AUSTRALIA AND THE PACIFIC ISLANDS. (3)
A study of the geographic problems and adjustments of the peoples and countries of the Pacific area. Reference to the strategic nature of the location. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 536 GEOGRAPHY OF AFRICA. (3)
A regional study of Africa with emphasis on Africa south of the Sahara. Topical focus on political, social, economic, and developmental problems. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 540 PRINCIPLES OF URBAN GEOGRAPHY. (3)
A study of the location, growth and internal structure of American cities. Emphasis is on presenting an overview of basic concepts, models and theories used in urban geography. Prereq: A 100 or 200-level geography course or consent of instructor.

GEO 541 GEOGRAPHIC PERSPECTIVES ON CONTEMPORARY URBAN PROBLEMS. (3)
A study of a variety of contemporary urban problems from a geographic perspective. Among the topics covered are physical environment and natural hazards, transportation, sprawl, slums, ghettos, crime, and land use patterns. Prereq: GEO 540.

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 viability of state units, and the spatial (territorial) variations and interrelationships of political activities and systems.

GEO 543 URBANIZATION IN THE DEVELOPING WORLD. (3)
Cities and urbanization processes and problems in the developing world of Asia, Latin America, and Africa are examined. While emphasis is on the cities of the developing world, Western cities are discussed for comparative purposes. Prereq: GEO 540 or consent of instructor.

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 255 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 255, ECO 261, or permission of instructor.

GEO 550 GEOGRAPHY OF NATURAL RESOURCES. (3)
A study of the characteristics of resources, their management and mismanagement. Implications of resource utilization for the quality of the environment. The influence of institutional constraints upon resource development, and the role of perceptions and attitudes in decision making related to man's use of natural resources.

GEO 555 INDUSTRIAL LOCATION. (3)
The course examines major variables in the industrial location decision. Attention will focus upon the changing importance of locational factors and the development of new influences. The utility of geographical and economic contributions to location theory is measured

knowledge of French required. Not open to French majors. Topics are announced prior to pre-registration.

FR 422G TOPICS IN FRENCH LITERATURE IN TRANSLATION II. (3)
The study of an aspect of French literature (genre, theme, etc.) with emphasis on the later periods. No knowledge of French required. Not open to French majors. Topics are announced prior to pre-registration.

FR 423G FRENCH LITERATURE IN TRANSLATION: 20th CENTURY. (3)
A study of selected prose and poetry (in English translation) representative of the major trends in modern French literature. No knowledge of French required. Not open to French majors.

FR 436G A SURVEY OF FRENCH LITERATURE OF THE MIDDLE AGES AND RENAISSANCE. (3)
A study of the major medieval genres (narrative, drama, lyric poetry) and of Renaissance literature from Marot to Montaigne. Prereq: FR 304 and 305.

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A study of the representative writers of the 19th century and the major literary movements. Prereq: FR 304 and 305.

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A critical and historical study of the development of French drama from the 17th century to the present. Offered every third semester. Prereq: FR 304 and 305.

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A critical and historical study of the development of French poetry from Villon to the present. Offered every third semester. Prereq: FR 304 and 305.

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Studies in the development and theory of comic fiction in France. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

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GEO 221 MAP READING AND MILITARY GEOGRAPHY. (1)
A course in map and aerial photograph reading to include military geography and land navigation. Prereq: None, except ROTC students who must enroll in MS 221 and 201 concurrently. (Same as MS 221.)

GEO 251 INTRODUCTION TO WEATHER AND CLIMATE. (3)
A study of the atmosphere directed toward a basic understanding of the elements and controls of weather and climate. Attention is given to instruments, maps and observation techniques.

GEO 252 ELEMENTS OF HUMAN GEOGRAPHY.(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 255 ECONOMIC GEOGRAPHY. (3)
Analysis of factors which influence the spatial organization of economic activities. Special attention is given to agriculture, industry and transportation. Emphasis on concepts and models with regional examples.

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 405 CARTOGRAPHIC DESIGN. (3)
A course involving the modern techniques of designing, drafting and reproducing commercial quality, multicolor 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 INTRODUCTION TO PLANNING. (3)
An introduction to the modern planning process, current trends and issues; means and objectives of the planning process; interrelationships among resources, facilities and activities; and understanding of the development of policies and implementation of programs. Prereq: 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 contemprary 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 collection, analysis and projection as a basis for planning and decision-making. Preparation of written planning reports including graphics. Prereq: GEO 430G or equivalent.

GEO 460G TOPICS IN PLANNING. (3)
Lecture and discussion, courses in specific areas of planning such as energy, environmental planning, growth planning, site planning, housing, urban renewal, recreation and open space planning. May be repeated to a maximum of six credits. Prereq: GEO 410G or 420G or consent of the 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 500 INTRODUCTION TO ANALYTIC TECHNIQUES IN GEOGRAPHY. (3)
An introduction to the gathering, presentation, and analysis of geographic information. Prereq: Geography major or consent of instructor.

GEO 501 FIELD STUDIES IN GEOGRAPHY. (3)
Introduction to geography in the field. Student participation in use of topographic maps, aerial photographs, and sampling techniques for the study of rural land use and urban, industrial, and recreational location rationale. Organized local and regional field trips. May be repeated to a maximum of six hours.

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. 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 FOR GEOGRAPHERS AND PLANNERS. (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. Prereq: GEO 305 or consent of instructor.

GEO 520 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, 152, or 252, or consent of instructor.

GEO 521 GEOGRAPHY OF 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, 152, or 252, or consent of instructor.

GEO 522 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, 152, or 252, or consent of instructor.

GEO 524 GEOGRAPHY OF LATIN AMERICA. (3)
An examination of Latin America's physical environment followed by a survey of the region's political units with special emphasis on their viability and key development problems. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 526 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 151, 152, or 252, or consent of instructor.

GEO 528 GEOGRAPHY OF ASIA. (3)
A systematic study of the physical, cultural, economic, and political patterns and processes in the five main realms of Asia-Southwest, South, Southeast, East, and Soviet Union; with more intensive analysis of particular regions or dynamic changes. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 530 GEOGRAPHY OF SOUTH ASIA. (3)
A study of the human and economic geography of India, Pakistan, Bangladesh, Ceylon, Nepal, Sikkim and Bhutan, including the basic physical and cultural regionalisms, land use and population problems, patterns of industrialization, and urban growth and economic development. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 532 GEOGRAPHY OF SOUTHEAST ASIA. (3)
A study of the human, economic, and political patterns and processes in mainland and insular Southeast Asia, emphasizing the basic regions and subregions and the dynamic changes affecting them. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 534 GEOGRAPHY OF AUSTRALIA AND THE PACIFIC ISLANDS. (3)
A study of the geographic problems and adjustments of the peoples and countries of the Pacific area. Reference to the strategic nature of the location. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 536 GEOGRAPHY OF AFRICA. (3)
A regional study of Africa with emphasis on Africa south of the Sahara. Topical focus on political, social, economic, and developmental problems. Prereq: GEO 151, 152, or 252, or consent of instructor.

GEO 540 PRINCIPLES OF URBAN GEOGRAPHY. (3)
A study of the location, growth and internal structure of American cities. Emphasis is on presenting an overview of basic concepts, models and theories used in urban geography. Prereq: A 100 or 200-level geography course or consent of instructor.

GEO 541 GEOGRAPHIC PERSPECTIVES ON CONTEMPORARY URBAN PROBLEMS. (3)
A study of a variety of contemporary urban problems from a geographic perspective. Among the topics covered are physical environment and natural hazards, transportation, sprawl, slums, ghettos, crime, and land use patterns. Prereq: GEO 540.

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 viability of state units, and the spatial (territorial) variations and interrelationships of political activities and systems.

GEO 543 URBANIZATION IN THE DEVELOPING WORLD. (3)
Cities and urbanization processes and problems in the developing world of Asia, Latin America, and Africa are examined. While emphasis is on the cities of the developing world, Western cities are discussed for comparative purposes. Prereq: GEO 540 or consent of instructor.

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 255 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 255, ECO 261, or permission of instructor.

GEO 550 GEOGRAPHY OF NATURAL RESOURCES. (3)
A study of the characteristics of resources, their management and mismanagement. Implications of resource utilization for the quality of the environment. The influence of institutional constraints upon resource development, and the role of perceptions and attitudes in decision making related to man's use of natural resources.

GEO 555 INDUSTRIAL LOCATION. (3)
The course examines major variables in the industrial location decision. Attention will focus upon the changing importance of locational factors and the development of new influences. The utility of geographical and economic contributions to location theory is measured

against selected case studies. Prereq: GEO 255 or permission 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 601 FIELD METHODS IN GEOGRAPHY. (3)
Field research methodology. Designed as an aid to advanced students preparing for Master 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. Prereq: Consent of instructor for students in allied subjects such as anthropology, sociology, or psychology. May be repeated to a maximum of six credits.

GEO 605 COMPUTER CARTOGRAPHY. (3)
A course in the techniques of map making with the use of computers. Specific attention will be given to the designs and scales of maps for the most efficient presentation of geographic information. Prereq: One course in cartography.

GEO 625 REGIONAL ANALYSIS. (3)
The concept of regional structure and its application to geographic problems, modes, linkages, circulation and regions. Methods of regional research and analysis in geography. Prereq: GEO 255 or equivalent, or consent of instructor.

GEO 630 REGIONAL STUDY OF SPECIAL AREAS. (3)
The application of the methods of regional interpretation to special areas such as the U.S.S.R., Mediterranean Basin, Caribbean Region, Mexico, Central Europe, etc. May be repeated to a maximum of six hours. Prereq: A prior major or minor in geography or consent of instructor.

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 643.)

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. Prereq: Appropriate 500-level course work in systematic or topical geography (e.g., conservation, urban, climatology, cartography). May be repeated to a maximum of six hours.

GEO 695 SOCIAL ECOLOGY. (3)
The study of the adaptation of human populations to their environment. An elaboration of the principles governing community organization with special emphasis given to urban and metropolitan communities. (Same as SOC 695.)

GEO 700 QUANTITATIVE METHODS IN GEOGRAPHY. (3)
A survey of the applications of quantitative techniques to geographical problems, with emphasis on the use of models in current geographic literature. Special emphasis will be given to the interpretation of recent findings in physical, urban, economic, and regional geography, and in the preparation of the student for the further use of certain techniques in his own research. Prereq: An elementary course in statistical methods.

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 715 SEMINAR IN SYSTEMATIC GEOGRAPHY. (3)
Urban geography; population geography; political geography; transportation geography. (Subfield will be chosen in keeping with the interest of the professor in charge.) May be repeated to a maximum of 12 credits. Prereq: Appropriate 500-level systematic course or consent of instructor.

GEO 720 SEMINAR IN THE GEOGRAPHY OF THE UNITED STATES AND CANADA. (3)
Research seminar in topics or problems related to geographic aspects of the United States and Canada. Topics will be chosen in keeping with the interest of the professors in charge. May be repeated to a maximum of six credits. Prereq: At least one year of graduate study in geography.

GEO 725 APPLIED GEOGRAPHY IN DEVELOPMENTAL ANALYSIS. (3)
A systematic review and critical evaluation of the application of geographic concepts and methods of survey, analysis and interpretation in the study of regional developmental problems with particular reference to the developing nations and underdeveloped areas in the United States, Canada, and Europe. Prereq: GEO 560 or equivalent.

GEO 730 SEMINAR IN REGIONAL GEOGRAPHY. (3)
Australia; Southeast Asia; Himalaya and Central Asia; other world regions in keeping with the regional specialization of the professor in charge. May be repeated to a maximum of nine credits. Prereq: Appropriate 500-level course in regional area, or consent of instructor.

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 ADVANCED SEMINAR 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. (3)
Open to doctoral candidates who have the necessary training and ability to conduct research on a selected problem. Prereq: Approval of the director of graduate studies. May be repeated to a maximum of 12 credits.

GEOLOGY

GLY 122 ELEMENTARY FIELD GEOLOGY. (1)
Visits are made to nearby localities to study geologic phenomena. A minimum of four half-day (six-hour) field trips are made during the semester. May be repeated to a maximum of three credits. Prereq or concur: GLY 140.

GLY 144 INTRODUCTION TO THE EARTH. (3)
A first course in the principles of geology, including topics from mineralogy, geochemistry, geophysics, and other fields of physical geology. High school chemistry recommended. Lecture, three hours; laboratory, two hours substituted for each of 8-15 lectures.

GLY 146 EARTH HISTORY. (3)
A first course in historical geology, including topics in the development of the earth and the history of life. Lecture, three hours; laboratory, two hours substituted for each of 8-15 lectures. Prereq: GLY 140 or GLY 144.

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 140 or GLY 144.

GLY 225 FIELD STUDIES IN GEOLOGY. (3)
An introduction to field geology involving the observation, measurement, evaluation, and mapping of rocks in the field. Laboratory or field work, nine hours. Prereq: GLY 140 or 144.

GLY 227 ELEMENTARY FIELD WORK IN REGIONAL GEOLOGY. (6)
Eight weeks in Colorado in the field. Students work with those in GLY 424 and 423. Offered only during eight-week summer session. Special fee. Prereq: GLY 140 or 144.

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 140 or 144 or GEO 151.

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. Two hours lecture per week; three hours laboratory per week. Prereq: GLY 144, 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 by use of petrographic microscopes. One hour lecture per week; six hours laboratory per week. Prereq: GLY 260, CHE 107 (or concurrent).

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 140 or 144 or GEO 151.

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 401 PALEONTOLOGY. (3)
A study of fossil invertebrates, their nature, classification, and geological distribution. Lecture, two hours; laboratory, two hours. Prereq: GLY 142 or 146.

GLY 420G STRUCTURAL GEOLOGY. (3)
An introduction to earth structures. Advanced geologic map interpretation. Prereq: GLY 140, 144, or 240; PHY 203.

GLY 423 FIELD WORK IN REGIONAL GEOLOGY. (5)
Geological mapping in the field in Colorado for a six-week period. Students must provide own transportation to and from Colorado. Offered only during the summer session. Forty hours field work. Special fee.

Prereq: GLY 225 or permission of instructor; Geology major with junior standing.

GLY 424 FIELD REPORT IN REGIONAL GEOLOGY. (1)
Interpretation of field data collected during summer field mapping in Colorado, and organization of data and interpretations into an informative, written report. Prereq: GLY 423.

GLY 450G STRATIGRAPHY AND SEDIMENTATION. (3)
Basic princples 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 142 or 146.

GLY 461 PETROLOGY. (3)
Introduction to the study of igneous and metamorphic rocks. Lecture, two hours; laboratory, three hours. Prereq: GLY 261.

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 501 STRATIGRAPHIC PALEONTOLOGY. (3)
The use of fossils and fossil assemblages for zonation and correlation; and the problems arising from the application of this method as illustrated by specific examples. Practice in the analysis of sample invertebrate faunas for purposes of correlation. Lecture, two hours; laboratory, two hours. Prereq: GLY 401, 450G.

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. 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 infra red 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 COAL GEOLOGY I. (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 the geochemistry of sediment deposition and diagenesis, weathering, and other topics in aqueous geochemistry. Prereq: GLY 360 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 540 ADVANCED GENERAL GEOLOGY. (3)
An advanced course for geology majors serving to integrate information from more specialized upper-division courses into the framework of the science of geology. Prereq: Geology major with senior standing.

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 ELECTRICAL, GRAVITY AND MAGNETIC GEOPHYSICAL EXPLORATION. (3)
A study of electrical, gravity, and magnetic field methods used in exploration geophysics. Course includes an assigned field problem involving one of the geophysical exploration techniques discussed in class. Lecture: two hours; laboratory: two hours. 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 relationships. 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 sites. Lecture, two hours; laboratory, two hours. Prereq: GLY 510.

GLY 615 COAL GEOLOGY II. (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.

GLY 620 TECTONICS. (3)
A study of the structural features of the earth's crust with an analysis of the mechanics involved. Lecture, three hours; or lecture, two hours and laboratory, two hours. 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 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 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 CARBONATE PETROLOGY. (3)
The composite, 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 655 HYDROGEOLOGY. (3)
A study of hydrologic processes and systems in geology, including topics in fluvial geomorphology and groundwater flow. Prereq: GLY 552 or consent of instructor.

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 665 IGNEOUS AND METAMORPHIC PETROLOGY. (3)
The occurrence, origin and classification of igneous and metamorphic rocks. Phase equilibria and the physical conditions of formation will be emphasized. Prereq: GLY 660, 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 propagation 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 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 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 732 CHEMICAL SEDIMENTOLOGY. (3)
Topics in low-temperature and aqueous geochemistry. Seminar involving review of current literature and laboratory investigation of significant geochemical problems. Two class hours and two laboratory hours per week. Prereq: GLY 530, and 552 or 654.

GLY 733 CHEMICAL GEOCHEMISTRY. (3)
Application of thermodynamics to geological problems, melt and aqueous equilibria, phase transitions and the geochemical differentiation of igneous and metamorphic rock systems. Prereq: CHE 440G, GLY 531, GLY 665, 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 equivalent, or consent of instructor. (Same as AGR 741.)

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 laboratoy 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.

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 105 CONVERSATIONAL GERMAN. (2)
An audio-visual elementary course in which the film "Guten Tag" is used as the medium of instruction. Primary emphasis on listening and speaking skills. Prepares the student for oral communication with native speakers. GER 105 does not fulfill the languages requirement for one semester of German unless taken in conjunction with GER 107.

GER 106 CONVERSATIONAL GERMAN. (2)
Continuation of GER 105. GER 106 does not fulfill the language requirement for one semester of German unless taken in conjunction with GER 108. Prereq: GER 105 or equivalent.

GER 107 GERMAN GRAMMAR. (2)
Recommended as a companion course to GER 105, with emphasis on grammar, reading and writing. In conjunction with GER 105, it fulfills the language requirement for one semester of German.

GER 108 GERMAN GRAMMAR. (2)
Recommended as a companion course to GER 106, with emphasis on grammar, reading and writing. In conjunction with GER 106, it fulfills the language requirement for one semester of German.

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. Prereq: GER 111 or one year of high school German (correspondence course).

GER 125 GERMAN GRAMMAR REVIEW. (4)
Designed to help those students who require remedial review of German grammar with minimal oral approach in order to qualify for GER 221 or 201. Students cannot receive credit for GER 101, 102, 105 or 106 if credit has been received in GER 125. Prereq: Two years 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 GER 106/108, 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 106/108 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 261 A SURVEY OF GERMAN LITERATURE IN TRANSLATION. (3)
Using anthologies, short novels and plays in English translation, the course surveys major German literary works and highlights them against their historical-cultural background.

GER 307 GERMAN COMPOSITION AND CONVERSATION. (3)
The course is to improve the students' ability to express themselves effectively and correctly in German. It includes a thorough systematic review of grammar and syntax as well as extensive practice with compositions, oral reports and discussions based primarily upon cultural reading materials. Prereq: GER 202, or equivalent.

GER 309 GERMAN COMPOSITION AND CONVERSATION. (3)
Continuation of GER 307. Prereq GER 307, or equivalent.

GER 311 INTRODUCTION TO GERMAN LITERATURE: THEMES. (3)
An introductory course which concentrates on specific recurrent themes in German literature, such as "The Outsider," "The American Image," "The Generation Gap." Readings will be selected from prose, poetry and drama. Themes vary, and will be announced. May be repeated once for a total of six credits by nonmajors if theme changes. Prereq: GER 202, or equivalent.

GER 313 INTRODUCTION TO GERMAN LITERATURE: POPULAR FORMS. (3)
An introductory course which concentrates on indigenous aspects of German literature and culture. Reading material will include fairy tales, folk legends and other forms of popular literature as well as children's literature, comics, cartoons. Prereq: GER 202, or equivalent.

GER 314 READINGS IN GERMAN PERIODICALS. (3)
A survey of selected German language magazines, journals, or newspapers with concentration on a current area of literary, linguistic, or general cultural interest. Prereq: Five semesters of German.

GER 315 PERIODS OF GERMAN LITERATURE I. (3)
A study of the main periods of German literature with selected readings of representative works, analysis of the criteria for period categorization and discussion of historical-cultural cross-relations. Taught in German. Required for German majors. Prereq: GER 311, or 313, or equivalent.

GER 316 PERIODS OF GERMAN LITERATURE II. (3)
Continuation of GER 315. Taught in German. Required for German majors. Prereq: GER 315, 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 Germany. The main features of each epoch will be illustrated with artifacts and readings in the arts and sciences. Taught in German. Prereq: GER 202, or equivalent.

GER 318 GERMAN CULTURE IN AMERICA. (3)
A survey of the language and traditions of German-speaking people in America from colonial times to the present. Resource materials will include selected readings, cultural artifacts, and films as well as field trips to centers of German-American culture. Class discussions will focus on the encapsulation and enculturation processes in the life of German-Americans as well as on cross-cultural themes, issues, and images of German-American relations. Taught in German. Prereq: GER 202, 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 202, or equivalent.

GER 395 INDEPENDENT WORK IN GERMAN. (3)
This course is designed for students who wish to do advanced work in German on any subject. Prereq: Major and a standing of 3.0 in the department. May be repeated once.

GER 415G GERMAN AUTHORS. (3)
The study of a particular author or combination of authors in their sociopolitical context. Emphasis will be on integrating literary writings with their bio-historical setting. 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 313, 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 313, 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 topic. Taught in German. Prereq: Senior standing or consent of instructor.

GER 506 TUTORIAL IN MINOR GERMANIC LANGUAGE. (3)
Fundamentals, on the basis of tutorial instruction, in certain Germanic languages for which no formal courses are already available, such as Old Saxon, etc. Knowledge of a Germanic language is essential. May be repeated to a maximum of 12 hours. Prereq: Consent of department and instructor.

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 515 STUDIES IN GERMAN LITERARY HISTORY. (3)
Course will explore a variety of texts drawn from the German literary tradition. General issues to be discussed include the concepts of literature and literary history, the literary canon, periodization, the German reading public, and the relation of literary history to social, political, economic, intellectual and religious history.

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 522 GERMAN IMPRESSIONISM. (3)
A study of German literary impressionism with authors of the *Jahrhundertwende* or *Jugendstil* such as Altenberg, Dehmel, Hofmannsthal, Keyserling, Liliencron, Mann, Rilke, and Schnitzler. Prereq: Five semesters of German.

GER 531 STRUCTURE OF THE GERMAN LANGUAGE. (3)
Survey of the phonological and syntactic structure of modern German, including its main regional and social varieties, with introduction to basic linguistic concepts. Prereq: GER 309, 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 309, 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 309, 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 538 ADVANCED GERMAN CONVERSATION AND COMPOSITION. (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 338 or equivalent.

GER 540 GERMANY SINCE 1871. (3)
A course in culture which offers an opportunity of looking at cultural phenomena by mobilizing the past to explain the present. Due consideration is given to the areas of history, politics, arts and music, economy, philosophy, and the sciences. Course is conducted in German. Prereq: Six semesters of German.

GER 553 THE TEACHING OF GERMAN. (3)
The course 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.

GER 622 THEORIES OF LITERATURE IN GERMAN. (3)
An introduction to theories of literature with emphasis upon those of Germany and continental Europe.

GER 623 STUDIES IN THE 15TH AND 16TH CENTURIES. (3)
Renaissance, Reformation, Counter-Reformation.

GER 624 GERMAN LITERATURE OF THE 16TH AND 17TH CENTURIES. (3)
A survey of the major literary documents of the German Reformation, Renaissance, and Baroque, with special attention given to one period, and involving extensive readings in the texts of the period.

GER 625 GERMAN LITERATURE OF THE 18TH CENTURY. (3)
A survey of the literary themes and forms of the Aufklarung and Sturm und Drang, with special emphasis on selected aspects of German letters of the period 1700-1775.

GER 626 THE AGE OF GOETHE (1770-1830). (3)
A seminar devoted to the investigation of one or more topics in the literature and social development of Germany during the period 1770-1830.

GER 627 GERMAN DRAMA OF THE 19th CENTURY. (3)
This course is a study of the German drama from Schiller's "Die Braut von Messina" to 1870.

GER 628 THE GERMAN NOVELLE. (3)
This course traces the origin and development of the German Novelle from Goethe to Thomas Mann.

GER 629 STUDIES IN THE 19TH CENTURY. (3)
Romanticism to Naturalism.

GER 630, 631 20TH-CENTURY GERMAN LITERATURE. (3 ea.)
Extensive readings, discussions and comprehensive reports on the leading literary minds and movements of this century.

GER 633 OLD HIGH GERMAN. (3)
Study of Old High German phonology and grammar in the context of the history of the German language. Analysis of representative texts with attention to their linguistic as well as their literary-cultural relevance.

GER 635 GOTHIC. (3)
Study of the language of Wulfila's Bible translation and the Skeireins in the context of historical and comparative Germanic linguistics and with attention to early Germanic cultural history.

GER 640 STUDIES IN GERMANIC LANGUAGE AND LITERATURE. (3)
Exploration in some depth of a theme, genre, author, or period. Topic will vary, and will be announced. Representative components which may be treated are earlier German literature, medieval epic, medieval German lyric, early New High German language and literature, late romanticism, idealism, realism, naturalism, impressionism, expressionism, symbolism, textual criticism, historical linguistics, structure of modern German, dialectology. May be repeated to a maximum of 12 hours with approval of the department director of graduate studies.

GER 642 MEDIEVAL GERMAN LITERATURE. (3)
A survey of the literature of the Middle High German period, with special attention to one major genre or author, and involving extensive readings in the texts of the period. Prereq: GER 537.

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 723 SPECIAL TOPICS IN THE 15TH/16TH CENTURIES. (3)
May be repeated to a maximum of nine credits with different topics. Prereq: Permission of Director of Graduate Studies.

GER 724 SPECIAL TOPICS IN THE 17TH CENTURY. (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 778 SEMINAR: MAIN CURRENTS OF ROMANCE AND GERMAN LITERATURE. (3)
Studies of the principal works of the French, German and Spanish literatures. Lectures, student reports.

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.

GER 790 GERMANIC SEMINAR. (3)
Topic to be selected from a Germanic literary or linguistic area. May be repeated to a maximum of 12 hours with the approval of the department director of graduate studies.

SCANDINAVIAN
(Offered as required)

GER 251 SWEDISH I. (3)
An intensive study of the Swedish language with emphasis on reading literary and expository texts. Prereq: GER 102 or its equivalent recommended.

GER 252 SWEDISH II. (3)
Continuation of Swedish I. Prereq: GER 251 or equivalent.

GER 504 DANISH. (3)
Rapid coverage of morphology, phonology, and syntax of modern Danish and reading of selected literary texts. Prereq: Reading knowledge of German; consent of instructor.

GER 505 DANISH LITERATURE FROM HOLBERG TO THE PRESENT. (3)
Readings in Danish literature of the period. Prereq: GER 504 or equivalent.

GER 510 MEDIEVAL SCANDINAVIAN LITERATURE IN TRANSLATION. (3)
Old Norse-Icelandic literature: Eddas, scaldic verse, sagas. Ballads and folk-literature. The cycles of Sigurth and Volund; heroic poetry. Comparison with related themes in other medieval literatures.

GER 511 SCANDINAVIAN LITERATURE IN TRANSLATION: HOLBERG TO LAGERKVIST. (3)
Ludvig Holberg: the literature of the Enlightenment in Scandinavia; the Romantic movement in Denmark, Sweden and Norway. The modern breakthrough in Scandinavia; Georg Brandes, J.P. Jacobsen, Henrik Ibsen. National Romanticism: the Kalevala, Selma Lagerlof, Knut Hamsun. Modernism: August Strindberg, Par Lagerkvist. Attention will be drawn to literary relationships between Scandinavia and the Continent.

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. Alternate years.

GER 611 OLD ICELANDIC. (3)
Reading of selected saga texts and Elder Edda, with attention to the development of Icelandic literature from the 10th century to the present. Prereq: GER 610. Alternate years.

GRADUATE SCHOOL

GS 600 SPECIAL TOPICAL GRADUATE COURSE. (2-3)
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

COURSES FOR MEN AND WOMEN

HPR 100-HPR 107 AND HPR110-HPR 125 SERVICE COURSES. (1)
Instruction in a variety of motor skill activities. Courses are designed on the assumption the student is 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 108 BEGINNING EQUITATION. (1)
Introduction to balanced seat equitation with emphasis on correct diagonals at trot and leads at center. For students having no previous horsemanship experience. (Same as ASC 108.)

HPR 109 INTERMEDIATE EQUITATION. (1)
Strengthening of skills covered in ASC 108 with emphasis on use of the aids and development of an independent seat. Individual exercises, school figures and an introduction to cavalettis are also covered. Laboratory, four hours per week. Prereq: ASC 108 and consent of instructor. (Same as ASC 109.)

HPR 126-135 SERVICE COURSES. (1)
Instruction in a variety of motor skill activities. Courses are designed on the assumption the student is at a beginner level. Up to six hours credit may be earned in service courses; however, the same activity may be not be repeated for credit.

HPR 136 THROUGH HPR 144* 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 145 CONCEPTS IN HEALTH AND FITNESS. (3)
Modern concepts in health and fitness covering such topics as the contribution of exercise to human well being, theories of fitness, fundamentals of strength and endurance development, the cardiovascular system, and weight control. Instruction in lifetime sports skills will be covered in laboratory sessions. Lecture, two hours; laboratory, two hours.

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 educa-

tion 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 WOMEN'S BASKETBALL. (1)
Designed to familiarize the professional physical education student with the skills, practices, and theory of women's 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 149 WRESTLING. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of wrestling. Development of at least an intermediate skill level is expected of the students. The goal of the course is to provide the student with the teaching methods and skills to effectively teach wrestling in secondary and public schools. Laboratory: Six hours per week for one-half semester or three laboratory hours per week per semester. Prereq: Major student or consent of instructor.

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 151 FIELD HOCKEY. (1)
Designed to familiarize the professional physical education teacher with the skills, strategies, rules and teaching techniques of field hockey. Development of at least an intermediate skill level is expected. The primary goal of the course is to equip the student with the skills necessary to effectively teach field hockey. 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 241 BASKETBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals involved in basketball. Laboratory, four hours.

HPR 242 FOOTBALL COACHING FUNDAMENTALS. (2)
Theory and practice in coaching fundamentals of football.

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 II. (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 286 EQUESTRIAN DRESSAGE. (2)
The principles and practices of dressage movements. Lecture, one hour; laboratory, two hours. Prereq: ASC 109 or consent of instructor. (One section each semester.) (Same as ASC 286.)

HPR 287 JUMPING (HORSEBACK). (1)
Practice in jumping different obstacles used in hunting, eventing and show. Prereq: ASC 286 or consent of instructor. (Same as ASC 287.)

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 292 ETHNIC DANCE. (2)
A study of dance forms unique to different ethnic cultures. 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 Womens 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 Womens 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 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 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 Womens 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 oppor-

tunity 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 324 OFFICIATING MEN'S GYMNASTICS. (1)
A course designed to provide the student with knowledge of the rules, interpretations of rules, mechanical techniques and other knowledge required in judging men's gymnastics. The standards of judging as required by the U.S. Gymnastics Federation and/or KHSAA will be emphasized in this course. Instructional methods include films, discussion, observations, written and practical tests. Independent of course evaluation, students will be given the opportunity to take a certification examination. 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. Prereq: Admission to the Teacher Education Program or permission of the instructor. Take the semester before student teaching. May be repeated to a maximum of six credits by women.

HPR 354 PRINCIPLES AND PROBLEMS OF COACHING. (2)
A focus on the knowledge needed to solve problems faced by coaches when preparing youth for athletic competition. Prereq: Junior standing or consent of instructor.

HPR 356 SPORTS OFFICIATING FOR MEN (1)
The theory and practice of officiating football, volleyball, basketball, swimming, and other sports. Officiating in college intramurals and high school athletics will be required. Lecture, one hour; laboratory, two hours.

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 PHYSICAL EDUCATION. (1)
Supervised experiences in school, agency, and recreation department programs of sports and physical education. Required of all juniors majoring in Physical Education. Includes field trip, inspection of programs and professional organizations. Prereq: Two professional activity courses, or equivalent experience or consent of field experience director.

HPR 364 GYMNASTICS IN THE ELEMENTARY SCHOOL. (3)
This course deals with the development of planning and teaching skills in the area of children's gymnastics. It focuses upon the development of content in lesson and unit plans as it relates to different levels of maturation. Attention is also given to the integration of gymnastics into the objectives of the total school program. Two hours lecture per week; two hours laboratory per week. Prereq: HPR 115; admission to the Teacher Education Program or permission of instructor.

HPR 365 CONDUCTING SPORT, DANCE AND GYMNASTIC PROGRAMS FOR CHILDREN. (3)
This course is designed to acquaint undergraduate physical education majors with the recommended patterns of organization and methods of instruction in sport, dance, and gymnastic programs for children ages 5 through 12 years. Children's participation will be examined from a philosophical, psychosocial, and physiological perspective in order to identify ethical and academically responsible guidelines for program development. Two hours lecture per week. Two hours laboratory per week. Prereq: EDP 202 and EDF 301.

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 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 per week; laboratory, two hours per week. Prereq: HPR 170 and HPR 280 or consent of instructor.

HPR 386 APPLIED DRESSAGE. (1)
Application of skills and theory introduced in Dressage Equitation. Students will be schooling horses according to classical principles. Laboratory: two hours. Prereq: ASC 286 and consent of instructor. (Same as ASC 386.)

HPR 388 EQUITATION TEACHING. (2)
Theory and practice of teaching equitation. One hour lecture and two hours laboratory. Prereq: ASC 286 and consent of instructor. (Same as ASC 388.)

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 393 RHYTHMICAL FORMS AND ANALYSIS. (3)
A study of rhythmical forms of movement with an analysis of music and other forms of accompaniment media.

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 420 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 472 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.

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 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 interrelationships 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 dance in ballet, modern, and theater dance forms. Lecture, one hour; laboratory, two hours. Prereq: Beginning ballet, modern and theater dance.

HPR 593 DANCE PRODUCTION. (3)
A consideration of the problems of the dance production for audience appreciation. Theory and practical experience in staging, costuming, scenery, lighting, and make-up. Financial and publicity aspects will be studied. Lecture, two hours; laboratory, four hours. Prereq: Consent of instructor.

GRADUATE COURSES FOR MEN AND WOMEN

HPR 610 IMPLEMENTATION OF RECREATION SERVICES FOR THE ILL OR DISABLED. (3)
The organization, coordination and administration of recreation programs designed to meet the needs of ill or disabled persons in treatment centers and those residing 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 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 420 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 420, 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 420 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 646 INTEGRATED DEVELOPMENT. (3)
An analysis of the literature in the area of integrated development. Emphasis on development of skills in the use of research techniques, materials and resources in investigating potential problems in this area in depth. Prereq: HPR 546.

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 equivalent, or consent of instructor.

HPR 650 CURRICULUM AND PROGRAM DEVELOPMENT. (3)
A study of fundamental principles basic to the development of the overall curriculum in physical education with special emphasis upon the proper selection and organization of physical education activities to meet the educational and recreational needs of all students. Prereq: HPR 343, 344, 540.

HPR 651 FACILITIES, CONSTRUCTION, AND EQUIPMENT. (3)
Principles and standards for planning, constructing and maintaining indoor and outdoor physical education and athletic facilities. Prereq: HPR 440.

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 741 CURRENT STUDIES AND TRENDS IN HEALTH AND PHYSICAL EDUCATION. (3)
A study of modern trends in health and physical education and standards of evaluation in relation to the history of the various systems, including a review of the principles and objectives.

HPR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

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. (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 570 LANDSCAPE DESIGN OF PARK AND RECREATION AREAS. (3)
A study of standards, principles, and procedures of planning and design for recreational needs with emphasis on resource development for human use. Lecture, one hour; studio, four hours. Prereq: LA 331 or consent of instructor. (Same as HOR 570.)

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 with 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 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 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 student's 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.

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 530 ADMINISTRATION OF HEALTH AND SAFETY EDUCATION. (3)
Consideration is given to the administration, organization and function of the total school health and safety program. Textbook evaluation and materials suitable for school health and safety instruction will be stressed. The role of school in public health will be defined.

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.

HEALTH RADIATION SCIENCES

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 non-ionizing radiations. Lecture: two hours; laboratory: two hours. Prereq: One year college physics. (Same as PHY/RM 545.)

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 SEMINAR IN BIORADIATION SCIENCES. (1)
Topics of current interest relating to radiation and its biomedical significance will be discussed. 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 TO 1713. (3)
A survey of the growth of Europe from the 12th century Renaissance through the Age of Louis XIV, preceded by a brief consideration of the Graeco-Roman heritage.

HIS 105 A HISTORY OF EUROPE, 1713 TO THE PRESENT. (3)
A survey of European developments from the Age of Enlightenment to the present. A continuation of HIS 104.

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 the present.

II. UNDERGRADUATE SEMINARS, STUDIES AND INDEPENDENT WORK

HIS 212 SCIENCE AND CIVILIZATION II. (3)
A history of man's attempts to understand and to control nature. The social, economic, and intellectual conditions for science. Since the time of Galileo.

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. Preferable to be taken during the first semester of the junior year. Required of all history majors.

HIS 350-359 TOPICS IN HISTORY. (3 ea.)
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 390 TECHNOLOGY AND WESTERN CULTURE. (3)
Interaction of technology and western culture with illustrations from the classical, medieval, Renaissance, Enlightenment, 19th century, and modern periods. Emphasis on the character of the interaction. Limited discussion of technical and quantitative aspects of technology. Present and projected technical problems. Prereq: Four semesters of mathematics or science, or two semesters of history or consent of instructor. (Same as ME 390.)

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 standing of 3.0 in the department.

HIS 397 RESEARCH SEMINAR FOR SENIORS. (3)
A seminar for senior history majors, which provides the opportunity to prepare a substantial research paper within a topical or chronological area announced by the instructor. May be repeated to a maximum of six credits. Prereq: HIS 316 and a 3.0 g.p.a. in history courses or consent of instructor.

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 THE MIDDLE EAST FROM THE RISE OF ISLAM TO THE FRENCH REVOLUTION. (3)
A survey of Muslim civilization in Asia, Africa, and Europe with particular attention to the roles of Arab, Turkic, Mongol, Persian, and European groups.

HIS 248 THE MIDDLE EAST SINCE THE FRENCH REVOLUTION. (3)
A continuation of HIS 247. A survey of major developments in the Middle East with emphasis on the response to nationalism and change, international rivalry in the area, collapse of the Ottoman Empire, and emergence of modern political units.

HIS 547 THE OTTOMAN EMPIRE. (3)
The rise and expansion of the Ottoman Empire, its relations with the European states, its position in the Near East, and the Turkish state in the 20th century. Prereq: HIS 104, 105, or consent of instructor.

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 the political, social, economic, and intellectual history of Japan from earliest times to the zenith of shogunate rule under the Tokugawa family.

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 412 SCIENCE AND RELIGION IN THE AGE OF GALILEO. (3)
Magic, science, and religion in the 16th and 17th centuries. Detailed coverage of the religious and scientific attitudes of 16th century Copernican, Galileo, and devotees of the mechanical philosophy. Prereq: 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 Byzantine medicine. Prereq: A course in ancient history, or classics, or philosophy (ancient); basic knowledge of anatomy; consent of instructor.

HIS 516 SCIENCE AND WESTERN CULTURE I. (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 104 or consent of instructor.

HIS 517 SCIENCE AND WESTERN CULTURE II.(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 17th century to the present. Prereq: HIS 105 or consent of instructor.

HIS 518 REPRESENTATIONS OF NATURE. (3)
Issues in the history of philosophy and science. Study of a selected topic from the vantage points of history of philosophy and history of science. A topic will be chosen from the following or other related themes: theories of space and time, scientific methodology, perception and experiment in the 17th century, 19th century science and philosophy. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as PHI 518.)

B. EAST EUROPE AND RUSSIA

HIS 204 INTRODUCTION TO THE EAST EUROPEAN WORLD. (3)
A survey of the geographic, ethnic, political, socio-economic, religious, cultural, and ideological factors which form the historical experiences of the East European peoples. Prereq: HIS 104, 105.

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 AND EAST EUROPE TO 1890. (3)
A study of the main intellectual currents with special emphasis on ideological confrontations between East and West Europe. Prereq: HIS 204 and 286.

HIS 537 INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA AND EAST EUROPE FROM 1890 TO THE PRESENT. (3)
Continuation of HIS 536. Prereq: HIS 204 and 286.

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, or consent of instructor.

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 550 ENGLISH CONSTITUTIONAL HISTORY TO 1603. (3)
A study of the backgrounds of the English constitution.

HIS 551 ENGLISH CONSTITUTIONAL HISTORY SINCE 1603. (3)
A continuation of HIS 550. The constitutional struggle between the Stuart kings and Parliament; triumph of constitutional monarchy; rise of the Cabinet; effect of democracy in recent times.

HIS 552 BRITISH SOCIAL HISTORY DURING THE TUDOR-STUART PERIOD. (3)
A study of the effects of demographic and economic changes upon life in town and country, with emphasis upon changing social aspirations.

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 556 THE BRITISH EMPIRE TO 1870. (3)
This course examines the origin, development, and expansion of the British Empire from the explorations of John Cabot in 1497 to about 1870. It is an investigation of the individuals and ideas that produced and defended a world-wide Empire and a study of the growth of power and the consequences of domination.

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 Britian 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.

HIS 558 CANADIAN HISTORY AFTER 1860. (3)
This course examines Canada's response to the challenge of building a nation after 1860. During the semester we will examine: the nature of Canada's precarious national unity, and threats to that unity from Quebec, the Canadian West, the United States, and from a curious lack of identity; Canada in the British Empire; Canada's experience as a middle power in international affairs; the development of society in Canada; and the contention that Canada, having transformed a colonial economy into a successful industrial power, has now become an appendage of the United States. We will end with a consideration of this question: Does Canada have a future as a nation?

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 expulsion 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 anti-semitism, 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 13th through the 15th centuries.

HIS 500 PRE-CLASSICAL 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 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. (Alternating in the fall semester with HIS 510.)

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 514 HISTORY OF SPAIN TO 1700. (3)
A survey of Spanish history from the Visigothic period through the last Hapsburg ruler, with special emphasis on social, economic and cultural developments. Prereq: HIS 104 or consent of instructor.

HIS 515 HISTORY OF SPAIN FROM 1700 TO THE PRESENT. (3)
A continuation of HIS 514. This course deals with the history of modern Spain, with special emphasis on the forces and events that led to the Civil War and with coverage of the Franco era as well. Prereq: HIS 105 or consent of instructor.

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. Prereq: HIS 104.

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. Prereq: HIS 104.

HIS 521 EUROPE IN THE AGE OF ABSOLUTISM. (3)
A study of the development of Absolutism from Louis XIV and its impact on the social, economic, political and cultural life of western and central Europe in the 17th and 18th centuries. Prereq: HIS 104 or equivalent.

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 EUROPE, 1814-1870. (3)
This course treats the successive political changes in 1823, 1830, 1848, and 1870, together with the outstanding commercial, cultural, and scientific developments of European life after 1815.

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 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 18th centuries.

HIS 529 THE SOCIAL AND CULTURAL HISTORY OF EUROPE IN THE 19TH CENTURY. (3)
An analytical appraisal of the emergence of the industrial and nation states of Western Europe. Emphasis will be placed on revolutionary movements, on the process of modernization, and on the dominant ideologies of the century. Prereq: HIS 105 or consent of instructor.

HIS 530 THE SOCIAL AND CULTURAL HISTORY OF EUROPE IN THE 20TH CENTURY. (3)
An analytical appraisal of the cultural changes undergone by European society in the global age. Emphasis will be placed on the effects of the two World Wars, on the problems caused by modernization, and on new cultural phenomena such as fascism and existentialism. Prereq: HIS 105 or consent of instructor.

HIS 533 MODERN EUROPEAN IMPERIALISM. (3)
A comparative analysis of the motives, policies and socio-political 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. Prereq: HIS 108 or equivalent.

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. Prereq: HIS 109 or equivalent.

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 102 and 202. (Same as MS 311.)

HIS 560 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 561 THE AMERICAN REVOLUTION, 1763-1789. (3)
A study of the disagreement between Great Britian and the 13 colonies, the decision for independence, and the progress of revolutionary change through the ratification of the Federal Constitution. Prereq: HIS 108 or consent of instructor.

HIS 562 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. Prereq: HIS 108 or consent of instructor.

HIS 563 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. Prereq: HIS 108 or equivalent.

HIS 564 EMERGENCE OF MODERN AMERICA, 1877 TO 1912. (3)
A study of the transformation of America from a rural society "isolated" from world affairs into a highly industrialized power. Prereq: HIS 108 and 109 or equivalent.

HIS 565 RECENT HISTORY OF THE UNITED STATES, 1912 TO 1939. (3)
An intensive study of the problems of maturing America from the election of 1912, through World War I, depression, and the New Deal to our involvement in World War II. Prereq: One year of American history.

HIS 566 RECENT HISTORY OF THE UNITED STATES SINCE 1939. (3)
An intensive study of the development and maturation of the United States from World War II to the present, synthesizing military, diplomatic, social, economic, political and cultural changes. Prereq: One year of American history.

HIS 567 CIVIL WAR AND RECONSTRUCTION, 1860 TO 1877. (3)
A study of events immediately preceding the outbreak of conflict, of the military campaigns, and of the social, economic, and political developments during the periods of war and reconstruction. Prereq: HIS 108, 109.

HIS 568 CULTURAL AND INTELLECTUAL HISTORY OF THE UNITED STATES TO 1865. (3)
An interpretive analysis of the growth of ideas in the United States within their cultural settings before 1865. Prereq: HIS 108 or consent of instructor.

HIS 569 CULTURAL AND INTELLECTUAL HISTORY OF THE UNITED STATES SINCE 1865. (3)
An interpretive analysis of the growth of ideas in the United States within their cultural setting since 1865. Prereq: HIS 109 or consent of instructor.

HIS 570 ECONOMIC HISTORY OF THE UNITED STATES TO 1865. (3)
The emergence of the United States from an underdeveloped economy to an industrial state. Interwoven in the theme of economic growth are the political ramifications of change and the role of government in American economic activity. Prereq: HIS 108 and 109, or consent of instructor. Offered alternate years.

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 CONSTITUTIONAL HISTORY TO 1865. (3)
A study of the origins and development of American constitutional institutions from 1603 to 1865, with emphasis on political, economic and social influences.

HIS 573 AMERICAN CONSTITUTIONAL HISTORY SINCE 1865. (3)
A continuation of HIS 572 from 1865 to the present, with emphasis on constitutional problems posed by the industrial revolution and the warfare state.

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 576 THE AMERICAN FRONTIER. (3)
A course dealing specifically with American westward expansion. Prereq: HIS 108 and 109 or equivalent.

HIS 577 THE AMERICAN FRONTIER. (3)
A continuation of HIS 576. It will consider the trans-Mississippi West.

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 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. Prereq: Consent of instructor.

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 583 SCIENCE IN AMERICAN SOCIETY. (3)
This course will explore how many Americans, scientists and non-scientists, have felt about science. Topics will include the specialization and professionalization of scientific activity, controversial theories with profound social impact, and the 20th century alliance of government, private enterprise, and science. Prereq: Consent of instructor.

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: Consent of instructor.

HIS 588 AMERICAN SOCIAL HISTORY TO 1865. (3)
Examines American family relationships, work patterns, and social structure from the 17th century colonial settlements to the mid-19th century. Special emphasis will be placed on the transformation from a pre-industrial to an industrial society and on the impact of industrialization on the family lives and work patterns of American men and women. Prereq: HIS 108 or 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 exam-

ine 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, 612 READINGS IN ANCIENT HISTORY. (3 ea.)
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 for the areas of scientific revolution and modern science and medicine. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

HIS 621, 622 READINGS IN EUROPEAN HISTORY, 1500-1815. (3 ea.)
These courses are 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. 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 on 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 625, 626 READINGS IN BRITISH AND BRITISH EMPIRE HISTORY. (3 ea.)
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. Prereq: An undergraduate course in British history.

HIS 631, 632 READINGS IN UNITED STATES HISTORY TO 1865. (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of American history in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American history.

HIS 633, 634 READINGS IN UNITED STATES HISTORY SINCE 1865. (3 ea.)
These courses are designed to provide systematic and extensive reading over broad areas of American history in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American history.

HIS 635 READINGS IN MODERN RUSSIAN HISTORY I. (3)
A guided program (with readings ordinarily in the English language) to provide graduate students with a more sophisticated understanding of the Tsarist regime from the reign of Peter the Great to the collapse of the monarchy in 1917. Oral reports and bibliographies will be required, and emphasis will be placed on internal developments, usually with a central theme to be chosen by the instructor. Prereq: Consent of instructor.

HIS 636 READINGS IN MODERN RUSSIAN HISTORY II. (3)
A continuation of HIS 635, this course will concentrate on the revolutionary events of 1917 and the subsequent evolution of the Soviet regime. Prereq: Consent of instructor.

HIS 637, 638 READINGS IN LATIN AMERICAN HISTORY. (3 ea.)
Supervised reading at the graduate level of a select topical bibliography covering of the main themes of colonial Latin American history or the modern period. Prereq: HIS 208 and 209 or consent of instructor.

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. Offered alternate years. Prereq: Consent of instructor.

HIS 695 INDEPENDENT WORK. (1-3)
Under special conditions selected students may investigate problems, with weekly reports to instructor. Prereq: Consent of instructor. May be repeated to a maximum of nine credits.

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: At least one year of graduate study in history.

HIS 705 SEMINAR IN ANCIENT HISTORY. (3)
Select topics in Greek and Roman history, with an intensive study of a particular area or aspect of the ancient world. May be repeated to a maximum of 12 credits. Prereq: Reading knowledge of at least one ancient language and one modern foreign language, or 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 715 SEMINAR IN LATIN AMERICAN HISTORY. (3)
This seminar course will consider special problems encountered in the study of Latin American history. May be repeated to a maximum of 12 credits. Prereq: HIS 208, 209, 584 or consent of instructor.

HIS 720 SEMINAR IN MODERN EUROPEAN HISTORY, 1500-1714. (3)
May be repeated to a maximum of 12 credits.

HIS 721 SEMINAR IN MODERN EUROPEAN HISTORY, 1714-1870. (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 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 INTRODUCTION TO HOME ECONOMICS. (1)
Development and scope of home economics as a profession, its wide variety of career opportunities, with analysis of interests, aptitudes, proficiencies and education related to success in these areas. Lecture, one hour; discussion (optional), one hour.

HE 300 SPECIAL COURSE IN HOME ECONOMICS. (1-3)
Interdisciplinary, topical or experimental course to be approved by the appropriate department chairman 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 368 PROFESSIONAL PRESENTATIONS. (3)
Techniques of planning presentations/demonstrations relative to use of resources including equipment, food, clothing, housing, etc. Emphasis upon presentation to a variety of audiences as well as through media (video tape, T.V., etc.). Lecture, two hours per week; laboratory, two hours per week. Prereq: Junior standing and/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.

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.

HON 103 FRESHMAN COLLOQUIUM. (3)
Rise of the Near Eastern Tradition in Antiquity: an interdisciplinary course in history of ideas. Readings vary at the discretion of the faculty. Satisfies three hours of freshman English requirements, or three hours of Area V, Humanities, requirement.

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 203 SOPHOMORE COLLOQUIUM. (3)
The Roman World View: an interdisciplinary course in history of ideas. Readings vary at the discretion of the faculty. May be used to fulfill three hours of Area V requirement. Prereq: HON 101 or 102 or 103, and/or sophomore standing.

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 JUNIOR-SENIOR COLLOQUIUM. (3)
A proseminar in history of ideas: topics vary from semester to semester. May be repeated to a maximum of six hours. Prereq: Junior standing, or HON 201, 202.

HON 302 JUNIOR-SENIOR COLLOQUIUM. (3)
A proseminar in history of ideas: topics vary from semester to semester. May be repeated to a maximum of six hours. Prereq: Junior standing, or HON 301.

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 chairman; 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. Prereq: A course in botany (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 non-horticulture major. (May not be used to fulfill horticulture departmental requirements.)

HOR 245 PLANTS FOR INTERIORS I: IDENTIFICATION AND UTILIZATION. (1)
Elementary identification and cultural practices for foliage plants used in interior environments. Two hours lab per week.

HOR 327 ORNAMENTAL PLANTS I. (3)
A detailed study of evergreen and deciduous plants, their identification, size, shape, effects produced, the conditions required for their use and suitability for landscape uses. For ornamental majors. Lecture, two hours; laboratory, two hours. Prereq: An approved course in biological science and consent of instructor.

HOR 329 ORNAMENTAL PLANTS II. (3)
A detailed study of evergreen and deciduous plants; their systematic identification, hardiness, growth habit, size, culture, adaptation to environmental conditions, uses, and outstanding horticultural characteristics. Lecture, two hours; laboratory, two 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. (2)
An adaptation of design principles to the art of floral decoration. Four class hours per week. Prereq: Junior or senior standing and consent of instructor.

HOR 341 ADVANCED FLORAL DESIGN. (3)
Advanced design work related to the florist industry. Two hours lecture per week; two hours lab per week. Prereq: HOR 340; HOR students only or consent of instructor.

HOR 345 PLANTS FOR INTERIORS II: DIVERSITY PRODUCTION AND MAINTENANCE. (2)
Advanced identification of all indoor plants, production and maintenance practices for the commonly used indoor plants. Prereq: HOR 245, or taken concurrently; HOR 335.

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 351 NURSERY MANAGEMENT. (4)
An introduction to managerial concepts related to the management of a nursery business including financial and personnel management and structure, marketing and merchandising practices, and economic factors. A two to three-day field trip is required. Three hours lecture per week; two hours laboratory per week. Prereq: Horticulture majors with junior standing.

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 502 POMOLOGY: DECIDUOUS FRUITS II. (3)
A course dealing with the theory of plant growth and fruit development in deciduous fruits (both small and tree fruits). Prereq: HOR 402 or consent of instructor.

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 570 LANDSCAPE DESIGN OF PARK AND RECREATION AREAS. (3)
A study of standards, principles, and procedures of planning and design for recreational needs with emphasis on resource development for human use. Lecture, one hour; studio, four hours. Prereq: LA 331 or consent of instructor. (Same as HPR 570.)

HOR 582 SPECIAL PROBLEMS IN HORTICULTURE. (1-4)
May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

HOR 590 VEGETABLE CROP BREEDING. (3)
Taxonomy, history, world distribution, gross morphology, mode of reproduction, extent of genetic variability, analysis of components of quality, principal limiting factors and potential for genetic solution to problems for vegetable crops. Prereq: HOR 510, AGR 406G.

HOR 601 PHYSIOLOGICAL MECHANISMS IN HORTICULTURAL PLANTS. (3)
A critical evaluation of the recent concepts in certain selected areas of horticultural science. Lecture, three hours. Prereq: BIO 530 or equivalent.

HOR 625 ADVANCED PLANT PROPAGATION. (3)
A detailed study of the principles and methods of propagating horticultural crops by seedage, cuttage, graftage, tissue culture and miscellaneous techniques. Lecture, two hours; laboratory, two hours. Offered alternate years. Prereq: HOR 350 or equivalent. BIO 530 (BIO 574 recommended.)

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 relationship between these processes and plant metabolism. Prereq: BIO 735 or BCH 515 or consent of instructor. (Same as BIO 732, AGR 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 531 or consent of instructor. (Same as BIO 734, AGR 734.)

HOR 736 PHYLOGENY OF CULTIVATED PLANTS. (3)
Lecture and discussion of concepts and experimental techniques concerned with the origin and phylogeny of cultivated plant species. Lecture, two hours; laboratory, two hours. Prereq: AGR 406G, or consent of instructor. (Same as AGR 736.)

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 108 INTRODUCTION TO LANDSCAPE ARCHITECTURE. (0)
An introductory course for landscape architecture majors to give insight to the scope and nature of the landscape architecture profession and curriculum. Lecture, two hours.

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 220 DESIGN DRAWING. (3)
Instruction and exploration of design and presentation drawing as it relates to landscape architecture. Lecture,

one hour; studio, four hours. Prereq: Major in landscape architecture or architecture.

LA 230 LANDSCAPE ARCHITECTURAL DESIGN THEORY. (3)
Investigation into design processes and their application in solving landscape architectural problems. Lecture, two hours; studio, two hours. Prereq: Major in landscape architecture.

LA 331 LANDSCAPE DESIGN I. (4)
An introduction to landscape architectural procedures and principles and the use of design as a tool for the organization of man's environment. Lecture, one hour; studio, eight hours. Prereq: LA 205 and ARC 201 and 202 with a minimum grade of C in ARC 202.

LA 332 LANDSCAPE DESIGN II. (4)
Studio design course which emphasizes project-type design with emphasis on site design at a variety of scales. Lecture, one hour; studio, eight hours. Prereq: LA 331 with a minimum grade of C.

LA 440 LANDSCAPE CONSTRUCTION I. (3)
A study to develop solutions for problems involving surface drainage, grading, earth volume calculation, surfacing materials, and the use of working drawing and specifications in landscape architectural situations. Lecture, two hours; studio, two hours. Prereq: MA 109 or equivalent.

LA 441 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 440, one course in plane surveying.

LA 450 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 490 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.

LA 522 LANDSCAPE PLANTING DESIGN. (3)
A detailed study of the use of various plant materials to express the principles of landscape design. Lecture, two hours; studio, two hours. Prereq: LA 331 and HOR 329.

LA 523 LANDSCAPE PLANNING AND DESIGN. (5)
An introduction to planning principles and methods and their relationships to the social and physical shaping of the environment. The application of land use planning methods and principles. Lecture, one hour; studio, 10 hours. Prereq: LA 332 with a minimum grade of C.

LA 575 ADVANCED LANDSCAPE DESIGN. (5)
A studio course which emphasizes problem-solving techniques ranging in scale from the project level to the regional scale. Students will be exposed to interdisciplinary design approaches as a team effort. Lecture, one hour; studio, 10 hours. Prereq: LA 523 with a minimum grade of C.

LA 576 SEMINAR IN LANDSCAPE ARCHITECTURE. (1-2)
An analysis of topics of design theory, planning concepts or other contemporary philosophies related to the field of landscape architecture. May be repeated to a maximum of four credits. Prereq: Major or consent of instructor.

HUMAN ENVIRONMENT: DESIGN AND TEXTILES

DESIGN COURSES

HED 100 PRE-PRAC I: A PRE-PRACTICE SURVEY OF THE PROFESSION. (2)
An orientation survey of interior design as a profession. Visuals, readings, and discussions related to the variety of designer involvement in contemporary society.

HED 101 VISUAL AWARENESS I: EXPERIENCES IN 2-DIMENSIONAL PERCEP TION. (3)
Analysis, experiments and applications of color, form, texture, space, and line. Studio experiences provide the opportunity to study the perceptual, visual, and graphic processes as they relate to the immediate environment: man, object, and function. Lecture, one hour; studio, four hours.

HED 102 VISUAL AWARENESS II: EXPERIENCES IN 3-DIMENSIONAL PERCE PTION. (3)
Analysis, definition, and experiments in the manipulation of two-dimensional planes as they delineate exterior/interior volumes of space. Studio experiences involve the use of paper, wood, plastic, light metal, plaster and other materials to promote an understanding of positive and negative space. Studio, six hours. Prereq: HED 101.

HED 103 INTERIOR CONSTRUCTION GRAPHICS I. (3)
Introduction to basic technical skills and materials required to produce interior construction drawings. A survey of interior structural and finish materials. Six studio hours per week.

HED 104 INTERIOR CONSTRUCTION GRAPHICS II. (3)
Introduction to interior construction and detailing from preliminary sketches to finished construction documents. Six studio hours per week. Prereq: HED 103 or one course of architectural drafting.

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 micro scale. Emphasis on aesthetic, functional, and pragmatic aspects of individual shelter. Studio, six hours. Prereq: ACH 144 or ME 105, HED 102 for majors. Consent of instructor for non-majors.

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 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 401G HISTORY OF INTERIORS: A SURVEY THROUGH 18th CENTURY. (3)
A historic survey of furniture, textiles, and the minor arts. Lecture emphasis is on the progressive development of design and ornamentation characteristics as related to architecture of each period. Visuals, discussions, readings, and field trips. Prereq: History of architecture, European history for majors. Consent of instructor for non-majors.

HED 402G HISTORY OF INTERIORS II: A SURVEY OF 19th AND 20th CENTURIES. (3)
A survey of modern design evolution in furniture, textiles, and minor arts from 1800 to the present. Emphasis on the concepts, development, and application of modern technology to contemporary design and architecture. Prereq: History of architecture, European history for majors. Consent of instructor for non-majors.

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 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 528 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 reading, discussions, visuals, site visitations, and guest speakers. Prereq: Senior standing or consent of instructor.

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 548 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 593 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 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.

HED 783 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.

TEXTILE COURSES

HET 101 INTRODUCTION TO THE AREA OF TEXTILES, CLOTHING AND MERCHANDISING. (3)
An introduction to the textiles, clothing and merchandising fields including cultural importance of fashion, textile and apparel legislation, consumption of apparel and furnishings, and career opportunities.

HET 130 PRINCIPLES OF CLOTHING CONSTRUCTION AND SELECTION. (3)
A study of the basic principles of clothing construction and selection as applied to individual needs. Lecture, one hour; laboratory, four hours. (Special exam is available with three credits for passing. Exam administered during first week of fall semester.)

HET 220 TEXTILES I. (3)
A study of textiles from fiber to finished fabric, analysis of the relationships between the properties and performance characteristics of fibers, yarns, fabric structures, and finishes. Prereq: CHE 101 and CHE 103; or CHE 105 for majors. Non-majors, consent of department.

HET 221 TEXTILES I LABORATORY. (1)
Laboratory of HET 220. Laboratory, two hours. Prereq or concur: HET 220.

HET 230 INTERMEDIATE APPAREL CONSTRUCTION. (3)
Direct application of advanced construction techniques. Emphasis on pattern alternation and fitting adjustments. Laboratory application through the modification of commercial patterns. Lecture, one hour; laboratory, four hours. Prereq: HET 130 and HET 220.

HET 310 FASHION ANALYSIS. (3)
Survey of fashion designers, fashion trends and how these affect 1) merchandise quality evaluation, 2) apparel manufacturing processes, and 3) fashion merchandise terminology. Field trips.

HET 320 TEXTILES FOR INTERIORS. (3)
Selection, cost, expected performance and care of textiles used in households and public institutions. Lecture and occasional field trip. Prereq: Consent of instructor.

HET 335 DRAPING. (3)
The media of draping used in the interpretation of dress design terminating in finished garments. Dress forms must be ordered through Textiles, Clothing, and Merchandising Department during pre-registration. Lecture, one hour; laboratory, four hours. Prereq: HET 230 or consent of instructor.

HET 336 FLAT PATTERN DESIGN. (3)
The media of flat pattern used in the interpretation of dress design terminating in finished garments. Lecture, one hour; laboratory, four hours. Prereq: HET 230 or consent of instructor.

HET 337 CLOTHING AWARENESS AND SELECTION FOR THE CONSUMER. (3)
Clothing awareness and selection for the consumer which satisfy clothing needs of all individuals at all ages of the life cycle and the handicapped.

HET 412 MERCHANDISING I—PROMOTION. (3)
Survey of promotional procedures of retail organization. Field trips, class projects, and individual semester reports. Projects involve merchandising display and fashion show. Lecture, two hours; laboratory, two hours. Prereq: ECO 261, ENG 203, or JOU 203, and three credits in business administration or consent of instructor.

HET 414 MERCHANDISING II—BUYING PROCEDURES. (3)
Intensified and expanded application of retail organization in regard to the study of basic principles of merchandising fashion goods and services. Prereq: BA 330 and ECO 261.

HET 430G TAILORING. (3)
Analysis of tailoring techniques in the shop and in the home. Tailored garments are planned and constructed. Lecture, one hour; laboratory, four hours. Prereq: HET 230 or consent of instructor.

HET 439 THE CHILD AND HIS CLOTHING. (3)
A detailed study of the selection, cost and care of childrens' clothing in relation to their needs. Lecture and occasional field trip. Prereq: FHR 255 or consent of instructor.

HET 520 TEXTILES II. (3)
Consideration of recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Lecture, one hour; laboratory, four hours. Prereq: HET 220, HET 221, and CHE 105.

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. Prereq: Junior standing and consent of instructor.

HET 526 DECORATIVE TEXTILES. (2)
Survey of techniques used in creating design in fabrics with individual problems and in-depth studies. Lecture, one hour; laboratory, two hours. Prereq: Junior standing.

HET 533 HISTORY OF COSTUME. (3)
Development of costume from ancient to modern times with consideration of historic, social, and economic setting. Prereq: HIS 108 and 109 or consent of instructor.

HET 537 SOCIO-PSYCHOLOGICAL AND ECONOMIC ASPECTS OF APPAREL. (3)
A study of the social, cultural, psychological and economic factors which influence apparel and apparel use with particular emphasis on present day apparel in America. Prereq: ECO 261, three hours in sociology, and three hours in psychology.

HET 540 TEXTILES AND DESIGN STUDY TOUR. (1-3)
A domestic or foreign study tour to include investigation of interests related to textiles and design. Professional visits are planned according to the particular itineraries. An application must be filled out with instructor by February 1, prior to deposit date of March 10. This course may be repeated for a total of six hours if tour destinations are different. Prereq: Priority will be given to department majors, graduate students, and upperclassmen. All students are subject to instructor approval.

HET 590 MERCHANDISING III—INTERNSHIP. (5)
Supervised experience in merchandising procedures through a cooperative program with a retail establishment. Offered fall and summer semesters. Prereq: HET 412, HET 414, and consent of instructor.

HET 592 SPECIAL PROBLEMS IN CLOTHING COSTUME DESIGN. (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 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 325, HET 328 or HET 420; 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 TEXTILES AND CLOTHING. (2)
Current investigation of textiles and apparel. Lecture, two hours. May be repeated to a maximum of four 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.

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 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. One-hour lecture; four-hour laboratory 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.

JOU 305 TELECOMMUNICATIONS PROGRAM ANALYSIS. (3)
Course designed to assist student in developing criteria for analyzing structure and content or program material and for analyzing the relationships of audiences, programs, and American telecommunications systems. Lecture, two hours; laboratory, two hours. Prereq: TEL 101. (Same as TEL 305.)

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 on 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 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. One-hour lecture per week; four hours laboratory 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 504 TELESYSTEMS. (3)
To introduce students to the principles of modern telesystems management as applied to telecommunications properties. Prereq: Consent of department. (Same as TEL 504.)

JOU 507 FEATURE WRITING. (3)
Instruction and practice in writing features. Lectures, readings, and reports directed toward discovering, gathering, organizing, writing, and marketing feature articles. Lecture: two hours; laboratory: two hours per week. Prereq: Consent of instructor.

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 511 EDITORIAL WRITING. (3)
A study of editorial columns, and editorial pages. Publication of copy encouraged. Lecture: two hours; laboratory: two hours per week. Prereq: Consent of instructor.

JOU 513 SUPERVISION OF HIGH SCHOOL PUBLICATIONS. (1-3)
A study of the problems that confront the adviser of the high school newspaper or magazine. Open to advisers or prospective advisers with consent of instructor.

JOU 521 TELECOMMUNICATIONS REGULATIONS. (3)
A study of the governmental regulations of telecommunications by the FCC, and other federal, state and local agencies; licensing, libel and slander, copyrights, illegal practices, self regulation. (Same as TEL 501.)

JOU 527 THE PUBLIC AFFAIRS PROGRAM. (2)
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. (Same as TEL 507.)

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 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 543 ADVERTISING REGULATION. (3)
Course features regulatory interrelationships among advertisers, advertising agencies, media of distribution, and governments. Extensive use of problem solving approach. Prereq: Junior standing or above.

JOU 561 NEWSPAPER AND MAGAZINE ADVERTISING. (3)
Relation of newspapers and magazines with advertisers. Emphasis upon the preparation of local display and national advertising.

JOU 563 ADVERTISING PROCEDURES. (3)
Study of organizations and functions of advertising institutions and of product analysis, and research, consumer motivation, production methods, copy and layout. Lecture, two hours; laboratory, two hours. Prereq: JOU 561.

JOU 567 BROADCAST ADVERTISING. (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. (Same as TEL 510.)

JOU 579 PROSEMINAR IN RADIO AND TELEVISION. (2)
Discussion and reports on current broadcasting highlights and problems. Required of all seniors. (Same as TEL 530.)

JOU 598 TELECOMMUNICATIONS TOPICAL SEMINAR. (2)
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. (Same as TEL 599.)

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. (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 SCIENCE

LS 504 SOCIAL FOUNDATIONS OF LIBRARIANSHIP. (3)
A survey of librarianship with emphasis on the socio-historical development of libraries and their contribution to society, philosophies of library service and the nature of the library profession. Prereq: Consent of instructor.

LS 510 CHILDREN'S LITERATURE AND RELATED MATERIALS. (3)
A survey of children's literature, traditional and modern. Reading and evaluation of books with multi-media materials with emphasis on the needs and interests of children. Covers media for use by and with children from preschool through grade six.

LS 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.

LS 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.

LS 530 REFERENCE AND INFORMATION SERVICES. (3)
Fundamental reference sources, bibliographical methods and research techniques. Introduces reference services and functions including computerized data bases.

LS 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 centers, type of personnel, equipment and collections needed in each.

LS 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. Prereq: Consent of instructor.

LS 560 INTRODUCTION TO LIBRARY MANAGEMENT. (3)
An introduction to administrative theory and principles as they apply to the organization and operation of information systems. Emphasis is given to an examination of the different types of libraries as information systems and the political and legal environments that affect them. Prereq: Consent of instructor.

LS 575 PROFESSIONAL FIELD EXPERIENCE. (3)
Supervised work in an actual library to provide the student with operational library experience under the direction of a practicing librarian. Available to a limited number and only to those without previous library experience. Laboratory, 10 hours. Prereq: Nine hours of library science and consent of instructor.

LS 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.

LS 586 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. (Same as EDC 544.)

LS 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: Post-graduate standing or consent of instructor.

LS 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.

LS 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.

LS 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.

LS 605 INTRODUCTION TO INFORMATION SCIENCES. (3)
Introduction to major areas of information science and technology. Consideration is given to the nature of information science and technology as a field of study, the analysis and design of information systems, basic computer systems, and specific components of information storage and retrieval systems. (Same as COM 605.)

LS 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.

LS 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: LS 530, LS 550, and LS 560.

LS 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: LS 510 and permission of instructor.

LS 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: LS 510 and permission of instructor.

LS 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.

LS 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: LS 503, LS 602 or consent of instructor.

LS 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: LS 530.

LS 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: LS 530.

LS 624 INFORMATION IN SCIENCE AND TECHNOLOGY. (3)
The content and structure of bibliographic 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: LS 530.

LS 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: LS 530 or equivalent.

LS 630 COMPUTER-BASED REFERENCE SYSTEMS AND SERVICES. (3)
A study of the characteristics, utilization and management of on-line bibliographic retrieval systems. Computer-based reference services in libraries and information centers, bibliographic data bases, the data base industry, and trends in on-line retrieval are examined, with special emphasis given on-line search techniques and strategies. Prereq: LS 530.

LS 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 COM 614.)

LS 640 MEDICAL LIBRARIANSHIP. (3)
Emphasis is on introducing the student both to the basic bibliographic tools—indexes, abstracts, basic texts, etc.—used in the health sciences as well as to those administrative and technical problems peculiar to a health sciences library environment. A practical approach to such problems is emphasized in class lectures and seminars. Prereq: LS 560 and LS 530 and LS 624 or consent of instructor.

LS 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: LS 560 and LS 622 or consent of instructor.

LS 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: LS 560.

LS 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: LS 560.

LS 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.

LS 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: LS 550 and LS 560.

LS 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: LS 550.

LS 656 SUBJECT CATALOGING AND CLASSIFICATION. (3)
An advanced study of subject analysis of library materials, including subject cataloging and subject classification. Prereq: LS 550.

LS 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: LS 530.

LS 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: LS 560.

LS 665 LIBRARY SYSTEMS MANAGEMENT. (3)
The management of libraries is examined from a systems perspective. Emphasis on the role of systems analysis in library management including decision making, resource allocation, planning and systems development, and the measurement and evaluation of system performance. Prereq: LS 560.

LS 686 CATALOGING AND INDEXING OF MULTI-MEDIA MATERIALS. (3)
A survey of codes and practice for descriptive cataloging and subject indexing of multi-media materials and the application of standard procedures to various media formats. Prereq: LS 550 and 587.

LS 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: LS 560 and LS 587 or consent of instructor.

LS 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.

LS 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.

LS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

LINGUISTICS

LIN 301 INTRODUCTION TO LINGUISTICS. (3)
Introduction to the nature of language, to theories about language structure, and to language variations and relationships. Special emphasis on languages usually studied and to the relevance of language for humanities and behavioral sciences. Credit will not be given to students who already have credit for either ANT 215 or ENG 414G. Prereq: Background in some foreign language recommended. (Same as ENG 301.)

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: Consent of instructor. (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: ANT (ENG/LIN) 515. (Same as ANT/ENG 516.)

LIN 519 HISTORICAL LINGUISTICS. (3)
Language change; reconstruction of linguistic systems; language classification; comparative linguistics; temporal, spatial, and social context of language change. (Same as ANT 519.)

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 exceptions of MA 122 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 available for credit to persons who have received credit in any mathematics course of a higher number with the exceptions of MA 112, 122, 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, 122, 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 with applications. Prereq: Two years of high school algebra and one year of high school geometry, or MA 109, or equivalent.

MA 114 CALCULUS II. (4)
A continuation of MA 113, primarily stressing techniques of integration. Prereq: MA 112 and MA 113, or equivalent.

MA 115 ELEMENTARY ANALYSIS I (HONORS MATHEMATICS). (4)
MA 115, 116, 215, and 216 constitute a four-semester sequence of honors mathematics and when completed will include at least the following topics: real number system, least upper bound axiom, functions, integral and differential calculus, elementary differential equations and vector algebra. Prereq: ACT Math score in 90th percentile or consent of department.

MA 116 ELEMENTARY ANALYSIS II. (4)
Continuation of MA 115. Prereq: MA 115 or consent of department.

MA 117 DIFFERENTIAL CALCULUS (3)
A course for persons who may wish to major in a mathematical science. Differential calculus of one variable, limits, continuity and derivatives of the rational and transcendental functions. The Mean Value Theorem and its consequences with applications to curve sketching and stated problems. Selected assignments require the use of a hand calculator. Prereq: Two years of high school algebra (or MA 109), one year of high school plane geometry (or MA 109) and one term of trigonometry (or MA 112).

MA 118 INTEGRAL CALCULUS. (3)
A course for persons who may wish to major in a mathematical science. Integral calculus emphasizing techniques and applications. Taylor's theorem, sequences and areas. Topics in numerical evaluation of integrals and series approximation requiring the use of programmable hand calculators. Prereq: MA 117 or MA 113 and a course in trigonometry or consent of instructor.

MA 121 MATHEMATICS OF FINANCE. (3)
Offered by correspondence only. See University Independent Study Catalog.

MA 122 FINITE MATHEMATICS AND ITS APPLICATIONS. (3)
Finite mathematics with applications to business, biology, and the social sciences. Linear functions and their graphs, matrix algebra, linear programming.

MA 123 ELEMENTARY CALCULUS AND ITS APPLICATIONS. (3)
An introduction to differential and integral calculus, with applications to business and biological and physical sciences. Not open to students who have credit in MA 113, 115 or 117. Prereq: Two years of high school algebra or MA 108-R.

MA 131 PRE-CALCULUS MATHEMATICS FOR THE LIFE SCIENCES. (3)
Pre-calculus includes basic notions of functions and their graphs. Special emphasis on linear, quadratic, exponential and logarithmic functions. Examples and applications to the life sciences. Basic probability with applications to genetics. Prereq: Two years of high school algebra or MA 108.

MA 132 BASIC CALCULUS FOR THE LIFE SCIENCES. (3)
The differential calculus of standard functions with applications to the life sciences. A brief introduction to integration and biological models that arise from simple differential equations. Prereq: MA 109 or MA 131 or equivalent.

MA 199 TOPICS IN MATHEMATICS. (3)
Topics in mathematics to acquaint students in non-technical fields with ideas and methods of mathematics. Topics vary from semester to semester at the discretion of the instructor.

MA 201 MATHEMATICS FOR ELEMENTARY TREACHERS I. (3)
Basic concepts of whole numbers, the laws of arithmetic and elementary geometry, with an emphasis on problem-solving techniques. Open only to elementary and junior high school education majors.

MA 202 MATHEMATICS FOR ELEMENTARY TEACHERS II. (3)
Rational numbers, motion geometry and elementary probability, with an emphasis on problem solving. Open only to elementary and junior high school majors. Prereq: MA 201.

MA 210 THEORY OF INTEREST. (3)
A thorough treatment of the mathematical theory of compound interest. Especially useful for students planning to take the Actuarial Examinations of the Society of Actuaries. Topics include present value, effective and nominal rates of interest and discount, equations of value, annuities, amortization schedules, sinking funds, bonds, and internal rate of return. Interest is treated as a continuous function of time so the tools of calculus can be employed. Prereq: MA 123, or equivalent, or consent of instructor.

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 215 ELEMENTARY ANALYSIS III. (4)
The third semester of a four-semester sequence designed for honors students and mathematics majors. See MA 115. Prereq: MA 116 or consent of department.

MA 216 ELEMENTARY ANALYSIS IV. (3)
Continuation of MA 215. Prereq: MA 215 or consent of department.

MA 217 CALCULUS OF SEVERAL VARIABLES. (3)
A course for persons who may wish to major in a mathematical science. Functions of several variables, partial derivatives, gradients and multiple integration. Prereq: MA 117 or MA 114 or consent of instructor.

MA 218 CALCULUS FOR MATHEMATICS MAJORS IV. (3)
A course paralleling MA 214, but topics to be presented in such a way as to benefit persons majoring in mathematics. Prereq: MA 213 or 217.

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 224 INTERMEDIATE CALCULUS FOR THE LIFE SCIENCES. (3)
Calculus of trigonometric functions and techniques of integration. Several variables and elementary differential equations. Applications to the life sciences—e.g., cell growth, predator-prey, and enzyme kinetics. Prereq: MA 132 or MA 113 or consent of instructor.

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. (Same as CS 240.)

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 262 LINEAR ALGEBRA. (3)
An introduction to vectors, vector spaces, linear transformations, matrices and determinants. Prereq: A calculus course.

MA 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. (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 polynominal interpolation. Least squares approximation. Numerical integration. Roots of nonlinear equations. Ordinary differential equations. Laboratory exercises using software packages available at computing center. Prereq: MA 213 or MA 217 and CS 101 or CS 221. (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 singluar value decomposition, least squares approximation. Determinants, eigenvalues and eigenvectors, diagonalization. Prereq: MA 114 or MA 118.

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 395-396 PROBLEM SEMINAR. (1-3 ea.)
Reports on current research 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. High-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 market models. Prereq: MA 113 and consent of instructor.

MA 411G MODELS IN MATHEMATICAL BIOLOGY. (3)
Emphasis will be on the 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. (Note: Not open for graduate credit to graduate students in Mathematics and Biological Sciences.) Prereq: A calculus course, a biology course, and consent of instructor. (Same as BIO 411G.)

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 per cent on applications of these algorithms. (Note: Not open for graduate credit to graduate students in Mathematics and Computer Science.) 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 modelling, linear programming, dynamic programming, integer programming, scheduling and inventory problems and network algorithms. (Note: Not open for graduate credit to graduate students in Mathematics and Computer Science.) 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. (Note: Not open for graduate credit to graduate students in Mathematics and Statistics.) Prereq: MA 416 or equivalent and MA 423. (Same as STA 417G.)

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 METHODS OF APPLIED MATHEMATICS II. (3)
Elementary complex variable theory with applications. Complex field, analytic functions, Cauchy theorem, power series, residue theory. Prereq: MA 432G or 471G.

MA 441G GEOMETRY I. (3)
Euclidean, affine, projective spaces, and the classical groups. Prereq: MA 361 or consent of instructor.

MA 442G GEOMETRY II. (3)
Selected topics chosen from among: hyperbolic geometrics, spherical and elliptical geometries, differential geometry, geometric inequalities, circular transformations, manifolds and differential manifolds. Prereq: MA 441G or consent of instructor.

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 481. Topics will include perturbation theory, power series techniques and regular singular point theory, asymptotics; eigenfunction expansions; qualitative 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. (Note: Not open for graduate credit to students in Mathematics.) 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 511 MODELS IN MATHEMATICAL BIOLOGY II. (3)
This course is a continuation of MA 411. Partial differential equation models in the life sciences will be developed and solved. The emphasis will be on explicit life science models. Some typical examples of such models are: blood flow, membrane transport, diffusion and fluid flow in soils, ultracentrifugation, ionic flow in an axon, aggregation of amoebae, standing gradient and osmotic flow. Prereq: MA 411G or consent of instructor.

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 STA 515.)

MA 522 THEORY OF MATRICES. (3)
Review of matrix algebra, vector spaces, linear equations. Eigenvalues and eigenvectors, positive definite matrices. Variational description of eigenvalues. Jordan and Schur normal forms. Functions of matrices. Norms of vectors and matrices. Perturbation theory and bounds for eigenvalues. Tensor products of matrices. Theory of non-negative matrices. Prereq: MA 262 and MA 213 or consent of instructor.

MA 523 PROBABILITY MODELS. (3)
Markov chains, Poisson processes and generalizations, continuous time Markov chains, renewal theory, reliability models, time series models and their applications. Prereq: MA 423G or equivalent. (Same as STA 523.)

MA 525 NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS. (3)
Topics may include numerical solution techniques for ordinary differential equations, two-point boundary value problems, and linear and nonlinear partial differential equations. Prereq: MA/CS 321, or CS 221 and graduate standing.

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 462G 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 535 VECTOR AND TENSOR ANALYSIS. (3)
Orthogonal coordinate systems and transformations, curvilinear coordinates, convariant and contravariant vectors, tensors, metric tensor, eigenvectors and transformations to principal axes, vector differential operators in curvilinear coordinates, Christoffel symbols, covariant differentiation. Prereq: MA 214.

MA 536 OPERATIONAL CALCULUS AND GENERALIZED FUNCTIONS. (3)
Testing functions; differentiation and integration of distributions or generalized functions; convolutions; Fourier and Laplace tranforms; applications to linear differential equations. Prereq: MA 432G or 481G.

MA 537 NUMERICAL ANALYSIS I. (3)
Computer arithmetic. Discussion of various types of errors. Solution of systems of linear algebraic equations—Gaussian elimination with partial pivoting and scaling. Iterative refinement. Polynomial and piecewise polynomial interpolation. Orthogonal polynomials. Method of least squares. Numerical differentiation. Numerical integration: Newton Cotes formulas and Gaussian quadrature. Prereq: CS 150 or CS 221 or equivalent, or graduate standing, or consent of instructor. (Same as CS 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: CS/MA 537. (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 262 or consent of instructor.

MA 566 THEORY OF NUMBERS. (3)
Divisibility, prime numbers, congruences and residues, Diophantine equations. Prereq: 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 573 APPLIED COMPLEX ANALYSIS. (3)
Boundary value problems, analytic continuation, contour integration, special functions. Prereq: MA 433G.

MA 585 BOUNDARY VALUE PROBLEMS OF MATHEMATICAL PHYSICS. (3)
A continuation of MA 485. Topics may include integral equations, calculus of variations and variational methods; Green's and Riemann functions and their applications; successive approximation techniques and applications. Prereq: MA 485G or equivalent.

MA 611 INDEPENDENT WORK IN MATHEMATICS. (3-9)
Reading course for graduate students in mathematics. Prereq: Major in mathematics, a standing of at least 3.0 and consent of instructor. May be repeated to a maximum of nine credits.

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, penality 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.

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: modelling 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.

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.

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 621 ADVANCED NUMERICAL NALYSIS II. (3)
Finite difference, Galerkin, and collocation methods for two-point boundary value problems and partial differential equations. Iterative methods for linear algebraic systems. Prereq: MA/CS 538 or MA 620.

MA 622 NUMERICAL LINEAR ALGEBRA. (3)
Numerical stability. Matrix factorizations, direct solution of linear systems, linear least squares problem, conditioning, iterative refinement. Updating of matrix decompositions. Algebraic eigenvalue problem, singlular value decomposition. Sparse matrix techniques. Prereq: MA 462G or MA 522 or equivalent. (Same as CS 622.)

MA 630 MATHEMATICAL FOUNDATIONS OF STOCHASTIC PROCESSES AND CONTROL THEORY I. (3)
A modern treatment of stochastic processes from the

measure theoretic point of view with applications to control theory; the basic notions of probability theory, independence, conditional expectations, separable stochastic processes, martingales, Markov processes, second order stochastic processes. Prereq: MA 432G and MA 670.

MA 631 MATHEMATICAL FOUNDATIONS OF STOCHASTIC PROCESSES AND CONTROL THEORY II. (3)
A continuation of MA 630. Representation of stationary processes by stochastic integrals. Stochastic differential equations. Probability measures on function spaces. Absolute continuity of measures associated with stochastic processes. Weak convergence of probability measures on metric spaces. Prereq: MA 630.

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; semi-group 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 635 THEORY OF TENSORS. (3)
Graded tensor algebra of a module over a ring, groups as modules over the integers, vector spaces over fields and the module of vector field germs, vector fields on open sets in vector spaces and on manifolds, graded exterior algebras, and integration of forms. Prereq: MA 561 or consent of instructor.

MA 637 APPROXIMATION THEORY. (3)
Approximation problems in linear normed spaces; Weierstrass theorem and extensions; Muntz theorem; characterization of polynomials of best approximation; approximation in L_p spaces; interpolation processes, entire functions as approximants. Prereq: MA 433G and 571.

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 E^nfundamental forms, surfaces. Prereq: Consent of instructor.

MA 643 SELECTED TOPICS IN GEOMETRY. (3)
The course will consist of a study of various topics in modern geometry. It may include topics from algebraic, analytic, differential, and non-Euclidean geometry. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MA 651 TOPOLOGY II. (3)
Embedding and metrization, compact spaces, uniform spaces and function spaces. Prereq: MA 551.

MA 653 DIMENSION THEORY. (3)
Lebesque covering dimension: weak and strong inductive dimension; equivalence and non-equivalence for metric spaces of the various definitions of dimension. Prereq: MA 651.

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 II. (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, L_p 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 FUNCTIONS 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, pseudoconvexity, 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 problem 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 factorization. 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 683 CONVERGENCE AND SUMMABILITY. (3)
Fundamental limit ideas applied to infinite series, infinite products, etc. Summability of Cesaro, Holder, Abel, etc. Prereq: MA 571 or consent of instructor.

MA 685 FOURIER ANALYSIS. (3)
The content of this course is variable. Topics to be selected from the classical Fourier analysis and harmonic analysis on locally compact abelian groups. Prereq: MA 670 or consent of instructor.

MA 687 INTEGRAL EQUATIONS. (3)
Systems of ordinary linear equations, linear operators, orthogonal systems, linear integral equations of the second kind, theorems of Fredholm, Volterra's equation. Prereq: Consent of instructor.

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 731 SEMINAR IN MATHEMATICAL BIOLOGY. (3)
Derivation and analysis of models from topics of current research in mathematical biology. May be repeated to a maximum of six 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 as solutions, non-linear partial differential equations, singular integral equations.

MA 751, 752 SELECTED TOPICS IN TOPOLOGY. (3 ea.)
Prereq: MA 651.

MA 753, 754 SELECTED TOPICS IN FUNCTIONAL ANALYSIS. (3 ea.)
Prereq: MA 682.

MA 755, 756 SELECTED TOPICS IN TOPOLOGICAL ALGEBRA. (3 ea.)
Topics chosen from Lie groups, transformation groups, topological groups, semigroups, rings, semirings, and lattices. Also reports on and discussion of recent advances in topological algebra. Prereq for MA 755: MA 651 or consent of instructor.

MA 757 SEMINAR IN TOPOLOGY. (3)
Review of current research in topology. Prereq: Consent of instructor.

MA 761 HOMOLOGICAL ALGEBRA. (3)
Homological algebra, modules, exact sequences, functors, homological dimension, extension problems. Prereq: Consent of instructor.

MA 762 THEORY OF RINGS. (3)
Decomposition and structure theory of rings and modules. Prereq: Consent of instructor.

MA 763 THE THEORY OF FIELDS. (3)
Separable and inseparable extensions, splitting fields, normal extensions, fundamental theorems of Galois' theory, and transcendental extensions. Prereq: MA 561 and 661.

MA 764, 765 SELECTED 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 771, 772 SELECTED TOPICS IN THE THEORY OF COMPLEX VARIABLES. (3 ea.)
Prereq: Consent of instructor.

MA 773, 774 SELECTED TOPICS IN ANALYSIS. (3 ea.)
May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MA 777, 778 MATHEMATICAL SEMINAR. (3 ea.)
May be repeated to a maximum of six credits. Prereq: Consent of instructor.

MECHANICAL ENGINEERING

ME 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)

ME 007 THE ENGINEERING PROFESSION (SENIOR). (0)

ME 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 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. Plant visitations. 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 or concur: ME 330, CS 221.

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, 330.

ME 312 ENGINEERING EXPERIMENTATION III. (3)
An experimental laboratory concerned with the analysis and/or synthesis of complex mechanical systems with emphasis on original work by the student. Lecture, one hour; laboratory, four hours. Prereq: ME 311. Prereq or concur: ME 325.

ME 321 ENGINEERING THERMODYNAMICS II. (3)
Continuation of ME 220. Prereq: ME 220 and MA 214.

ME 325 ELEMENTS OF HEAT TRANSFER. (3)
Fundamental principles of heat transfer. Prereq: ME 330, MA 214, CS 221.

ME 330 FLUID MECHANICS. (3)
Fundamental principles of fluid flow. Prereq: EM 221 (or consent of instructor), ME 220 or CME 220, and MA 214. (Same as CE 330.)

ME 341 MACHINE DESIGN. (3)
Design of complete mechanical devices emphasizing the reduction to practice by working drawings, design layouts and mechanical sketching. Lecture, one hour; laboratory, six hours. Prereq: ME 344.

ME 343 CONTROL THEORY. (3)
Fundamentals of automatic control theory; describing differential equations; LaPlace transformation and overall transfer functions; frequency response and stability in terms of Bode and Nyquist diagrams; Root-Locus procedures and non-linearities. Prereq: MA 214, EM 313.

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 mechancial elements. Prereq: ME 151, EM 302.

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.

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 350 SAFETY ENGINEERING. (3)
A study of industrial accidents prevention, accident statistics, industrial and general hazards, fire protection, codes and standards of safety. The course is designed for those who may enter the fields of design or production engineering. Prereq: ME 151.

ME 352 PLANT LAYOUT. (3)
Selection of processes and machines, material handling systems, and plant requirements. Lecture, two hours; drawing room, three hours. Prereq: ME 151.

ME 356 MOTION AND TIME STUDY. (3)
Principles and uses of motion economy and fundamentals of time study. Lecture, two hours; laboratory, two hours. Prereq: ME 151.

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 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, queueing, and other research techniques. Prereq: Senior standing.

ME 360 INTERNAL COMBUSTION ENGINES. (4)
A study of internal combustion engine cycles and the characteristics and performance of actual engines, valves, gears, and materials of construction. Lecture, three hours; laboratory, two hours. Prereq: ME 321.

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 non-combustion thermal systems are analyzed. Commercial aspects of thermal systems are studied. Prereq: ME 321.

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.

ME 380 TOPIC 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.

ME 381 TOPICS IN MECHANICAL ENGINEERING (VARIABLE TOPICS). (1-3)
A lecture-recitation "mini-course" on one to three special topics in a given semester. Normally, three days per week for one-third of the semester will be spent on each topics. One credit hour per topic. Offered as a technical elective in mechanical engineering. May be repeated to a maximum of six credits. Prereq: Variable, given when topic identified.

ME 390 TECHNOLOGY AND WESTERN CULTURE. (3)
Interaction of technology and Western culture with illustrations from the classical, medieval, Renaissance, Englightenment, 19th Century, and modern periods. Emphasis on the character of the interaction. Limited disucssion of technical and quantitative aspects of technology. Present and projected technical problems. Prereq: Four semesters of mathematics or science, or two semesters of history or consent of instructor. (Same as HIS 390.)

ME 395 INDEPENDENT WORK IN MECHNICAL 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 chairman.

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 432G.

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.

ME 514 NUCLEAR REACTOR ANALYSIS I. (3)
Neutron cross-sections, the fission process. Infinite medium criticality calculations, the four factor formula. Neutron diffusion and slowing down theory. Age theory, criticality calculations for the homogeneous reactor, elementary reactor kinetics. Reflected reactors multigroup methods. Control rod theory, heterogeneous reactors. Prereq or concur: MA 432G.

ME 515 FUEL MANAGEMENT AND ECONOMICS OF NUCLEAR REACTORS. (3)
Nuclear fuels, fuel element claddings, burnup, fission products and waste handling, processing and recycling of fissile materials, isotope separation, and applications. Fuel cycle performance of typical reactors. Uranium resources and cost, nuclear plant costs and the interrelation between convectional and nuclear power costs. Prereq: ME 475G or ME 514.

ME 517 INSTRUMENTATION FOR RESEARCH. (3)
An exploration of modern instrumentation techniques and problems; transducer principles; analysis of dynamic response of instrumentation systems; theory of measurements; random processes; pressure; temperature, strain gauges and inertial measurement techniques; magnetic, optical, electrostatic and other recording systems; automatic data reduction; measurement of errors. Prereq: ME 310.

ME 529 INTERMEDIATE FLUID MECHANICS. (3)
Continuation of ME 330. Ideal and viscous flows. Development and application of basic equations to engineering problems with emphasis on formulation and solution. Prereq: ME 330. (Same as CE 529.)

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.

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.

ME 540 ANALYSIS AND SIMULATION OF DYNAMIC SYSTEMS. (3)
The analysis and computer simulation of mechanical systems with emphasis on the development of mathematical models, the experimental determination of system properties and the prediction of transient and steady-state response. Single degree and multi-degree-of-freedom systems. The effect of non-linearities and coulomb friction. Prereq: CS 221, ME 343.

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.

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. 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.

ME 565 ENERGY ENGINEERING. (3)
Energy supply and demand, material and energy balances for fossil fuel to fuel conversion including thermodynamic considerations, analysis of electrical power generation by conventional methods and by potential methods. Prereq: ME 325 and either CME 220 or ME 220. (Same as CME 565.)

ME 566 DIRECT ENERGY CONVERSION PROCESSES. (3)
Basic considerations of direct conversion of thermal to electrical energy. Thermodynamic and performance characteristics of solid state conversion devices including thermoelectric, thermionic, and photovoltaic systems. Thermodynamic principles and operating characteristics of fuel cells. Analysis of MHD generators and accelerators. Space application of

direct energy conversion devices and sources of power. Prereq or concur: ME 325.

ME 567 AIR POLLUTION ENGINEERING AND ECONOMICS. (3)
The mechanical engineering aspects of air pollution resulting from combustion processes. Lecture, two hours; laboratory, three hours. Prereq: ME 321, ME 330.

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. (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. Use of the human parameters in the design of protective and prosthetic devices and life support systems. Prereq: Consent of instructor.

ME 590 ELEMENTS OF AERO-SPACE 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.

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 610 ENGINEERING ACOUSTICS. (3)
Review of the elements of mechanical vibration, propagation of waves in continuous media; acoustic wave equation and application to transmission of sound through layered media, resonator and filter design. Acoustic measurement techniques; applications to mechanical and fluid systems. Prereq: EM 513 or ME 540.

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 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 632 COMPRESSIBLE FLUID FLOW. (3)
Review and extension of one-dimensional gas dynamics. Subsonic flow, Hodograph method. Supersonic flow, perturbation method, method of characteristics, oblique shocks. Unsteady wave motion and shock waves. Compressible boundary layers and interaction wave motion and shock waves. Prereq: ME 330, MA 432G.

ME 633 DYNAMIC AND THERMAL BEHAVIOR OF GAS-LIQUID SYSTEMS. (3)
The dynamical and thermodynamical description of fluid systems in which gravity and capillary forces are important. Interfacial stability analysis. Free jet and sheet dynamics. Nucleation and bubble growth. Applications include pool boiling, two-phase flow, condensing and cavitating systems. Course will be divided between formal development and topical seminar. Prereq: ME 625 and ME 531 concurrent 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 631 or consent of instructor.

ME 640 ADVANCED ANALYSIS AND SIMULATION OF DYNAMIC SYSTEMS. (3)
An extension of ME 540 emphasizing advanced analysis and simulation techniques to predict the behavior of complex mechanical systems. Prereq: ME 540.

ME 642 KINEMATICS OF MACHINERY. (3)
A continuation of ME 542, dealing with the motion of rigid planes passing through multiple positions. Theory and application. Prereq: ME 542.

ME 645 SYSTEMS CONCEPTS AND 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 651 SYSTEM OPTIMIZATION II. (3)
Introduction to optimal control and its applications, calculus of variations, dynamic programming, maximum principle, differential game theory, adaptive control systems, learning systems. Prereq: ME 645 and ME 647.

ME 663 NUCLEAR REACTOR ANALYSIS II. (3)
Advanced topics in reactor analysis. The Boltzman equation, spherhical harmonic methods and other approximate solutions of the Boltzman equation. Perturbation theory, neutron importance. Introduction to neutron thermalization. Special topics. Prereq: ME 514.

ME 664 EXPERIMENTAL METHODS IN NUCLEAR ENGINEERING. (3)
A lecture and laboratory course covering the utilization of radiation in engineering, measurement and analysis of parameters pertinent to reactor design and operation, and radiation shielding; reactor response and control studies using analog computer. Prereq or concur: ME 514.

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 666 RADIATION DAMAGE AND SHIELDING. (3)
A study of the effects of radiation on reactor materials and instrumentation. Macroscopic study of radiation absorption applied to radiation shielding and heat generation in reactors. Prereq or concur: ME 432G.

ME 667 NUCLEAR REACTOR DESIGN. (4)
The development of a reactor design from a set of specifications. The synthesis of reactor theory, heat transfer, properties of materials and economics. Prereq: ME 514, ME 325, ME 321.

ME 685 BIOFLUID MECHANICS. (3)
Rheology of biological fluids with special emphasis on blood; hemodynamics and related blood trauma; biological flow instrumentation; fundamental investigation of circulatory processes; and engineering implication of biological flow processes. Lecture, two hours; laboratory, three hours. Prereq: ME 330, MA 481G.

ME 772 BIO-MECHANICS SEMINAR. (1)
A weekly meeting of the staff and graduate students in engineering, physiology science, biophysics, psychology, etc.; for the discussion of research and recent developments in biomedical engineering such as biodynamics. May be repeated two times. Prereq: Consent of instructor.

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 782 ADVANCED TOPICS IN HEAT TRANSFER. (3)
Contemporary topics in heat transfer will be discussed using the current literature. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

ME 783 TOPICS IN ADVANCED SYSTEMS THEORY. (3)
A survey and evaluation of current research results in systems theory., A course designed to permit full utilization of specialized abilities of individual and visiting faculty. May be repeated to a maximum of nine credits. Prereq: Consent of instructor.

MEDICAL TECHNOLOGY

MT 120 MEDICAL TECHNOLOGY AS A CAREER. (1)
Presentation of information about the various phases of laboratory medicine involved in the training for and the practice of the specialty. Taught spring semester by lectures, films, demonstrations and field trips. Enrollment open to students wishing to explore the field of medical technology. Pass-Fail only.

MT 130 PREPROFESSIONAL SEMINAR IN MEDICAL TECHNOLOGY. (1)
Students will be involved in seminar-type experiences concerned with disease processes, their manifestations and related laboratory studies used in diagnosis and treatment. 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 831 INTRODUCTION TO LABORATORY METHODOLOGY I-URINALYSIS. (1)
An introductory course in theory and practice of physical and chemical examination of urine. Laboratory reporting, quality control, medical terminology and concern for the patient will be emphasized throughout the course. Lecture: one hour; laboratory: four hours per week for five weeks. Prereq: Admission to medical technology professional program.

MT 832 INTRODUCTION TO LABORATORY METHODOLOGY II-CHEMISTRY. (2)
An introductory course in theory and practice of clinical chemistry. Laboratory reporting, quality control, medical terminology and concern for the patient will be emphasized throughout the course. Lecture: one hour per week for 10 weeks; laboratory: four hours per week for 10 weeks. Prereq: Admission to medical technology professional program.

MT 833 INTRODUCTION TO LABORATORY METHODOLOGY III-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 834 INTRODUCTION TO LABORATORY METHODOLOGY IV-IMMUNOHEMATOLOGY. (1)
An introductory course in theory and practice of clinical immunology. Basic techniques used in serology and immunohematology. Lecture: two hours per week for three weeks; laboratory: six hours per week for three 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 (clinical) year of medical technology curriculum or consent of department chairman.

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 (clinical) year of the medical technology curriculum or consent of the department chairman.

MT 845 ELECTRONICS AND INSTRUMENTATION FOR THE MEDICAL LABORATORY. (3)
A review of basic electricity, gas laws, optics and an introduction to electronic components with application of these principles and information to clinical laboratory instruments. There will be emphasis on operation, detection of malfunction, and the establishment of maintenance programs. Lecture, two hours; laboratory, two hours. Prereq: Admission to medical technology professional program. Offered on a pass-fail basis.

MT 846 URINALYSIS AND MISCELLANEOUS CLINICAL MICROSCOPY. (3)
A course concerned with qualitative and quantitative study of chemical and microscopic constituents of urine; macroscopic and microscopic parameters of cerebrospinal fluid, seminal fluid and other body fluids. Lecture: one hour; laboratory: four hours. Prereq: MT 831.

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. (3)
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: one hour; laboratory: four hours per week. Prereq: BIO 594 and MT 834.

MT 856 CLINICAL BACTERIOLOGY LECTURES. (3)
A review of human pathogenic microorganisms and their relationship to disease. Emphasis will be placed on laboratory diagnostic approaches to infectious disease. Prereq: BIO 585 or equivalent.

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 senior (clinical) year of medical technology curriculum.

MT 858 IMMUNOHEMATOLOGY AND BLOOD BANKING. (3)
A course covering basic immunohematologic principles and their application in pre-transfusion 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: two hours; laboratory: two hours. Prereq: Admission to senior (clinical) year of medical technology curriculum.

MT 860 BLOOD COLLECTION. (1)
Experience collecting venous and capillary blood specimen 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. Prereq: Admission to medical technology professional program. Offered on a pass-fail basis.

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 disease. 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 SENIOR 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: Senior classification in medical technology professional program.

MT 880 CLINICAL PRACTICUM IN MEDICAL TECHNOLOGY. (12)
A twelve week clinical rotation divided into three week blocks for the four departments of clinical chemistry, hematology, blood bank and microbiology where students integrate classroom theory and clinical practice under the supervision of departmental and clinical faculty. Upon completion of the rotation the student must pass a final written examination. Pass/Fail only. Laboratory: 40 clinical hours per week for 12 weeks. Prereq: Completion of courses in senior year of medical technology professional program.

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 chairman.

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

MET 001 THE ENGINEERING PROFESSION (FRESHMAN). (0)

MET 003 THE ENGINEERING PROFESSION. (0)
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

MET 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.

MET 276 BUILDING MATERIALS. (3)
A lecture/demonstration course for architecture students and other students interested in metallic, ceramic and polymeric building materials. The course establishes a classification system for building materials, relates their properties to structure of the material and shows how their behavior may be controlled through appropriate processing. Prereq: Consent of instructor.

MET 302 MATERIALS LABORATORY I. (3)
A lecture-laboratory course emphasizing experimental techniques for structural characterization of materials including optical microscopy and x-ray diffraction. Two hours lecture per week; two hours laboratory per week; one hour recitation per week. Prereq: PHY 242, CHE 115.

MET 303 MATERIALS LABORATORY II. (3)
A continuation of MET 302 with emphasis on the relationships between the structure and properties of engineering materials. Two hours lecture per week; two hours laboratory per week; one hour recitation per week. Prereq: MET 302.

MET 304 MATERIALS LABORATORY III. (2)
A continuation of MET 303; a lecture-laboratory course emphasizing experimental work in structural transformation, thermal and electrical behavior of metals and semi-conductors, and corrosion. Lecture, two hours; laboratory, two hours. Prereq: MET 303.

MET 314 METALLURGICAL ANALYSIS. (2)
An independent laboratory required of all seniors to provide an integrated application of theories, practices and techniques to a problem of metallurgical interest. The course will culminate in a project report. Laboratory, six hours. Prereq: MET 361, 362, 412.

MET 361 STRUCTURE AND PROPERTIES OF ALLOYS I. (3)
Phase diagrams through ternary metal systems; dependence of physical, mechanical and electrical properties on microstructure and alloy distribution; precipitation hardening; introduction to quantitative metallography. Prereq: PHY 232, CHE 107.

MET 362 STRUCTURE AND PROPERTIES OF ALLOYS II. (3)
X-ray diffraction and metallography; deformation, hardening and softening of alloy systems; the iron-carbon system. Prereq: MET 361.

MET 371 SEMINAR. (1)
General discussions of metallurgical subjects; preparation and delivery of papers and reports; extemporaneous speaking, and the briefing of technical books and articles in current literature. Two hours.

MET 372 SEMINAR. (1)
A continuation of MET 371. Prereq: Consent of instructor.

MET 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 chairman.

MET 412 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.

MET 421 SOLIDIFICATION AND CASTING. (4)
Ferrous and non-ferrous foundry practice. Application of engineering principles to the design and production of castings. Lecture, three hours; laboratory, three hours. Prereq: MET 201, PHY 232.

MET 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: MET 442.

MET 426 NON-FERROUS ALLOYS PROCESSING. (3)
Continuation of MET 425. Materials processing, structure and properties, with emphasis on non-ferrous metals. Prereq: MET 425.

MET 442 EXTRACTIVE METALLURGY. (3)
The principles and processes employed in the preparation, treatment and production of various metals of economic or strategic importance; process economics. Prereq: MET 361 and CHE 440G.

MET 443 MINERALS BENEFICIATION. (3)
Principles and mechanics of beneficiation involved in the preparation of mine products, principles of plant design and current developments. Prereq: PHY 232.

MET 444 MINERALS BENEFICIATION LABORATORY. (1)
Application of the principles studied in MET 443. Laboratory, two hours. Prereq or concur: MET 443.

MET 451 METALLURGICAL THERMODYNAMICS AND KINETICS. (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 220, MET 201.

MET 505 VISCOELASTICITY. (3)
A study of the phenomenological description of the mechanical behavior of polymeric materials. One-dimensional linear phenomena are emphasized. Topics include viscoelastic response in shear; relations between modulus and compliance; one-dimensional dynamical problems; stress analysis; and thermal effects. Prereq: EM 302 or consent of instructor. (Same as EM 505.)

MET 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 or consent of instructor. (Same as EM 506.)

MET 531 POWDER METALLURGY. (3)
Study of the principles of powder metallurgy relating to alloys of unusual compositions, metal and non-metal combinations, porous and laminated products, composite metals, and high-melting alloys. Prereq: Consent of instructor.

MET 532 COMPOSITE MATERIALS. (3)
Preparation, testing, design, and nature of composite materials. Prereq: Consent of instructor.

MET 534 PHYSICAL STRUCTURE OF POLYMERS. (3)
Chemical compositions and structures of polymer molecules and their monomeric ingredients; relations between structure, properties, and applications. Prereq: CME 220 plus CHE 230 or CHE 236.

MET 535 MECHANICAL METALLURGY. (3)
Introductory elasticity and plasticity theory; crystallographic nature of slip and twinning; fracture. Prereq: MET 201, EM 302, or consent of instructor.

MET 536 CERAMIC ENGINEERING. (3)
The nature of ceramic materials. The forming and thermal treatment of ceramic products. Consideration of the various properties usually encountered and required of ceramic materials inclusive of cements. Prereq: Consent of instructor.

MET 538 DEFORMATION PROCESSING. (3)
Solidification of molten alloys; fundamentals of metal working; application of metal working theories to forging, rolling, extrusion, drawing and sheet forming. Prereq: MET 535.

MET 539 NUCLEAR METALLURGY. (3)
The metallurgy of such materials as are used in the various components of nuclear reactors with special emphasis on their physical metallurgy. Scientific principles in their broadest sense are emphasized. Material applicable to nuclear-reactor components in the ceramics, metal-ceramics, and other fields. Prereq: MET 362 or consent of instructor.

MET 541 ADVANCED EXTRACTIVE METALLURGY. (3)
Continuation of MET 442. Recent developments in the extraction of common metals; sources and production of metallic ores; extraction of valuable constituents; prevention of metallurgical environmental pollution; recovery of metals from scrap. Prereq: MET 422 or consent of instructor.

MET 544 INTRODUCTION TO NONDESTRUCTIVE TESTING. (3)
Theory and practice of non-destructive testing methods, their interrelationships, uses, advantages and limitations are presented. Emphasis will be on the most common methods; liquid-penetrant, magnetic-particle, radiography, ultrasonics and eddy current. A limited discussion of the newer techniques including thermal inspection, acoustic emission, and holography is included. Prereq: EM 302 or consent of instructor. (Same as EM 544.)

MET 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: Consent of instructor.

MET 551 ADVANCED CHEMICAL METALLURGY. (3)
Study of reactions occurring during refining, based on principles of thermodynamics and kinetics. Examples from both ferrous and non-ferrous metallurgy. Prereq: Consent of instructor.

MET 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.)

MET 553 THERMODYNAMICS OF POLYMER SYSTEMS. (3)
Configurations of polymer chains, configurational and frictional properties of macromolecules in dilute solution, statistical thermodynamics of polymer solutions, rubber elasticity, membrane phenomena. Prereq: CME 220, CHE 236, or CHE 230, or consent of instructor.

MET 566 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: MET 361.

MET 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: MET 201 and EM 302.

MET 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. Prereq: Variable; given when topic identified. 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 MET 599 number.

Prerequisite for graduate work: Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

MET 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.

MET 633 SPECIAL PURPOSE ALLOY STEELS. (3)
Fundamental principles of the more complicated and special alloy steels and their heat treatment. Carbon, mild alloy, N.E., S.A.E., tool and super alloys are included. Alternate alloy steels for application are considered. Prereq: Consent of instructor.

MET 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.

MET 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: MET 535 or EM 531 or equivalent.

MET 637 MATERIALS ENGINEERING. (3)
Various factors in specification and testing of materials. Materials for lightweight construction, mechanical and electrical applications, and severe service conditions are treated. Material failures, trouble shooting and testing are discussed. Lecture only, three hours. Prereq: Consent of instructor.

MET 641 ADVANCED PRODUCTION METALLURGY. (3)
Principles and practices used in the production of alloys with special stress upon any particular group of alloys that the student may choose. Prereq: Consent of instructor.

MET 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.

MET 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: MET 451 or equivalent.

MET 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: MET 362 and 412 or consent of instructor.

MET 662 ADVANCED PHYSICAL METALLURGY II. (3)
Solidification theory and mechanisms. Diffusion in solids. Prereq: MET 661 or consent of instructor.

MET 663 THEORETICAL STRUCTURAL METALLURGY. (3)
Interatomic forces of crystal bonding; free electron; zone theory; equilibrium and rate of approach thereto; thermal behavior, structure and free energy of alloy phases; equilibrium diagrams; diffusion; order-disorder change; nucleation and phase growth. Prereq: MET 362, MET 412, or consent of instructor.

MET 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: MET 566.

MET 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MET 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

MET 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 (one class hour).

MET 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.

MET 782 SPECIAL PROBLEMS, LITERATURE AND LABORATORY. (3)
A continuation of MET 781. Laboratory, six hours; consultation and lecture by appointment. May be repeated to a maximum of nine credits.

MET 801 CONSUMER MATERIALS AND PRODUCT LIABILITY. (3)
A lecture/demonstration course emphasizing material properties, fabrication methods and causes of failure most frequently involved in cases of product liability. Prereq: Consent of instructor.

MICROBIOLOGY

See courses listed under Biology.

MILITARY SCIENCE (ARMY ROTC)

BASIC COURSE

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.

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.

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 SMALL UNIT TACTICS. (1)
Course in small unit tactics, patrolling, leadership and command.

MS 221 MAP READING AND MILITARY GEOGRAPHY. (1)
A course in map and aerial photograph reading to include military geography and land navigation. Prereq: None, except students must enroll in MS 221 and 202 concurrently. (Same as GEO 221.)

ADVANCED COURSE

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

MIN 121 ELEMENTS OF MINING. (3)
Fundamental mining operations, prospecting and mine development.

MIN 222 MINE LAW AND SAFETY. (3)
Mine laws, including safety regulations and interpretations for engineers and supervisors. Prereq: MIN 121.

MIN 322 COAL PREPARATION. (3)
Petrography of coal, basic operations of crushing, screening, specific gravity separation and froth flotation; washability determination and process performance criteria. Lecture: two hours; laboratory: three hours. Prereq: PHY 231.

MIN 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: MIN 121.

MIN 341 MINE VENTILATION. (3)
Hazards of dust and gaseous contamination of mine atmospheres, air dilution requirements, flow distribution in mine networks, natural ventilation and fans. Lecture: two hours; laboratory: three hours. Prereq: PHY 231.

MIN 371 SEMINAR. (1)
A study of current engineering literature as related to mining engineering. Two hours lecture per week. Prereq: Senior classification.

MIN 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 chairman and the instructor.

MIN 451G PHYSICAL PROPERTIES OF ROCK. (2)
Engineering properties of rock, importance and utilization of rock properties, and methods of determination of physical properties of rock. Lecture: one hour; laboratory: three hours. Prereq: EM 302, EM 303 and GLY 240; or consent of instructor.

MIN 551 ROCK MECHANICS. (3)
The study of the mechanical behavior of rock under changing stress environments. Design of underground openings and support systems. Strata control. Prereq: MIN 121 and EM 302. Concur: MIN 451G or consent of instructor.

MIN 561 UNDERGROUND CONSTRUCTION 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; MIN 551.

MIN 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: MIN 332 and MIN 341.

MIN 563 SURFACE MINING. (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: MIN 332.

MIN 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: MIN 322.

MIN 581 MINE VALUATION. (3)
Applications of advanced concepts in engineering economy to mining engineering. Includes cost estimation, optimum levels of production, treatment of risk, mineral markets and mineral property valuation and mine financing. Prereq: CE 555, STA 381, or 681.

MIN 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 MIN 599 number. Prereq: Consent of instructor.

MIN 633 ADVANCED UNDERGROUND COAL MINING SYSTEMS. (3)
Mineability of coal deposits. Geological influence on selection of mining method. Classification of coal extraction techniques. Strata control parameters and support systems. Optimization of geometrical parameters of mining outlays of room and pillar, longwall and shortwall techniques. Selection of underground mining equipment. Control of subsidence and protection of underground and surface features. Prereq: MIN 551, MIN 562.

MIN 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.

MIN 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: MIN 551.

MIN 661 UNDERGROUND CONSTRUCTION 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: MIN 561.

MIN 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

MIN 771 SEMINAR IN MINING ENGINEERING. (1)
Review of current research in specific areas of mining engineering. Required of all graduate students. Prereq: Graduate classification.

MIN 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 Chairman of the Department.

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
Voice	
MUP 102, 202, 302, 402	502, 602
Organ	
MUP 103, 203, 303, 403	503, 603
Violin	
MUP 104, 204, 304, 404	504, 604
Viola	
MUP 105, 205, 305, 405	505, 605
Cello	
MUP 106, 206, 306, 406	506, 606
String Bass	
MUP 107, 207, 307, 407	507, 607
Flute	
MUP 108, 208, 308, 408	508, 608
Oboe	
MUP 109, 209, 309, 409	509, 609
Clarinet	
MUP 110, 210, 310, 410	510, 610
Bassoon	
MUP 111, 211, 311, 411,	511, 611
Trumpet	
MUP 112, 212, 312, 412	512, 612
French Horn	
MUP 113, 213, 313, 413	513, 613
Trombone	
MUP 114, 214, 314, 414	514, 614
Baritone	
MUP 115, 215, 315, 415	515, 615
Tuba	
MUP 116, 216, 316, 416	516, 616
Saxophone (alto)	
MUP 117, 217, 317, 417	517, 617
Percussion	
MUP 118, 218, 318, 418	518, 618
Harp*	
MUP 119, 219, 319, 419	519, 619
Harpsichord	
MUP 120, 220, 320, 420	520, 620
Classical Guitar	
MUP 123, 223, 323, 423	
Historical Instruments*	
MUP 322, 422	522, 622

*Consult the School of Music before enrolling in this course.

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 Department of Music.

Students in one-hour credit performance courses for secondary instrument credit will be taught in studio groups of four or less.

Each undergraduate one-hour credit course may be repeated twice for a total of three credits.

Each graduate one-hour credit course may be repeated three times for a total of four credits.

Two-Hour Credit

Music majors who are in the Music Education or B.A. in Music degree programs may register for two hours credit. Graduate student registration in these courses will be by direction of the adviser. Not open to non-music students. Each undergraduate two-hour credit course may be repeated twice for a total of six credits. Each graduate two-hour credit course may be repeated three times for a total of eight credits.

Three-Hour Credit

Students working toward the B.M. or M.M. degrees in applied music may register for three hours' credit each semester. D.M.A. students may register for a two or three hours' credit upon the consent of their adviser. Not open to non-music students. Each undergraduate three-hour course may be repeated twice for a total of

nine credits. Each graduate course may be repeated three times for a total of 12 credits. Not offered during summer sessions.

Four-Hour Credit

Only a graduate student in an applied music program may register for four hours' credit, and only on the 600 level, if so directed by his adviser and with the written approval of the Director of Graduate Studies. Each four-credit course may be repeated once for a total of eight credits. Not offered during the summer session.

MUP 558 CONDUCTING. (1-4)
Private instruction in advanced conducting. May be repeated to a maximum of nine credits. Prereq: MUS 358 or MUS 364 or MUS 365 or consent of instructor.

MUP 658 CONDUCTING. (1-4)
Private instruction in advanced conducting. May be repeated to a maximum of nine credits. Prereq: MUS 358 or MUS 364 or MUS 365, or consent of instructor.

CLASS INSTRUCTION OF INSTRUMENTS

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 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 consent of instructor.

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 non-music majors, music majors, or classroom teachers. 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 CHAMBER SINGERS. (1)
Study of vocal chamber music through performance. May be repeated to a maximum of eight credits. Laboratory, two hours. Prereq: Consent of instructor.

MUC 175 JAZZ ENSEMBLE. (1)
Study of jazz through performance. May be repeated to a maximum of four credits. Laboratory, two hours. Prereq: 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.

LARGE MUSICAL ORGANIZATIONS

MUC 187 CONCERT BAND (SPRING SEMESTER). (1)
A large concert band primarily for the general student desiring continuation of instrumental music experience. Laboratory, three hours. Prereq: Consent of instructor. May be repeated to a maximum of four credits.

MUC 188 SYMPHONIC BAND (SPRING SEMESTER). (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
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 (FALL SEMESTER ONLY). (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. Prereq: Audition and consent of instructor. May be repeated to a maximum of eight credits.

MUC 196 OPERA WORKSHOP. (1)
Study of the principles and techniques of opera production through class presentation of scenes and complete works. Prereq: Consent of instructor. May be repeated to a maximum of four credits.

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 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.

MUC 374 JAZZ PIANO. (2)
A study of the basic elements of jazz piano with reference to its use in improvisation. Topics of concentration will include listening, analysis, and practical keyboard application, in addition to a study of the historical perspective and important styles. Prereq: MUS 272 and MUS 273, or consent of instructor.

MUC 570 ADVANCED CHAMBER MUSIC ENSEMBLE. (1)
Study of chamber music through performance. May be repeated to a maximum of two 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 three hours. Prereq: 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 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 acqusition of harmonic vocabulary and development of partwriting techniques, elementary counterpoint, free composition, and analysis. This course must be taken concurrently with MUS 170. 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. Must be taken concurrently with MUS 172. Lecture, three hours. Prereq: MUS 171.

MUS 174 THEORY FOR NON-MUSIC 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 200 INTRODUCTION TO MUSIC. (3)
A study of the elements of music as they apply to the listening experience; designed for the non-music major with no prior knowledge of music. Emphasis will be placed upon developing an awareness and understanding of musical styles from the Renaissance to the present.

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; non-music majors—consent of instructor.

MUS 260 MUSIC FUNDAMENTALS AND SKILLS FOR CLASSROOM TEACHERS. (3)
Designed to aid elementary teachers in the College of Education in learning to read music. Keyboard and autoharp experiences are stressed. For non-music majors or classroom teachers. Lecture, two hours; laboratory, one hour.

MUS 261 METHODS AND MATERIALS OF TEACHING MUSIC IN THE ELEMENTARY GRADES. (3)
Principles, techniques, and procedures for teaching

music in grades 1-6. Opportunities for using current materials are included. Prereq: MUS 260 or consent of instructor.

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 in 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. This course must be taken concurrently with MUS 270. 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. This course must be taken concurrenlty with MUS 272. 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 material 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; non-music 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; non-music majors—consent of 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. Fifteen hours—one week workshop (1 credit); thirty hours—two week workshop (2 credits). 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. Lecture, two hours. Prereq: Junior standing in music.

MUS 360 GENERAL MUSIC IN THE ELEMENTARY SCHOOL. (2)
Methods, materials and techniques of teaching general music in grades 1-6 including study of the child's voice, rote singing and repertory, part singing, rhythmic development, listening experience, notation and use of accompanying instruments. Lecture, three hours. Prereq: Junior standing in music.

MUS 362 VOCAL MUSIC METHODS AND MATERIALS SEMINAR III. (2)
The large chorus. Organization 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 373 FUNDAMENTALS OF JAZZ THEORY. (2)
A study of the basic theoretical elements of jazz with reference to their use in improvisation. Topics of study will include harmonic, rhythmic, and melodic structure, keyboard application, and a study of styles and improvisation. Prereq: MUS 272 and MUS 273, or consent of instructor.

MUS 395 INDEPENDENT WORK IN MUSIC. (3)
May be repeated to a maximum of six credits. Prereq: Major in music and a standing of 3.0 in the school.

MUS 500 MUSIC OF THE MIDDLE AGES. (3)
The development of Western music through the 14th century. Prereq: MUS 103 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 103 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 202 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 202 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 203 or consent of instructor.

MUS 505 MUSIC OF THE 20th CENTURY. (3)
A stylistic study of representative compositions of the 20th century. Prereq: MUS 203 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 202 and 203 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 202 and 203 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 202 and 203 or consent of instructor. (Fall semester only.)

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 203 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 203 or permission of instructor.

MUS 524 STRING LITERATURE. (3)
An historical and analytical study of music written for strings. Prereq: MUS 202 and MUS 203 or consent 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 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 568 GENERAL MUSIC IN THE SECONDARY SCHOOL. (2)
Techniques and materials for general music activities in junior and senior high schools, emphasizing teaching of music as a humanistic discipline. Prereq: Junior standing in music.

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 601 HISTORY OF PERFORMANCE PRACTICES. (3)
A survey of practices in the performing of European music from the later Middle Ages to 1800, based on evidence from contemporary sources.

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). (2)
An in-depth study and analysis of the methodology and materials and their development in music education. May be repeated to a maximum of eight credits. 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. (2)
The teaching of music theory.

MUS 675 PEDAGOGY OF THEORY. (2)
A continuation of MUS 674. Prereq: MUS 674.

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 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 Ars 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 703 STUDIES IN MUSIC HISTORY. (2)
Intensive studies of a musical genre, a composer, or a school of composers.

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 and 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 750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC. (3)
A study of current trends in school music, curricula, testing programs, and other supervisory procedures. (Same as EDC 750.)

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 543 GERONTOLOGIC NURSING. (3)
A study of the 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 554 IDENTIFICATION AND MANAGEMENT OF COMMON HEALTH PROBLEMS. (3)
Focus is on the family nurse practitioner's identification and management of individual and family health problems (acute, chronic, and emergency) commonly seen in a primary/ambulatory health care setting. Prereq: Enrolled in the Family Nurse Practitioner Component or consent of instructor.

NUR 558 FAMILY ASSESSMENT, HEALTH TEACHING, AND CLINICAL COUNSELING IN NURSING. (2)
Concpets and methods of family assessment, health teaching, and clinical counseling in nursing are covered including case materials. Focus is on theory and techniques for assisting individuals and families to cope with developmental changes and related crisis situations which are linked with health status. Selected field and observational experiences are included. Prereq: Enrolled in the Family Nurse Practitioner Component or consent of instructor.

NUR 560 NURSING MANAGEMENT OF EXCEPTIONAL CHILDREN. (3)
Problems of exceptional children. How nurses can help families manage these children to minimize problems with resources available to these children and their families. Lectures, discussions and reports will be supplemented by films, field trips and guests. Students will either work with exceptional child or develop paper on current concepts of managing a type of exceptional child. Concepts of human development will be used to clarify approach to management of exceptional children. 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. Concurrent with clinical nursing course(s). Prereq: Admission to graduate program in nursing.

NUR 614 PRACTICUM IN CLINICAL NURSING I. (2-4)
This is a course designed to plan nursing care for patients in a given clinical component. Adult Nursing, Gerontologic Nursing, and Parent-Child Nursing include the study of the effects of specific philosophical viewpoints on health care and the testing of nursing theories as they relate to children and adults. Community Mental Health Nursing includes the development of basic clinical nursing competencies in mental health assessment, treatment modalities and evaluation of treat-

ment outcomes. Both individual and group experiences are provided. Laboratory, six to 12 hours per week. Prereq: Concurrent with NUR 770 and enrollment in the appropriate nursing component.

NUR 615 PRACTICUM IN CLINICAL NURSING II. (2-4)
Leadership skills, transmission of knowledge, and use of research findings are applied in the clinical setting. Adult Nursing, Gerontologic Nursing and Parent-Child Nursing further test theoretical concepts related to nursing management of children or adults. Students work with patients of interest, and begin a clinical nursing project, a clinical nursing study or a thesis. Community Mental Health Nursing includes a study of health care systems and change, consultation, program planning and evaluation. Students begin a clinical nursing project, a clinical nursing study or a thesis. Laboratory, six to 12 hours per week. Prereq: NUR 614, concurrent with NUR 771 and enrollment in the appropriate nursing component.

NUR 616 PRACTICUM IN CLINICAL NURSING III. (2-4)
Experiences are provided in the student's area of clinical interest and in ways to bring about change and identify nursing problems which need systematic study. The clinical nursing project or clinical nursing study is completed. Seminars are scheduled according to need. In Adult Nursing, Gerontologic Nursing and Parent-Child Nursing skills are consolidated in managing ambulatory children or adults with other health professionals. In Community Mental Health Nursing, there is involvement in consultation, education, community assessment, problems in health care delivery and program development. Laboratory, six to 12 hours per week. Prereq: NUR 615 and enrollment in the appropriate nursing component.

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; varied laboratory hours. 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 624 CLINICAL TEACHING IN NURSING I. (1)
A seminar on the purposes of objectives, levels of objectives, and the process of writing nursing objectives for use in teaching and in nursing practice. Prereq: Enrollment in the College of Nursing graduate program.

NUR 625 CLINICAL TEACHING IN NURSING II. (1)
A seminar on the formal and informal teaching methods in nursing and an overview of instructional media. Prereq: NUR 624.

NUR 626 CLINICAL TEACHING IN NURSING III. (1)
A seminar on the purposes of evaluation, test item construction and performance evaluation. Prereq: NUR 624.

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 650 PHYSICAL AND HEALTH ASSESSMENT. (4-6)
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 and adults. The performance and interpretations of laboratory procedures commonly used in a primary care setting are included. Lecture, two hours; laboratory, six to 12 hours per week. Prereq: Graduate standing.

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 child-bearing and interconceptional years. Focus is on the Antepartal and Intrapartal areas. Lecture, two hours; laboratory, 12 hours per week. Prereq: NUR 650 and enrollment in the nurse-midwifery component.

NUR 662 FAMILY NURSE CLINICAL PRACTICUM I. (4-6)
The initial clinical practicum in family nursing is focused on a comprehensive approach to health assessment of individuals and families throughout the age continuum. Using problem-oriented recording, emphasis is placed on health maintenance and preventive care which includes counseling and teaching. Laboratory, 12-18 hours. Prereq: NUR 650 and enrollment in the Family Nurse Practitioner Component.

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.

NUR 672 FAMILY NURSE CLINICAL PRACTICUM II. (4-6)
Clinical practicum is provided in the management of adult, child, and family primary health care in a variety of settings. Under nursing and medical supervision, students will gain experience in assisting patients and families to cope with illness and disability. Laboratory, 12 to 18 hours per week. Prereq: NUR 554, 662.

NUR 682 FAMILY NURSE INTERNSHIP. (6-9)
A clinical internship offered upon satisfactory completion of Family Nurse Clinical Practicums I and II. With consent of instructor, students may obtain additional experience in an area of special interest such as child health, mental health, adult health. A clinical conference, including case presentations, is scheduled weekly. Laboratory, 18 to 27 hours per week. . Prereq: NUR 650, 662, 672.

NUR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximum of 12 hours.

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. Seminar sections are Adult Nursing, Gerontologic Nursing, Nurse-Midwifery, Parent-Child Nursing and Community Mental Health Nursing. Required of all students enrolled in clinical nursing except Family Nurse Practitioner students. Prereq: Concurrent with NUR 614 or enrolled in Nurse-Midwifery component.

NUR 771 SEMINAR IN CLINICAL NURSING II. (2)
Theoretical concepts related to clinical nursing will be emphasized. Leadership skills, transmission of knowledge in patient management and the use of research findings are included. Seminar sections are Adult Nursing, Gerontologic Nursing, Nurse-Midwifery, Parent-Child Nursing and Community Mental Health Nursing. Required of all students enrolled in clinical nursing except Family Nurse Practitioner students. Prereq: NUR 770. Concurrent with NUR 615 or NUR 660.

NUR 772 SEMINAR IN PRIMARY/AMBULATORY CARE. (2)
Focus is on specific techniques of counseling and teaching needed to assist individuals/families in coping with illness and disability. A variety of health delivery systems in which the family nurse practitioner can function will be explored as well as current research related to primary care. Prereq: Enrollment in the Family 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 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 825 CONTEMPORARY LITERATURE IN THE MENTAL HEALTH FIELD. (2)
A seminar approach to the study of contemporary literature in the field of mental health. Includes current popular books, periodicals, and other media and their effects on mental health of individuals, groups and communities. Prereq: Junior standing in the College of Nursing.

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. Lecture, three hours.

NUR 851 NURSING ASSESSMENT. (4)
The skills and methods of data collection underlying health histories and physical assessments are presented. Objective and subjective data relevant to physiological, biological, and psychological processes, with emphasis on differences in age groups, are utilized as a baseline for determining and understanding health and illness status. Lecture, two hours; laboratory, six hours. Prereq or coreq: NUR 854.

NUR 852 COMMUNITY HEALTH NURSING. (6)
Examines the interaction of groups and families with their immediate and extended community environments. Explores factors which influence the client's state of health, perceptions of health, patterns of adaptation and forces of change which affect health and utilization of health care delivery systems. Also examines the epidemiological process utilized by the nurse. Lecture, three hours; laboratory, nine hours. Prereq: NUR 851; NUR 854. Prereq or coreq: NUR 853, 856, 858, 864.

NUR 853 PATHOPHYSIOLOGIC BASIS FOR NURSING PRACTICE. (4)
Introduces selected pathophysiologic processes and associated clinical manifestations and relates these occurrences to the practice of nursing. Lecture, two hours; .colloquium, two hours per week. Prereq or coreq: NUR 854.

NUR 854 INTRODUCTION TO PHILOSOPHY AND CONCEPTS OF NURSING. (2)
An introduction to a conceptual framework and philosophy of professional nursing practice.

NUR 856 CONCEPTS AND PRINCIPLES OF TEACHING AND LEARNING IN NURSING. (2)
An introduction to teaching and learning processes. Application of selected concepts and principles to assist individuals and groups in preventing disease, maintaining health, and/or restoring health. Prereq or coreq: NUR 854.

NUR 858 CULTURAL DIVERSITY AND IMPLICATIONS FOR NURSING. (2)
Examines diverse cultural practices and patterns and explores implications for nursing practice. Prereq or coreq: NUR 854.

NUR 860 BASIC MIDWIFERY. (6)
Guided experience is provided in the care of the child-bearing woman and her family throughout the pregnancy cycle—in the home, clinic and hospital setting. Management of problems or complications common to pregnancy is included as well as introductory experience in normal deliveries. Aspects of family planning are covered, including clinical management of spacing and limitation programs. Lecture, two hours; laboratory, eight hours. Prereq: NUR 850.

NUR 864 MANAGEMENT OF NURSING CARE. (2)
An introduction to management functions, principles of

administration, leadership roles and the process of change as they relate to nursing. Prereq: NUR 854.

NUR 866 IMPLICATIONS OF DRUG THERAPY FOR NURSES. (3)
The study of actions and reactions of medications frequently used as therapeutic agents. Prereq: NUR 854.

NUR 868 PRIMARY CARE NURSING. (6)
An introduction to primary care nursing. Focuses on health promotion, health maintenance, prevention of illness and evaluation and management of common acute and chronic health problems. Incorporates collaborative skills, group teaching, and program planning for communities utilizing the nursing process and epidemiological principles. Laboratory experiences with various age groups in a variety of ambulatory and community settings. Student will plan, implement and evaluate a health care program. Lecture, three hours; laboratory, six hours. Prereq: NUR 852, BSC 331, STA 200.

NUR 870 ADVANCED MIDWIFERY. (6)
This course includes recognition and care of deviations from normal throughout the pregnancy cycle. Emphasis is placed on the role of the nurse midwife in providing intrapartal care. Management of the newborn immediately following birth and during the period of hospitalization is included. Lecture, two hours; laboratory, eight hours. Prereq: NUR 850, 860.

NUR 871 FIELD PRACTICUM IN MIDWIFERY. (8)
Indepth clinical experience is provided in intrapartal care throughout one academic semester. Competency must be demonstrated during all phases of labor, delivery and after-care during this concentrated laboratory experience. Lecture, two hours; laboratory, 12 hours. Prereq: NUR 850, 860, 870.

NUR 872 NURSING IN A SECONDARY CARE SETTING. (7)
The application of management functions, principles of administration, and principles of teaching and learning in secondary care settings. Considers theoretical and practical aspects of a variety of methods for delivering professional nursing care. Laboratory experience in the nursing management of patients with complications and long term effects of episodic illnesses. Lecture, three hours; laboratory, eight hours. Prereq: NUR 852, BSC 331, STA 200.

NUR 874 TERTIARY CARE NURSING. (7)
An introduction to tertiary care nursing. Focuses on the nursing management of individuals and groups with acute, life threatening, and/or complex health problems. Laboratory experience includes assessment, implementation, and evaluation of nursing care. Lecture, four hours; laboratory, six hours. Prereq: NUR 852, BSC 331, 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: NUR 868, NUR 872, or NUR 874, or consent of instructor.

NUR 880 CLINICAL PRACTICUM. (8)
Intensive supervised practice in the concepts and theories of nursing in the student's previously selected area of concentration. Lecture, one hour; laboratory, 14 hours. Prereq: NUR 866 and NUR 868 or NUR 872 or NUR 874.

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. Prereq: Approval of sponsoring instructor and associate 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 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 PLANNING AND SERVICE. (3)
To give students experience in planning and buying foods within different economic levels. Stress work simplification and social, cultural and personal aspects of family meal planning and dining. Develop creative expression in preparation and service of meals for all occasions. 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 and CHE 105; CHE 107. May be taken concurrently.

NFS 311 NUTRITIONAL BIOCHEMISTRY. (4)
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. Lecture, three hours; laboratory, three hours. Prereq: CHE 236; 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 311.

NFS 340 INSTITUTION MARKETING. (3)
Economics of food and supplies for institutions. Factors that influence selection and purchase. Field trips to wholesale houses, distribution centers and food production plants. Lecture, two hours; laboratory, two hours. Prereq: ECO 260.

NFS 342 INSTITUTION FOODS. (4)
Large quantity food preparation and service. Using modern equipment in preparation of large quantitites of food. Food cost accounting, job analysis, and time studies. Lecture, two hours; laboratory, four hours. Prereq: NFS 204.

NFS 344 FOOD SERVICE ACCOUNTING. (3)
Application of accounting principles to food service in the cafeteria, lunch room, tea-room, restaurant, residence hall, hospital and other institutions. Lecture, one hour; laboratory, four hours. Prereq: NFS 340; ECO 260.

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. Prereq or concur: NFS 312. May be repeated to a maximum of six credits.

NFS 505 EXPERIMENTAL FOODS. (3)
Study of factors that affect results obtained in cooking and food preparation processes. Experimental work under controlled conditions. Lecture, one hour; laboratory, four hours. Prereq: NFS 204, 311.

NFS 507 WORKSHOP IN APPLIED NUTRITION. (2)
The application of scientific knowledge of nutrition to the promotion of positive health. Emphasis is given to communications techniques and their use in field work.

NFS 508 SEMINAR IN NUTRITION. (1)
Investigations of recent research in nutrition. Prereq: Senior or graduate standing. May be repeated to a maximum of three credits.

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 FOOD FOR CHILDREN. (3)
Experience in selection, preparation and serving of food to young children. Emphasis is placed on the preschool age and the factors important to establishing good food habits. Prereq: NFS 101, 206, FAM 255 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 540 THE SCHOOL LUNCH. (3)
Designed for teachers who manage the lunch room. Consideration is given to equipment, menus, purchase, storage, preparation and service of food. Lecture, two hours; laboratory, two hours. Prereq: NFS 204, ECO 260.

NFS 542 INSTITUTION EQUIPMENT. (3)
Selection, arrangement, cost and care of equipment; problems of lighting, heating, ventilation and refrigeration. Two field trips are taken to neighboring cities to see eyuipment in use in institutions. 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.

NFS 548 INSTITUTION ADMINISTRATION. (3)
Applications of scientific principles are developed in various aspects of food service management. Prereq: Consent of instructor. May be repeated to a maximum of nine credits.

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 NUTRITION AND FOOD SCIENCE. (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: Statistics 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. Prereq: NFS 503. May be repeated to a maximum of six credits.

NFS 610 HUMAN NUTRITION I. (4)
The application of biochemical, analytical and preparative analysis of blood, urine and tissues to the analysis of nutrient metabolism and human health

status. Lecture, two hours; laboratory, six hours. Prereq: NFS 311, CHE 236, NFS 512.

NFS 620 PROTEIN AND AMINO ACIDS IN HUMAN NUTRITION. (3)
A study of the nutritional quality of protein in various food products and the methods used in protein quality determination. Factors affecting the bioavailability of proteins and amino acids in the human requirements of these nutrients, protein digestion, amino acid absorption and metabolism and the alteration of these processes in disease states and dietary management of these nutrients. Prereq: NFS 510 or equivalent.

NFS 660 NUTRITIONAL IMPLICATIONS OF TOXICANTS IN FOODS. (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 512 or equivalent.

NFS 685 MINERAL METABOLISM. (2)
An indepth 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 512 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 801 PROFESSIONAL DIETETICS I: ORIENTATION. (1)
Identification of the development and role of dietetics as a profession, and the multiple scope of a dietitian in general dietetics; includes evaluation of personal and professional qualifications of a dietitian. Clinical, three hours. Prereq: Admission to Coordinated Undergraduate Program in dietetics.

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 socio-economic 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 311.

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.

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 NUTRITION AND DIET THERAPY. (7)
Application of principles of biochemistry and physiology in study of nutrient metabolism under normal conditions and as altered by disease; includes uses of diet in treatment of disease. Clinical experience in diet therapy includes planning, preparation and service of patient meals and patient education. Four hours lecture per week; nine clinical hours per week. Prereq: NFS 806.

NFS 813 FOOD SERVICE SYSTEMS II. (7)
Philosophy and functions of management in food service organizations; policy making, financial control, inventories, budgets, personnel and supervision; includes management experience in campus food services. Four lecture hours per week; nine clinical hours per week. Prereq: 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.

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 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 310 PHARMACEUTICAL ANALYSIS AND CONTROL. (5)
A study of the quantitative analytical techniques commonly used to assure the potency, quality, and stability of raw materials and finished pharmaceutical dosage forms. Lecture, four hours; laboratory, three hours. Prereq: CHE 107 or equivalent.

PHR 330 PHARMACOGNOSY. (3)
A study of immunological antibiotic, allergenic, endocrine and related proteinaceous products. The processing, standardization, and utilization of these products are discussed in relation to the appropriate infectious and pathological disease conditions. Antiinfectant chemical agents are discussed also. Prereq: CHE 232, BIO 104, BIO 105, 106, 107, 108 and 109.

PHR 334 PHYSIOLOGY AND PHARMACODYNAMICS. (5)
Basic human anatomy and physiology with strong emphasis on the functioning of the nervous, muscular, endocrine, excretory, respiratory, circulatory, digestive and reproductive systems, including principal anomalies of these systems and the pharmacodynamics of typical drugs. Lecture, four hours; laboratory, three hours. Prereq: BIO 104, 105 and CHE 232 and PHY 213.

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 342 PHARMACOGNOSY. (4)
A study of important drugs of vegetable and animal origin. The pharmacological and chemical nature, economic importance, extraction and biosynthesis of these products is discussed with suitable background material. Lecture, three hours; laboratory, three hours. Prereq: CHE 232, BIO 104, 105, 106, 107, 108 and 109.

PHR 346 PHYSIOLOGY AND PHARMACODYNAMICS. (5)
A continuation of PHR 334. Lecture, four hours; laboratory, three hours. Prereq: PHR 334.

PHR 380 ENVIRONMENTAL TOXICOLOGY. (2)
This course is concerned with the recognition, evaluation, and control of toxicologic factors arising in man's environment; their influence on the health and well-being of the citizen and the community. Measures currently employed or under investigation for the control, elimination, or mitigation of biologic, physical, and toxicologic factors deleterious to man and his environment will be considered. Prereq: PHR 863 or consent of instructor.

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 450G PHARMACOLOGY AND TOXICOLOGY. (4)
A presentation of the pharmacodynamic actions, modes of administration, toxic manifestations of drugs, and the relationship of pharmacodynamic action to therapeutic use. Lecture, four hours; laboratory, two hours. Prereq: BCH 401G and PHR 400 or equivalent, or consent of instructor.

PHR 462 PHARMACOLOGY AND TOXICOLOGY. (5)
A continuation of PHR 450G. Lecture, four hours; laboratory, two hours. Prereq: PHR 450G 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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

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 530 PRACTICE OF RADIOPHARMACY. (3)
Basic theory and methods in nuclear instrumentation and radionuclide labeling of agents utilized in nuclear medicine. Quality control of labeled pharmaceuticals and calculation and measurement of radiation dose absorbed by both the patient and the personnel involved in preparing and dispensing radiopharmaceuticals. Laboratory: 18 hours per week. Prereq: CHE 520

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 type 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 846 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. (2)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of mathematical models for these processes and application of techniques such as analog simulation. Prereq: PHA 521, 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 624 BIOTOXICOLOGY. (3 or 5)
An advanced course in toxicology and toxicodynamics concerned with the sources, isolation, purification, identification, as well as the physiologic effects on man, animals, and plants of the various toxic substances encountered in the occupations, home, as well as rural and urban environments. Special attention will be given to type compounds as well as structure-activity relationships. Lecture, three hours; laboratory, four hours. Prereq: BCH 514, 515, CHE 532, PHA 521 and PGY 503 or PHR 334 and 346; or consent of instructor.

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 632 PHARMACEUTICAL DISPERSE SYSTEMS. (3)
The theoretical considerations basic to the technology of pharmaceutical disperse systems. Topics include colloidal dispersions, suspensions, emulsions, and rheology. Prereq: Physical chemistry.

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 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 the pharmaceutical sciences. Required of all graduate students. 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 845.

PHR 805 PHARMACEUTICAL CALCULATIONS. (3)
A systematic study of arithmetical problems encountered in pharmacy.

PHR 810 PHARMACY AND THE HEALTH CARE SYSTEM. (2)
A study of philosophy of health care and the relationship of pharmacy to the health needs of society. Consideration is also given to the development of pharmacy as a profession, its present status in health care and its future challenge. Orientation to the Medical Center and the Clinical Pharmacy Programs is also stressed.

PHR 814 PATIENT CARE SERVICES AND CLINICAL PHARMACY PRACTICE. (2)
An introduction to the clinical environment, medical practices, and other health care services. The various health care services and their interrelationships in patient care are stressed. Considerable emphasis is given to the methodology used by the clinical pharmacist, his contributions to patient care, and how he interacts with the other health professions. Prereq: PHR 346 and PHR 810.

PHR 815 INTRODUCTION TO PHARMACEUTICAL SYSTEMS. (4)
This course is designed to give the student an understanding of technology useful in the preparation of the principal type of dosage forms of drugs. Lecture, three hours; laboratory, three hours.

PHR 820 PRESCRIPTION COMPOUNDING AND DISPENSING. (4)
The application of principles presented in previous pharmacy courses to the compounding techniques necessary for today's prescription practice. Lecture, three hours; laboratory, three hours. Prereq: PHR 310, 340, 815, 845.

PHR 824 HUMAN PATHOLOGY. (4)
This course constitutes a general survey of human disease with particular emphasis on diseases of interest to dental students. Lecture, 32 hours; laboratory, 97 hours. Prereq: Consent of instructor.

PHR 825 PHYSICAL PHARMACY. (2)
A study of quantitative or theoretical principles as they apply to pharmacy. The course is intended to provide a basis for analyzing and interpreting the physical and chemical aspects of systems of interest to pharmacists. Lecture, two hours. Prereq: Admission to the College of Pharmacy.

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. (3, 6, or 9)
This externship provides the student with an integrated practice experience in the provision of nuclear pharmaceutical services in various practice settings. Each three-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 three credits. May be repeated to a maximum of nine credits. Prereq: PHR 827 and consent of instructor.

PHR 830 PHARMACY ADMINISTRATION. (3)
An examination of the socio-economic factors and trends affecting pharmacy practice. The channels of distribution, the pharmaceutical industry and the consumer are considered. Stressed also is the development of a basic knowledge of the administrative aspects of pharmacy practice. Prereq: ECO 260.

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 PRACTICE. (3)
An introduction to the economic, administrative, and professional considerations in owning a pharmacy or practicing in a community pharmacy. Prereq: PHR 830.

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: 3 hours; laboratory: 4 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, functions, 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 drug literature evaluation. 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: 3 hours; laboratory: 4 hours. Prereq: PHR 848; demonstration of competency in pharmaceutical calculations.

PHR 850 PHARMACEUTICAL TECHNOLOGY CLERKSHIP. (4)
Physiochemical theory and pharmaceutical methods involving drug efficacy, safety and administration in institutional pharmacy. Lecture, lab and clerkship include sterile product formulation, parenteral admixture, hyperalimentation therapy, unit-dose packaging, radiopharmaceutical preparation and control, drug and device sterilization, decontamination, special formula compounding, and quality control. The lecture-lab sessions are supported by clerkship experiences in an institutional setting. Lecture, one hour; lab-clerkship, six hours. Prereq: PHR 825, consent of instructor.

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 scientic 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; co-requisite, 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. Prereq: PHR 337

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. Prereq: PHR 852, PHR 853, PHR 854, and PHR 856.

PHR 862 PHARMOCOTHERAPEUTICS I. (7)
A presentation of the physiochemical properties, syntheses, pharmcodynamic mechanisms, toxicology mechanisms, and therapeutic applications of modern drug products, with emphasis on structure-activity relationships and the application of pharmaceutical/pharmacological principles in rational therapeutics. Prereq: PHR 346.

PHR 863 PHARMACOTHERAPEUTICS II. (7)
A continuation of PHR 862. A presentation of the physiochemical properties, syntheses, pharmacodynamic mechanisms, toxicological mechanisms, and therapeutic applications of modern drug products, with emphasis on structure-activity relationships and the applications of pharmaceutical/pharmacological principles in rational therapeutics. Prereq: PHR 862.

PHR 869 RESIDENCE CREDIT FOR THE PHARM. D. DEGREE. (0-12)
May be repeated indefinitely.

PHR 870 CLINICAL ORIENTATION CLERKSHIP. (8)
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. Laboratory, 48 hours a week for eight weeks. Prereq: PHR 849, PHR 852, PHR 853, PHR 854, and PHR 856. Offered for letter grade credit only (A, B, C, D, E, I).

PHR 872 NON-PRESCRIPTION PHARMACEUTICALS AND SUPPLIES. (3)
A study of various non-prescription 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 876 DISEASE PROCESSES AND ADVANCED PHARMACOTHERAPEUTICS I. (8)
An interdisciplinary course in which indepth study of specific disease processes, especially the quantifiable, pathognomonic parameters permit the student to develop concurrently a unique expertise in the application of pharmacotherapeutic knowledge to clinical drug use. Prereq: PHR 852, PHR 853, PHR 854 and PHR 856; co-requisite: PHR 874.

PHR 878 DISEASE PROCESSES AND ADVANCED PHARMACOTHERAPEUTICS II. (8)
A continuation of PHR 876. An interdisciplinary course in which indepth study of specific disease processes, especially the quanitifiable, pathognomonic parameters permit the student to develop concurrently a unique expertise in the application of pharmacotherapeutic knowledge to clinical drug use. Prereq: PHR 876.

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 hospitals. 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. (3, 6, 9, or 12)
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 three-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 three credits. May be repeated to a maximum of 12 hours. Prereq: PHR 849, PHR 852, PHR 853, PHR 854, PHR 856 and permission of instructor. Offered on a pass/fail basis only.

PHR 882 PHARMACY PRACTICE CLERKSHIP: MEDICINE. (6)
A clinical experience in the use of drugs in the diagnosis, treatment and management of diseases in hospitalized patients. Experience will be obtained in general medicine wards. Emphasis is placed on the rationale of drug therapy. Prereq: PHR 874, 875, 878.

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 874, 875, 878.

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 874, 875, 878 and with consent of instructor.

PHR 886 POISON INFORMATION AND CONTROL. (2)
An autotutorial course designed to prepare pharmacists to function as poison information specialists. Subject matter includes basic management of poisonings due to drugs and chemicals; the role of a poison information specialist; sources of poison information; organization and operation of poison control centers. Prereq: PHR 863.

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. Prereq: Admission to the Doctor of Pharmacy program. May be repeated to a maximum of two credits.

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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

PHILOSOPHY

PHI 100 INTRODUCTION TO PHILOSOPHY. (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 INTRODUCTORY ETHICS. (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 WESTERN PHILOSOPHY I. (3)
An introductory study of the development of Western philosophy from ancient through late medieval times in-

cluding systematic work in logic, metaphysics, epistemology and ethics by such philosophers as Plato, Aristotle, Augustine and Aquinas.

PHI 270 HISTORY OF WESTERN PHILOSOPHY II. (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 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 non-human? What kind of relations tie a human being to environment, society, and history?

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 of analysis which are necessary for further study in logic as well as useful for addressing complex issues in philosophy and other areas.

PHI 332 ETHICS AND HUMAN REPRODUCTION. (3)
An examination of a cluster of bioethical issues related to human reproduction. Among topics considered are abortion, genetic screening and engineering, infanticide of defective newborns, and policies to limit population growth.

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 340 RELIGIOUS COMMITMENT AND MORAL DECISION. (3)
Aa critical appraisal of ethical issues, both theoretical and practical, that arise from religious perspectives. These include the relation of the religious to the secular, the moral role of peculiarly religious conceptions (e.g., Judeo-Christian conceptions of sin), and moral implications to be drawn from religious foundations.

PHI 350 DEATH, DYING AND THE QUALITY OF LIFE. (3)
A philosophical and interdisciplinary investigation of a cluster of prominent issues about the meaing of life and death, care 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 395 INDEPENDENT WORK. (3)
Open only to students who have distinguished themselves in philosophy or in allied subjects. Prereq: Major and standing of 3.0 in department. May be repeated to a maximum of 12 credits.

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, the 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. Prereq: Consent of instructor and department chairman; completion of a departmental learning agreement.

PHI 430G 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 440 GREAT RELIGIONS. (3)
A descriptive survey of several religions as they developed within their culture, for example, Hinduism, Buddhism, Confucianism, Judaism, Christianity.

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 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.

PHI 518 REPRESENTATIONS OF NATURE. (3)
Issues in the history of philosophy and science. Study of a selected topic from the vantage points of history of philosophy and history of science. A topic will be chosen from the following or other related themes: theories of space and time, scientific methodology, perception and experiment in the 17th century, 19th century science and philosophy. May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as HIS 518.)

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 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 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 work 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.

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.

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 METAPHYSICS. (3)
An attempt to discover "beyond physics" the general principles of all existence. Questions of comprehensive world views will be discussed along with issues such as space, time, freedom, causality and the nature and existence of matter, spirit and God. Prereq: Two courses in philosophy or consent of instructor.

PHI 555 PROBLEMS OF KNOWLEDGE. (3)
A systematic examination of what human knowledge is. Basic issues such as evidence, belief, certainty, perception and the justification of knowledge will be discussed. These topics will be treated in relation both to practical situations and to problems that arise in the social and natural sciences.

PHI 560 PHILOSOPHY OF SCIENCE. (3)
An examination of the logical and epistemological foundations of empirical science, including fundamentals of concept formation, criteria of cognitive significance, logic of explanation and prediction, and testing and confirmation of theories and laws. Prereq: PHI 120 or equivalent or consent of instructor.

PHI 562 PHILOSOPHY OF THE SOCIAL SCIENCES. (3)
An examination of various methodogical 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 cate-

gories as consciousness, feeling, emotion, perception, imagination, thinking and will.

GRADUATE SEMINARS

PHI 625 ADVANCED LOGIC. (3)
Intensive study of selected topics arising from propositional as well as lower and higher order predicate logic, e.g., modal logic, many-valued logic, quantification theory, class logic and paradoxes. The course will stress the diversity of approaches to these issues within formal logic. Prereq: PHI 520 or consent of instructor.

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. (3)
Intensive examination of one or more specific topics in the methods and problems of metaphysical inquiry, such as conceptions of time and space, the nature of human action, process vs. substance accounts of reality, problems of reference and modality, etc., either in classical or contemporary formulations of the issues, or both. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PHI 655 SEMINAR IN THEORY OF KNOWLEDGE. (3)
A specialized graduate seminar focusing on certain prominent issues in Theory of Knowledge, such as, the question of certainty, the source(s) of knowledge, the analytic-synthetic distinction. May be repeated to a maximum of six credits. 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 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 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 805 NORMAL FUNCTIONAL ANATOMY. (3)
A regional study of the normal functional aspects of the neuromusculoskeletal system, 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 hydrotheraphy 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. Prereq: Admission to the physical therapy curriculum. Offered on a pass-fail basis only.

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)
A general orientation to the fields of physical therapy and rehabilitation with their history, development, national organizations, and place in patient care. Instruction is given in basic skills, including patient handling, range of motion, positioning, draping, and ambulation training. Students perform elementary procedures in the laboratory, observe and perform patient care under supervision. Prereq: Admission to the physical therapy curriculum or consent of instructor. Offered on pass-fail basis only.

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. Prereq: PT 834, ANA 801, ANA 811, ANA 813, BIO 350 or consent of instructor. Offered on a pass-fail basis only.

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 to 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)
Supervised internship through which the student acquires understanding and skill in physical therapy procedures. Offered on a pass-fail basis. 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 replacement, muscle transplants and tendon repairs, will be presented. Prereq: PT 805, PT 815, HAE 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. (1-2)
Includes an overview of therapeutic exercise and its relation to patient management and development of skill in basic therapeutic exercise techniques for strengthening, relaxation, and mobilization. Lecture, one hour; laboratory, two hours. Prereq: ANA 811, BIO 350 or consent of instructor.

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. (2)
This course is designed to introduce the physical therapy student to methods of evaluating the status of muscle and nerve within the parameters of their electrical characteristics. Included are theories and rationale for tissue excitability tests, nerve conduction velocities and electromyography. Prereq: PT 815, ANA 802 or consent of instructor.

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 therapy evaluation and treatment techniques for respiratory problems, cardiac arrhythmias, myocardial infarction rehabilitation, and various cardiac stress tests. Prereq: ANA 811, BIO 350, AHE 854.

PT 887 INTRODUCTION TO PHYSICAL THERAPY ADMINISTRATION. (1)
Introduction to basic management techniques and philosophy. Includes nature of management, planning, organizing, controlling, standards and appraisal, objec-

tives, task analysis, and job design. Prereq: PT 834 or consent of instructor.

PT 888 ADVANCED PHYSICAL THERAPY ADMINISTRATION. (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.

Note: See also ANA 801, 802.

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 100 BASIC CONCEPTS IN CLASSICAL AND CONTEMPORARY PHYSICS. (3)
Basic concepts in classical as well as modern physics will be covered in this one-semester course. Topics such as elementary particles and the theory of relativity will be introduced at an elementary level. Credit is not given to students who already have credit for PHY 201, 211 or 231.

PHY 105 PHYSICS 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 130 PHYSICS OF ENERGY. (3)
Energy sources, such as fossil fuels; nuclear, solar and hydo electric power are discussed in the context of the basic laws of physics which govern their uses and limitations. Concepts convered include kinetic and potential energy, heat, radiation, and mass-energy equivalence. Credit is not given to students who already have credit for PHY 201, 211 or 231.

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, and 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 205 PHYSICS FOR LIFE SCIENCES I. (4)
Same as PHY 215, but without laboratory. Credit is not given to students who already have credit for PHY 201 or 211 or 215 or 231. Prereq: A working knowledge of algebra as obtainable, for example, in MA 109, MA 123 or MA 131; or demonstrated by an ACT standard score in mathematics of at least 25.

PHY 207 PHYSICS FOR LIFE SCIENCES II. (4)
Same as PHY 217, but without laboratory. Credit is not given to students who already have credit for PHY 203 or 213 or 217 or 232. Prereq: PHY 205 or equivalent.

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 215 PHYSICS FOR LIFE SCIENCES I. (5)
An elementary course covering the mechanics of solids, liquids, and gases; and heat with applications to and examples from the life sciences. Credit is not given to students who already have credit for PHY 201 or 211 or 205 or 231. Lecture: two hours; discussion: two hours; laboratory: two hours. Prereq: A working knowledge of algebra as obtainable, for example, in MA 109, MA 123, or MA 131; or demonstrated by an ACT standard score in mathematics of at least 25.

PHY 217 PHYSICS FOR LIFE SCIENCES II. (5)
Continuation of PHY 215, covering electricity and magnetism, optics, and radiation with applications to and examples from the life sciences. Credit is not given to students who already have credit for PHY 203 or 213 or 207 or 232. Lecture: two hours; discussion: two hours; laboratory: two hours. Prereq: PHY 215 or equivalent.

PHY 231 GENERAL UNIVERSITY PHYSICS. (3)
An advanced general course covering the mechanics of solids, liquids, and gases; heat; and sound. Lecture, two hours; recitation, two hours. Prereq or concur: MA 114.

PHY 232 GENERAL UNIVERSITY PHYSICS. (3)
An advanced general course covering electricity, magnetism, and optics. Lecture, two hours; recitation, two hours. This course is prerequisite to a significant number of courses in this and related areas of study. Prereq: PHY 231; concur: MA 231.

PHY 241 GENERAL UNIVERSITY PHYSICS LABORATORY. (2)
An advanced general laboratory course involving experiments on the mechanics of solids, liquids, and gases; and heat. Prereq or concur: PHY 231.

PHY 242 GENERAL UNIVERSITY PHYSICS LABORATORY. (2)
An advanced general laboratory course involving experiments on electricity, magnetism, sound and light. Prereq: PHY 241; concur: PHY 232. This course is prerequisite to this and related areas of study.

PHY 361 PRINCIPLES OF MODERN PHYSICS. (3)
An introduction to the principles of special relativity, and elementary concepts of quantum mechanics in conjunction with selected topics in atomic and nuclear physics. Prereq: MA 113, PHY 211 or 231, PHY 213 or 232. Note: If necessary, PHY 213 or 232 may be taken concurrently with PHY 361.

PHY 362 PRINCIPLES OF MODERN PHYSICS. (3)
A continuation of PHY 361 with additional development of the concepts of quantum mechanics in conjunction with selected topics in solid state and elementary particle physics. Prereq: 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.

PHY 400 SPECIAL TOPICS IN PHYSICS AND ASTRONOMY. (1-3)
Topics in undergraduate physics such as acoustics, kinetic theory, history of physics, thermoelectricity, laser physics, radioastronomy, elementary particles, and nucleosynthesis. May not be applied to physics major requirements. May be repeated to a maximum of six credits. Prereq: PHY 361 and MA 214. (Same as AST 400.)

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)
Sources of radiation; penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; radiation detection and spectroscopy; dosimetry of ionizing radiations. (Note: Not open for graduate credit to graduate students in Physics and Radiation Medicine.) Prereq: PHY 361. (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 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 510 SPECTROSCOPY. (3)
A lecture and problems course dealing with the production, recording, measuring, and interpretation of atomic and molecular spectra. Topics include basic principles of atomic structure, spectrographs, photometry, interpretation of spectra in fields of atomic structure and spectrographic analysis. Prereq: PHY 232, 242 or 213; MA 213.

PHY 512 EXPERIMENTAL PHYSICS: ELECTRICITY AND MAGNETISM. (2)
An advanced laboratory course in electrical measurements. Special projects are elected by the student to explore certain physical relations through standard electrical measurements. Prereq: PHY 416G.

PHY 514 ELECTRONICS. (3)
A lecture and laboratory course on the theory and application of solidstate and vacuum tube electronic devices. Lecture, two hours; laboratory, two hours. Prereq: PHY 416G.

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 application. 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 232, 242 or 213; MA 213.

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 insulator, 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, alpha-particle 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 non-ionizing radiations. Lecture: two hours; laboratory: two hours. Prereq: One year college physics. (Same as HRS/RM 545.)

PHY 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (2)
Following a mathematics and physics review, the nature, origin, uses and dosimetric aspects of radiation will be discussed. Application in the fields of diagnostic radiology, therapeutic radiology and nuclear medicine will be emphasized. Prereq: PHY 361 or consent of instructor. (Same as RM 546.)

PHY 547 MEDICAL RADIATION IMAGING—I PHYSICAL ASPECTS OF DIAGNOSTIC RADIOLOGY. (2)
Medical radiation and the generation of information; x-ray circuits and operation of the x-ray apparatus; the radiological image and the retrieval of information; x-ray image intensification; image intensifiers; fluoroscopy; cinefluorography; special procedures and patient dosimetry. Prereq: PHY 361, or RM 546 or consent of instructor. (Same as RM 547.)

PHY 548 THE PHYSICS OF RADIATION THERAPY. (2)
The terminology and advanced methods of treating various diseases using beam devices such as x-rays, Co-60, and linear accelerators as well as brachytherapy (interstitial and intracavitary implantation of radioactive sources). Emphasis will be placed upon "treatment planning" including dose calculation and methods of optimizing tumor to healthy tissue dosage by both hand and computer methods. Prereq: PHY 361 or RM 546 or consent of instructor. (Same as RM 548.)

PHY 549 THE PHYSICS AND INSTRUMENTATION OF NUCLEAR MEDICINE. (3)
A lecture and laboratory course designed to cover the basic principles of nuclear medicine with emphasis on the instrumentation and techniques used. Topics covered include rectilinear scanners, collimator design, scintillation cameras, the autoflouroscope, positron scanners and cameras, the application of minicomputers, and special procedures and patient dose. Lecture, two hours; laboratory, two hours. Prereq: PHY 361 or consent of instructor. (Same as RM 549.)

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: Consent of instructor and senior standing. (Same as EE 567.)

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 problems 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 631 ATOMIC STRUCTURE. (3)
A lecture and problem course treating the theory of atomic structure. Topics include atomic and molecular spectra, multiple structure, interatomic and intermolecular forces, and quantum mechanical treatment of the vector model. 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, 640 THEORETICAL ASTROPHYSICS. (3 ea.)
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 706 METHODS OF MATHEMATICAL PHYSICS. (3)
Solution of physical problems systematized according to the equations they satisfy. Variational methods, boundary conditions, eigenfunctions. Green's function, integral representations, approximation procedures, with applications from electromagnetic theory, quantum mechanics, acoustics. Prereq: Consent of instructor.

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 755 TOPICS IN CHEMICAL PHYSICS (SUBTITLE REQUIRED). (3)
An introduction to current research areas in chemical physics. Topics may include theory of atomic spectra, atomic and molecular processes, molecular theory, electrons and phonons in crystals, and optical properties of metals. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor. (Same as CHE 755.)

PHY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated to a maximim 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 375 INTRODUCTION TO PLANT DISEASES. (3)
The principles of plant pathology, prevention and control of plant diseases, and a survey of plant disease problems in Kentucky. Prereq: One semester of botany or equivalent.

PPA 401 AGRI-CHEMICALS IN PEST MANAGEMENT. (3)
A study of the problems leading up to usage of pesticides followed by an introduction to the classes of pesticides, selection and use of pesticides in pest management programs. Prereq: ENT 310 or 320, CHE 230 or 236, AGR 404, PPA 375. (Same as AGR 401 and ENT 401).

PPA 410 FOREST PATHOLOGY. (3)
Symptomatology, epidemiology, host-pathogen relation and control of selected diseases of forest trees. Lecture, two hours; laboratory, two hours. Prereq: BIO 106 and 107, BIO 200 and 201 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 543 DISEASES OF PLANTS. (3)
Symptoms, causes, and control of some of the more common representative plant diseases. Students may select disease problems in their major field of interest. Recitation, one hour; laboratory, four hours. Prereq: PPA 575 or BIO 575 or equivalent; consent of instructor.

PPA 545 EPIDEMIOLOGY AND CONTROL OF PLANT DISEASES. (3)
Principles and practices in epidemiology and control of plant diseases by biological and chemical means. Prereq: PPA 575 or BIO 575.

PPA 558 NEMATODE DISEASES OF PLANTS. (3)
Importance, effects, recognition and control of nematodes that cause diseases of plants of major economic value. Lecture, two hours; laboratory, two hours. Prereq: BIO 101 or BIO 106 or consent of instructor.

PPA 575 PLANT PATHOLOGY. (3)
Significance, nature, causes, and methods of control of plant diseases. Lecture and discussion, two hours;

laboratory, two hours. Prereq: One semester of botany or equivalent. (Same as BIO 575.)

PPA 640 IDENTIFICATION OF PLANT DISEASES. (3)
Recognition and identification of plant diseases and their causes and development. The course is designed to give each student practical experience in dealing with a wide array of plant diseases, symptom expressions, causal agents and interactions with 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 575 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 575 or BIO 575 or consent of instructor.

PPA 656 VIRUS DISEASES OF PLANTS. (4)
Characteristics and properties of viruses that cause plant diseases; host-virus relationships; identification and control of some important virus diseases; consideration of research methods. Lecture and discussion, two hours; laboratory, four hours. Prereq: PPA 575 or BIO 575, or consent of instructor.

PPA 660 PHYSIOLOGY OF PLANT DISEASES. (3)
Lectures, discussions, and independent reading on biochemical and physiological aspects of plant disease and of disease resistance and immunity in plants. Prereq: PPA 575 or BIO 575 and BCH 511 or BIO 735.

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 (IN BIOLOGICAL SCIENCES). (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 575 or BIO 575 or equivalent; consent of instructor.

PPA 794 RESEARCH IN PLANT PATHOLOGY. (1-4)
May be repeated to a maximum of 12 credits. Prereq: PPA 575 or BIO 575, or consent of instructor.

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 105 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.

PS 200 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 201 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 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 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 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 chairman 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.

PS 411G COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES I. (3)
A study of the governments of Britain and selected Commonwealth countries.

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 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 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 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 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 policy-making 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. (1-3)
Course will focus on selected topics drawn from various areas of political science taught by faculty members with special interest and competence. May be repeated in courses of differing topics to a maximum of six credits.

PS 515 COMPARATIVE POLITICAL PARTIES. (3)
A comparative cross-national study of the organization and function of political parties within their historical, socio-economic, cultural and political contexts.

PS 525 COMPARATIVE STUDY OF POLITICAL VIOLENCE. (3)
A study of the phenomena of revolution and terrorism as political behavior, including an assessment of the psychological and philosophical context of political violence; historical case studies; and an examination of social science efforts to explain political violence.

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)
The relations between the United States and the Latin American countries, with an emphasis on current issues of Pan-Americanism.

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 547 MICRO-THEORY IN POLITICAL SCIENCE. (3)
Intermediate analysis in political theory at the micro level. Using the individual as the unit of analysis, this course will look intensively at theories of individual choice behavior in political settings (political psychology) and social choice behavior (political economy). Prereq: PS 201.

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 555 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 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 and consent of instructor.

PS 572 POLITICAL CAMPAIGN STRATEGY AND TECHNIQUES. (3)
This course is designed to provide practical information on political campaigning: the collection and analysis of data, the organization and financing of campaigns, the use of media, and the planning of strategies. Prereq: Junior standing and consent of instructor.

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 588 PUBLIC PERSONNEL ADMINISTRATION. (3)
A study of the merit system in public administration, various career systems, recruitment, position classification, pay policies, employee relations and morale, tenure, promotion, transfer, and training in the public service, collective bargaining, composition of and attitudes toward public service, public service responsiveness, and manpower planning.

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 613 STATE LEGISLATURES. (3)
A comparative analysis of American State Legislatures, with a practical orientation, focusing on such topics as organization, procedures, staffing relations with the executive, and the job of the legislature. Prereq: Consent of instructor.

PS 614 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 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 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 CURRENT RESEARCH IN POLITICAL SCIENCE. (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. Student involvement in research is expected. Students are expected to develdp independent research projects in the topical areas. May be repeated to a maximum of nine credits but no more than three credits may be earned under the same topic. . 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 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. (1-12 credits equivalence.)

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 776 SEMINAR IN POLITICAL DEVELOPMENT. (3)
Study of the processes of political change; concepts; approaches; and methodology; problems of political development; research problems in studying political development. The geographical focus of this course will vary from time to time. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

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 778 SEMINAR IN COMPARATIVE FOREIGN POLICIES. (3)
Emphasis upon internal and external factors impinging upon decision making in the area of foreign policy. May be repeated to a maximum of six hours with consent of instructor.

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 784 SEMINAR IN POLITICAL SOCIALIZATION. (3)
A course in contemporary research in the acquisition of political orientations. The focus is on children. The objects, agents, and consequences of political socialization are analyzed, as well as the processes by which it may proceed. Some attention is given to research design appropriate to the area. Prereq: Graduate student status.

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 791 THE ORGANIZATION AS A POLITICAL SYSTEM. (3)
Theoretical concepts pertaining to the design of organizational structures and the prediction and control of administrative behavior, including detailed analysis of the models evolving from traditional, behavioral and decision-making approaches to the study of administrative organization. Major emphasis on such concepts as those relative to power and its allocations, leadership, representation and policy formation. Student work will include participation in research projects as well as extensive reading in the field of organization theory. Prereq: PS 487G or equivalent.

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.

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 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. (3)
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. 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. (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. Prereq: Consent of instructor and department chairman; 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. May be repeated to a maximum of 12 credits (if applicable).

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. No prerequisite.

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: PSY 100; SOC 101. (Same as SOC 444G.)

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 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 language, with attention to the phonological, syntactical and semantic components. Relevance of various linguistics theories and adequacy of experimental methods will be critically examined. Prereq: PSY 100 or consent of instructor.

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.

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.

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. (Same as SOC 545.) Prereq: PSY 100 and one introductory course in sociology.

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 601 THEORIES OF LEARNING. (3)
A systematic presentation and critical analysis of the major theories of learning. Prereq: PSY 525, 550 or equivalent.

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 psychology.

PSY 610 PSYCHOMETRICS. (3)
Analysis and interpretation of human measurements. The course deals with the computation and interpretation of simple, partial, and multiple correlations, regression equations, and reliability of measures. Prereq: A course in statistics.

PSY 611 PSYCHOLOGICAL RESEARCH. (3)
A study of the application of experimental methods in the major areas of psychology, including sensation and perception, learning, motivation, emotion, and personality. The design of research studies will be emphasized. Prereq: PSY 610.

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: Admission to graduate program.

PSY 617 EXPERIMENTAL APPROACHES TO PERSONALITY. (3)
A critical evaluation of experimental studies in selected areas in personality. 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 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. (2)
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. (2)
An intensive treatment of concepts, methodology, and current developments in the field of learning. Prereq: PSY 550 or equivalent.

PSY 622 PROSEMINAR IN PERSONALITY. (2)
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. (2)
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. (2)
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. (2)
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 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (2)
An intensive examination of theories, methods of investigation, and current developments in the field of physiological psychology. Prereq: Graduate student or consent of instructor. (Same as PGY 627.)

PSY 628 PROSEMINAR IN COGNITIVE PROCESSES. (2)
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 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 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 647 DISORDERS OF LANGUAGE. (3)
Emphasis on adult aphasia and developmental language disabilities, theories, research findings, assessment procedures, and therapy approaches. (Same as EDS 647.)

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 702 TOPICAL SEMINAR IN COMMUNITY MENTAL HEALTH. (3)
Considers psychological intervention and the application of psychological principles to community problems in terms of problem definition, program development, program funding, assessment and evaluation. Emphasis is on the application of research findings to community problems in ways which permit adequate evaluation of the program's effectiveness. Prereq: Enrollment in the 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 704 SEMINAR IN HYPNOSIS. (3)
A survey of the facts, theories, and therapeutic applications of hypnosis. 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. Prereq: Enrollment in graduate program and consent of instructor. May be repeated to a maximum of six credits.

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 761 INTERPERSONAL PROCESSES IN CRITICAL SITUATIONS. (3)
A review of the processes underlying the manner in which people react to situations involving potentially serious consequences for themselves and others. The evidence to be reviewed will come from studies of: reactions in disaster situations; laboratory studies of stress; patterned responses to victims of physical and social pathology. Prereq: PSY 444G and introductory statistics. (Same as BSC 761.)

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 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 774 TOPICAL SEMINAR IN COGNITIVE PROCESSES. (3)
Contemporary theory and research in selected topics involving cognitive processes in the adult human, to include one or more of the following: attention, memory, language, problem solving. May be repeated to a maximum of six credits. Prereq: Graduate standing or 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 776 TOPICAL SEMINAR IN ANIMAL MOTIVATION. (3)
A variety of topics in motivation and unlearned behavioral determinants in subhuman species will be treated intensively in comprehensive reports based on the research literature and related to such problems as instinct, drive theory, activation, stress, work decrement, and neural components. Human implications may also be considered. Prereq: Consent of instructor.

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. (1-6)
A minimum of three hours per credit a week is required on research conducted in consultation with the instructor. May be repeated to a maximum of 12 credits.

PUBLIC ADMINISTRATION

PA 621 ANALYSIS OF ORGANIZATIONS: DECISION SCIENCE METHODS. (4)
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 student or consent of instructor.

PA 622 ANALYSIS OF ORGANIZATIONS: FINANCIAL CONTROL METHODS. (4)
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 data base 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 student or consent of instructor.

PA 623 ANALYSIS OF ORGANIZATIONS: BEHAVIORAL SCIENCE METHODS. (3)
The course examines analytical techniques employed in the management and decisions concerning human behavior in organizations. Human behavior is viewed in three contexts: potential organizational employees, present organizational employees, and consumers of the organization's services. Applications in specific public organizational settings are considered. Prereq: MPA student or consent of instructor.

PA 626 ADMINISTRATION OF PUBLIC ORGANIZATIONS. (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 student or consent of instructor.

PA 627 THE FISCAL SETTING OF PUBLIC ORGANIZATIONS. (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 student or consent of instructor.

PA 628 LEGAL AND POLITICAL ENVIRONMENT OF PUBLIC ORGANIZATIONS. (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 student or consent of instructor.

PA 629 PUBLIC POLICY FORMULATION AND SOCIAL PLANNING. (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 student or consent of instructor.

PA 633 APPLICATION OF BEHAVIORAL SCIENCE METHODS. (1)
Implementation of research proposal developed in PA 623. Laboratory, two hours per week. Prereq: PA 623.

PA 711 INTERNSHIP IN PUBLIC ADMINISTRATION. (6)
Practical field experience in an administrative setting under the direction of an academic and a workplace supervisor. Prereq: MPA student status or consent of MPA program director.

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 722 FIELD SEMINAR IN POLICY RESEARCH. (3)
The field seminar gives students the opportunity to put their skills learned in the classroom to use for actual clients. Topics may vary from semester to semester, but the hallmark of the field seminar is the application of management and analytic skills to real-world problems. All field seminars share similar educational features regardless of the project to be undertaken. Prereq: MPA Program status, PA 629 and/or consent of instructor.

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 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 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. (1-2)
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. Students are expected to conduct an out-of-class project in order to receive two credits. Lecture, two hours per week. Prereq: A vocational theories course and RC 520 or consent of instructor.

RC 630 PLACEMENT SERVICES AND TECHNIQUES IN REHABILITATION COUNSELING. (1-2)
Development of skills for successful placement of a variety of handicapped persons into a variety of settings—job, independent living, workshop, etc. Philosophy of placement, preplacement analysis, client readiness techniques, job development, job engineering, employer attitudes, workmen's compensation and social security disability. In addition, field work is required in order to receive two credits. Lecture, two hours per week. 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. Administation, 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. Lecture, three hours per week. 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 results. Students will be expected to complete a project to receive three credits. Lecture, three hours per week. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

RC 770 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. Students will be expected to complete a project to receive three credits. Lecture, three hours per week. May be repeated to a maximum of six credits. Prereq: 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.

SLAVIC AND ORIENTAL LANGUAGES & LITERATURES

RUSSIAN

SO 101 ELEMENTARY RUSSIAN. (3)
The students are introduced to the language through oral practice. Subsequently, writing and the elements of grammar are gradually introduced. 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.

SO 102 ELEMENTARY RUSSIAN. (3)
A continuation of SO 101. Prereq: SO 101 or equivalent.

SO 150 READING RUSSIAN FOR TECHNICAL PURPOSES. (3)
An introduction to Russian grammar and syntax with the objective of equipping the student to read Russian for technical and other practical purposes. Can be used for partial fulfillment of language requirement if three units of another foreign language are also acquired. See College of Arts and Sciences requirements.

SO 151 READING RUSSIAN FOR TECHNICAL PURPOSES. (3)
A continuation of SO 150. In addition to some general grammar study the readings and exercises selected will complement the disciplines of as many different students as possible. Can be used for partial fulfillment of language requirement if three units of another foreign language are also acquired. See College of Arts and Sciences requirements. Prereq: SO 150.

SO 201 INTERMEDIATE RUSSIAN. (3)
Systematic study of grammar. Introduction through simplified texts to the life and culture of Tsarist and Soviet Russia. Dictation, composition, conversation, and extensive work with tape recordings. Prereq: SO 102 or equivalent. (Required.)

SO 202 INTERMEDIATE RUSSIAN. (3)
A continuation of SO 201. Prereq: SO 201 or equivalent. (Required.)

SO 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.

SO 261 SURVEY OF RUSSIAN LITERATURE FROM ITS BEGINNING THROUGH THE 19th CENTURY (in English). (3)
Development of Russian literature from its beginning through the end of the 19th century. The literary developing from the ninth century to the end of the 18th century will be traced. Emphasis will be on the great masters of the 19th century: Pushkin, Lermontov, Gogol, Goncharov, Turgenev, Tolstoy, Dostoevsky, and Chekhov. No knowledge of Russian is required.

SO 264 RUSSIAN LITERATURE OF THE 20th CENTURY (in English). (3)
Major literary trends since 1880 in Russian drama and fiction, with special emphasis on Chekhov and 20th Century writers: Gorky, Alexei, Tolstoy, Sholokov, Leonov, Simonov, and others.

SO 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.

SO 301, 302 RUSSIAN CONVERSATION AND COMPOSITION (conducted in Russian). (3 ea.)
Prepared discussion on assigned topics with definite vocabulary preparation, oral and written reports and class discussions, based on reading selections from standard Russian authors. Prereq: SO 201, 202 or consent of instructor. (Required.)

SO 303 RUSSIAN PRONUNCIATION AND CONVERSATION. (3)
Practical phonetics of Russian and intensive practice in conversational Russian. Prereq: SO 101, 102, 201, 202.

SO 304 RUSSIAN PRONUNCIATION AND CONVERSATION. (3)
Practical phonetics of Russian and intensive practice in conversational Russian. Continuation of SO 303. Prereq: SO 101, 102, 201, 202.

SO 380 SURVEY OF 19th CENTURY RUSSIAN LITERATURE (conducted in English). (3)
A survey of Russian prose, drama, and poetry of the 19th Century until 1855. Emphasis is on the development of romanticism, the subsequent rise of realism, and the growth of the Russian novel from Pushkin to Turgenev. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.

SO 381 SURVEY OF 19th CENTURY RUSSIAN LITERATURE (in English). (3)
A survey of Russian prose, drama, and poetry of the 19th century from 1855 to the early 1900s. Emphasis is on major fiction of Dostoevsky, Tolstoy, and Chekkov and on the later works of *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.

SO 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.)

SO 400 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. Prereq: SO 301 or consent of instructor.

SO 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: SO 301, 302. (Recommended.)

SO 411 STRUCTURE AND STYLISTICS OF RUSSIAN. (3)
A continuation of SO 410. Prereq: SO 410 or equivalent. (Recommended.)

SO 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.

SO 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.

SO 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: SO 301 and SO 302 or equivalent and consent of instructor.

SO 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.

SO 464 SURVEY OF RUSSIAN LITERATURE TO 1800 (in Russian). (3)
An introduction to the literature of Russia from earliest times to Pushkin. The emphasis will be on 18th century authors. Prereq: SO 367, 368, or consent of instructor. (Required.)

SO 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

SO 130 ELEMENTARY HEBREW I. (3)
Coverage of Hebrew grammar designed to prepare students to use Hebrew for their particular needs and programs.

SO 131 ELEMENTARY HEBREW II. (3)
Continuation of SO 130. Prereq: SO 130 or consent of instructor.

SO 230 INTERMEDIATE HEBREW I. (3)
Readings of selected biblical texts, e.g., Judges and Exodus. Prereq: SO 131 or consent of instructor.

SO 231 INTERMEDIATE HEBREW II. (3)
Readings in selected Hebrew authors. Prereq: SO 230 or consent of instructor.

SO 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.

SO 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.

SO 458G MODERN HEBREW LITERATURE. (3)
Readings in modern Hebrew literature in translation, reflecting the Hebrew revival or "Haskalah" (Enlightenment) from the 19th century to the present.

ARABIC

SO 140 ELEMENTARY MODERN STANDARD ARABIC I. (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.

SO 141 ELEMENTARY MODERN STANDARD ARABIC II. (3)
Continuation of SO 140. Prereq: SO 140.

SO 240 INTERMEDIATE MODERN STANDARD ARABIC I. (3)
A continuation of SO 141, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Prereq: SO 141.

SO 241 INTERMEDIATE MODERN STANDARD ARABIC. (3)
A continuation of SO 240, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Prereq: SO 240.

SO 442 ARABIC READING II. (3)
Readings in selected Arabic authors. Prereq: SO 241.

SO 443 ARABIC READING II. (3)
Readings in selected Arabic authors. Prereq: SO 442.

OTHER DEPARTMENTAL OFFERINGS

SO 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.

SO 328 ISLAMIC CIVILIZATION: THE RISE OF ISLAM TO 1798. (3)
The rise of Islam and its classical development.

SO 330 THE ARAB AWAKENING. (3)
The Arab World's response to westernization and the resultant reassertion of its cultural role in the modern world.

SO 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.

SO 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.

SO 444G THE WRITINGS OF THE MUSLIM MYSTICS. (3)
The origin and development of Muslim mysticism. From asceticism to institutionalism. Reading knowledge of French, German or Spanish is desirable but not required.

SO 455G SPANISH ISLAM. (3)
A survey of the major Arabic authors of Islamic Spain, in translation. Prereq: Reading knowledge of French or German or Spanish is desirable but not required.

SO 457G MODERN ARABIC LITERATURE IN TRANSLATION. (3)
A survey of Arabic literature of the 19th and 20th Centuries, emphasizing the development of the novel, the short story and drama.

SOCIAL WORK

SW 001 FIELD LABORATORY. (0)
Laboratory experiences in the field. Studies and observations in agencies, institutions, and community-at-large to explain and demonstrate the theoretical content of the base courses in first semester social work curriculum. Prereq or concur: SW 601, 620, 630, 690.

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 200 SHARED COMMUNITY RESPONSIBILITY FOR SOCIAL WELFARE. (2-3)
An examination of what social welfare is, local social welfare services available, the gaps in these services, the way in which the needs of certain groups in the community affect us all, and our responsibility as concerned citizens. Primarily for non-majors and interested citizens.

SW 222 DEVELOPMENT OF SOCIAL WELARE. (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 223 BASIC SKILLS FOR THE SOCIAL PROFESSIONS. (3)
Knowledge of basic social work skills as they may be helpful to other related professions. Such skills as professional communication, interviewing, problem identification, purposeful utilization of community resources, purposeful observation, and record keeping will be considered. This course is designed for non-majors and is not open to students who receive credit for SW 225.

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: Major, SW 124, or consent of instructor.

SW 322 THE SOCIAL WORK PROFESSION 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 or 222.

SW 330 INTRODUCTION TO CRIMINAL JUSTICE. (4)
Examines adult and juvenile corrections as part of the criminal justice process. System's aims, programs, structure and performance are evaluated with special focus on the juvenile courts, community treatment, diversion and incarceration. Lecture, three credit hours; laboratory, one credit hour. (The laboratory experience will involve three hours per week of field observation/experience in a variety of settings.)

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 401G 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 consent of instructor.

SW 411G 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/or sociology.

SW 416 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.

SW 420G 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 analyis of readings, practice theory and particular strategies used in working with a variety of client systems and social problems. Prereq: SW 225 or consent of instructor.

SW 427 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: Social work major and SW 444, or consent of instructor.

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: Major, SW 520 taken concurrently, or consent of dean.

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.

SW 477 FIELD EXPERIENCE FOR NON-MAJORS. (3-6)
Observation and participation in a wide variety of agency settings in the delivery of social services and problem solving. Lecture, one to two hours; laboratory, nine-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 social professions or consent of instructor.

SW 500 PUBLIC WELFARE ADMINISTRATION. (3)
Philosophy, background, and methods of tax-supported social work. Interrelationship of federal, state and local services; standards and supervision as influenced by federal welfare legislation.

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: BIO 110, PSY 100, or equivalent, or consent of instructor.

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 541 ADMINISTRATION AND SUPERVISION IN THE SOCIAL PROFESSIONS. (3)
An examination of the processes of social agency administration, supervision of staff and volunteers, statistical and process recording, personnel and committee management, and program evaluation.

SW 551 PUBLIC ASSISTANCE PROGRAMS. (3)
The current function of public assistance on the federal, state, and local levels with emphasis on the public assistance provisions of the Social Security Act, general relief, and work relief policies.

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. Prereq: SW 330 or consent of instructor.

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. Prereq: SW 330 or equivalent, or consent of instructor.

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. Prereq: Open to students in the College of Social Professions or consent of instructor.

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 professions or consent of instructor.

SW 601 SOCIAL WORK PRACTICE. (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. Prereq: Concurrently enrolled in SW 620, 630, 690 or consent of instructor.

SW 602 SOCIAL WORK PRACTICE WITH ADULTS. (2)
Study and analyses of problems in social functioning during the adult years with emphasis upon prevention, amelioration and restoration. Prereq: SW 601 or consent of instructor.

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 608 SOCIAL WORK PRACTICE FOR SOCIAL REFORM. (2)
The need for analysis and planning as the basis for action by social workers in their professional roles as agents of social change. Prereq: SW 630 or consent of instructor.

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 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. Prereq: SW 620 and 630 or consent of instructor.

SW 620 HUMAN GROWTH AND THE SOCIAL ENVIRONMENT. (4)
This course lays the necessary foundation for advanced courses in the biological, social, cultural, environmental and psychological factors that influence human behavior. Prereq or concur: Enrollment in SW 601, 630 and 690 or consent of instructor.

SW 621 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: SW 620 or consent of instructor.

SW 622 GROUP THEORY FOR SOCIAL WORKERS. (2)
Intensive study of theoretical perspectives of group process and leadership and the application of these to the practice of social work. Prereq: SW 620 or consent of instructor. SW 601, 630, 690 recommended.

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: SW 620 or equivalent or consent of instructor. (Same as FAM 624.)

SW 625 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. Prereq: Open to graduate students in the College of Social Professions or consent of instructor.

SW 630 SOCIAL WELFARE POLICIES AND SERVICES. (4)
This course lays the basic foundation for sequential courses in this content area. Emphasis is on the study and understanding of the decision-making procsss involved in the development, formulation, implementation and impact of social welfare policies and services. Prereq or concur: Enrollment in SW 601, 620 and 690 or consent of instructor.

SW 632 SOCIAL WORK AND THE HISTORY OF SOCIAL REFORM. (2)
The study of the history of social reform and social work with emphasis on the development of contemporary social institutions. Theories and historical analysis will be demonstrated on pressing current problems. Prereq: SW 630 or consent of instructor.

SW 633 SOCIAL WELFARE AND THE POLITICAL PROCESSES. (2-3)
An examination of social welfare programs and services in the context of local, state, and federal political processes and structures. Focus will be on both an examination of the historical issues as well as on current policies, programs and proposals as outputs of the political and governmental processes. Students who wish to make an in-depth study of one content area may take this course for three credits. Prereq: SW 630 or consent of instructor.

SW 640 GRADUATE EDUCATIONAL PRACTICUM I. (5 or 10)
Learning experiences under faculty direction in a Teaching-Learning Center. Application of the problem-solving method to intervention with individuals, families, groups and communities towards social change. Knowledge from prerequisite courses is applied and tested in the practice situation. Includes 30 hours per week of seminar and experiential learning. May be repeated to a maximum of 10 credits. Prereq: SW 601, 620, 630 and 690.

SW 642 PSYCHOLOGICAL ASPECTS OF HUMAN AGING. (3)
Description and explanation of behavior, socialization and personality differentiation during the post-maturation developmental period: emotional aspects of aging; perception; intelligence; learning; motivation; normal and abnormal behavior; sexuality; life style. Prereq: SW 620 or equivalent, or consent of instructor.

SW 650 RESEARCH PRACTICUM. (2)
Application and enrichment of knowledge of research methods through designing and conducting research, under faculty supervision, on problems relevant to social work by the students in their SW 640 field practicum or other applied settings. Lecture, one hour per week: laboratory, one hour per week. Prereq: SW 601, 620, 630, 690 and concurrently enrolled in SW 640 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 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 consent of instructor.

SW 680 SPECIAL PROBLEMS IN SOCIAL WORK PRACTICE. (2-4)
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 four credits. Prereq: Consent of instructor.

SW 690 RESEARCH IN SOCIAL WORK. (2)
Analysis and study of research and scientific process through critical evaluation of examples of social work and social research; identification of areas in which social work research is needed. Prereq or concur: Enrollment in SW 601, 620, 630 or 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 703 METHODS IN SOCIAL WORK EDUCATION. (3)
A survey of theories, research, and methods related to the role of social work educator, with application to classroom and field settings. Consideration will be given to issues in adult learning and professional development in academic and agency settings. Prereq: SW 640 or consent of instructor.

SW 706 SELECTED ISSUES IN CRIMINAL JUSTICE. (2)
This course is intended to provide the student concentrating in criminal justice with an understanding of selected issues and processes relating to program development and implementation.

SW 708 SEMINAR IN CORRECTIONAL CHANGE TECHNOLOGY. (2)
This seminar examines service delivery to offenders in the context of the philosophy and technology of corrections with major emphasis upon administration, staff development, program analysis and evaluation. Prereq: SW 706 or equivalent 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 712 PRINCIPLES AND METHODS OF FIELD INSTRUCTION IN SOCIAL WORK I. (2)
Designed for the agency social work personnel who will be assisting in the educational direction of social work students in agencies within the Teaching-Learning Centers. Theories of adult learning, and curriculum design as it relates to the education of social workers in the field, will be stressed. Prereq: Master of Social Work or consent of instructor.

SW 713 PRINCIPLES AND METHODS OF FIELD INSTRUCTION IN SOCIAL WORK II. (2)
Continued study of curriculum design for field learning in social work. Learning opportunities to support integrated practice theory. Attention to evaluation of learning experiences and their outcome. Prereq: SW 712 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 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 consent of instructor.

SW 731 SOCIAL WORK AND COMMUNITY PLANNING. (2-3)
Study and analysis of the social work process through the critical evaluation of social welfare needs in urban renewal, housing, health services, citizen participation in planning other areas related to the humanization of community life. 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: SW 630 and second-year standing, or consent of instructor.

SW 732 SOCIAL PLANNING AND DEVELOPMENT. (2-3)
A survey of the theories, concepts and components of social planning and development. The social welfare component of social planning will be studied in detail. 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: SW 630 and SW 731, or consent of instructor.

SW 740 GRADUATE EDUCATIONAL PRACTICUM II. (4 or 8)
Application of knowledge in advanced methods of intervention under faculty direction in a Teaching-Learning Center. Emphasis is on the development of leadership competencies. Experiences are provided in decision making and social policy formulation. Includes 24 hours per week of seminar and experiential learning. Prereq: SW 640. May be repeated to a maximum of eight credits.

SW 745 ADVANCED SPECIALIZED EDUCATIONAL PRACTICUM. (2-4)
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. Laboratory, eight-16 hours per week. Prereq: SW 640, 740 or equivalent with consent of the dean.

SW 750 SEMINAR ON EVALUATIVE RESEARCH FOR THE SOCIAL PROFESSIONS. (2)
Study of methods and techniques of evaluative research, analysis and evaluation of social work interventions, welfare programs and social service delivery systems. Prereq: SW 690 or other comparable research course in another discipline or consent of instructor.

SW 760 PRO-SEMINAR IN SELECTED SERVICE AREAS. (2)
An intensive study of the relevant content in social policy, human behavior and the social environment and social work practice considered essential to professional responsibilities in a selected service delivery system or with a particular target population. May be repeated to a maximum of four credits. Prereq: SW 640 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 over-all 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 690 and second-year standing, or consent of instructor.

HUMAN SERVICES ADMINISTRATION

The following courses are offered by the College of Social Professions in conjunction with the Public Administration program.

HSA 602 HUMAN SERVICE DELIVERY SYSTEMS. (3)
A study of the historical development, philosophy, value bases, sources and funding patterns of human service organizations. Prereq: PA 621, 622, 623, 626, 627, 628, and 629. Consent of instructor is required of students not in the Master of Public Administration program.

HSA 604 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. Prereq: PA 621, 622, 623, 626, 627, 628 and 629. Consent of instructor is required of students not in the Master of Public Administration program.

HSA 606 INDEPENDENT STUDY. (3)
The student selects a special interest area for individualized work with a faculty member with the objective of applying content from the Administrative Core and Major Area Concentration to this area of interest. This course will culminate in a major paper in accord with Plan B of the Graduate School. Prereq: PA 621, 622, 623, 626, 627, 628, and 629. Consent of instructor is required of students not in the Master of Public Administration program.

HSA 607 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. Prereq: An elective course open to second-year students in the Master of Public Administration degree program, Human Services Concentration, and to second-year students in the Master of Social Work program. Other students, with second-year graduate standing, by consent of the 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.

SOC 152 MODERN SOCIAL PROBLEMS. (3)
An introductory course involving an examination of selected social problems of the present day. Topics discussed are family, poverty, crime, race, housing, population, industrial development, etc. Not open to seniors in College of Arts and Sciences. Prereq: SOC 101 or consent of instructor.

SOC 201 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.

SOC 220 THE COMMUNITY. (3)
Social organization and process in modern communities; social techniques of community improvement. Prereq: SOC 101 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: SOC 101 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 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. Prereq: SOC 101 and consent of instructor. May be repeated to a maximum of nine credits.

SOC 351 HISTORY OF SOCIOLOGY. (3)
A survey of the development of scientific and humanistic theories in the study of human social interaction and society from Comte to the present. Emphasis is on the growth of Sociology as a discipline. Required for majors. Prereq: SOC 101, GEN 102.

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 and a standing of 3.0 in the department; SOC 101 or consent of instructor.

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. Prereq: Consent of instructor and department chairman; completion of departmental learning agreement. May be repeated to a maximum of 15 credits.

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: SOC 101 or consent of instructor.

SOC 413 COMMUNITY ANALYSIS.* (3)
A study of communal structure and processes with special emphasis on strategies of field investigation of particular communities. Prereq: SOC 101 or equivalent or consent of instructor.

SOC 418 SOCIAL CHANGE. (3)
A sociological analysis of the sources, processes and consequences of social change. Prereq: SOC 101.

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: SOC 101 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: SOC 101 or consent of instructor.

SOC 441 GROUP ORGANIZATION AND LEADERSHIP.* (3)
A study of the structure and dynamics of organized groups; leadership, membership participation, and the processes of problem-solving and group development. Prereq: SOC 101 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. (Note: Not open for graduate credit to graduate students in Sociology and Psychology.) Prereq: PSY 100, SOC 101. (Same as PSY 444G.)

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. (Note: Not open for graduate credit to graduate students in Sociology and Economics.) Prereq: SOC 101 and ECO 261. (Same as ECO 493G.)

SOC 501 POPULATION ANALYSIS. (3)
Distribution and composition, fertility and mortality, migration, ecological relationships and growth of population. Prereq: SOC 101 or consent of instructor.

SOC 502 METHODS OF DEMOGRAPHIC ANALYSIS. (3)
Application of statistical techniques employed in the analysis of census and vital statistics data, including methods of population standardization, life table construction, and preparation of population estimates. Prereq: SOC 501 and one of the following introductory statistical courses: ECO 291, or AEC 530; SOC 101.

SOC 503 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 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: FHR 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: SOC 101 and 409 or consent of instructor. (Same as FAM 510)

SOC 515 DIFFUSION OF TECHNOLOGY IN MODERN SOCIETY.* (3)
A study of the personality, social structure and change agent factors in the spread of new techniques among groups and individuals in modern society. Prereq: Either GEN 102 or SOC 101, 153.

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: GEN 102 or SOC 101.

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: SOC 101 or consent of instructor.

SOC 521 INDUSTRIAL SOCIOLOGY. (3)
A sociological analysis of the division of labor, the characteristics of occupational groupings; principal socio-economic movements, and group relationships in modern industry. Prereq: SOC 101 or consent of instructor.

SOC 522 SOCIOLOGY OF COMPLEX ORGANIZATIONS. (3)
An intensive study of intra- and inter-organizational structures and processes. Special emphasis is given to emergence, maintenance, and change of bureaucratic and non-bureaucratic organizations and the impact of organizations on individuals. Prereq: Six hours of sociology, or consent of instructor; SOC 101.

SOC 525 RELIGION AND CULTURE. (3)
An analysis of the structure, function, and process of religion, using the development of the Hebrew and Christian religions to show social origins of the two faiths and the effect of cultural change on their growth. Prereq: SOC 101 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 in perspective of historical, cross-cultural and contemporary analysis. This course is designed primarily for students preparing for careers in an allied health science or profession. Prereq: SOC 101. (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 528, ANT 528.)

SOC 529 POLITICAL SOCIOLOGY. (3)
A study of the sociological aspects of political systems,

movements and ideologies. Special attention is given to comparative analysis of parties, pressure groups, voting patterns, elites, bureaucracy, political socialization, mass politics, and the role of intellectuals. Prereq: Six hours of sociology or consent of instructor; SOC 101.

SOC 531 SOCIOLOGICAL ANALYSIS OF AMERICAN SOCIETY. (3)
A study of the contemporary United States with emphasis upon the changing relations among various aspects of American society and culture. Prereq: SOC 101 or consent of instructor.

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: SOC 101. (Same as EDF 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: SOC 101; 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: SOC 101. (Same as ANT 534.)

SOC 538 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: SOC 101 or consent of instructor.

SOC 540 COLLECTIVE BEHAVIOR AND SOCIAL MOVEMENTS. (3)
An analysis of mass movements and collective behavior, including fads, fashions, crowd phenomena, panic situations, riots. Generalizations concerning the structure, tactics, ideology, and leadership of social movements will be considered. Prereq: SOC 101 and 201.

SOC 542 HUMAN RELATIONS IN ADMINISTRATION. (3)
Analysis of the role of social structure, leadership, authority, power, and psychological stress in the administration of large-scale organizations in the United States. Prereq: SOC 101 or consent of instructor.

SOC 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. (Same as PSY 545.) Prereq: PSY 100 and one introductory course in sociology.

SOC 546 SOCIAL FACTORS IN MENTAL HEALTH. (3)
The significance of social and cultural factors in the recognition, course, and managment of mental health problems; social organization of the mental hospital and cultural alternatives to hospitalization. Prereq: Consent of instructor; SOC 101. Offered every other year. (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. (Same as PSY 548.) Prereq: PSY 100, PSY 444G, and introductory sociology.

SOC 549 SOCIOLOGICAL ASPECTS 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 101. (Same as 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 the conceptual frameworks of the discipline. Required for majors. Prereq: SOC 351 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: SOC 101 or consent of instructor.

SOC 565 SPECIAL PROBLEMS IN SOCIOLOGY.* (1-3)
Supervised individual study in selected sub-fields 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: SOC 101.

SOC 571 CONTEMPORARY SOCIOLOGY. (3)
A survey of the current state and organization of sociology as indicated by consideration of the main fields of sociology and developments in each. Most of the staff participate as special lecturers in their specialty. Prereq: Major or minor in sociology and nine hours in sociology; SOC 101.

SOC 581 TECHNIQUES OF SOCIAL INVESTIGATION. (3)
A study of the practical applications of sociology in organizing, conducting, and interpreting social surveys and other forms of sociological research. Prereq: SOC 101 and an introductory course in statistics.

SOC 600 PROSEMINAR IN COMMUNITY. (3)
A systematic examination of the sociological concepts, literature, and current developments in the field of the community. Prereq: SOC 551 or equivalent or consent of instructor.

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. Lecture, three hours. Prereq: SOC 551.

SOC 625 SOCIOLOGY OF RELIGION. (3)
Critical study of reciprocal relation of religion and culture, the function of religion in society, social sources of religious concepts, religious differentiation and institutionalization, the problem of church and state. Prereq: SOC 525 or consent of instructor.

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 632 SEMINAR IN RACE AND ETHNIC RELATIONS. (3)
Advanced theory and research in the sociology of race and ethnic relations, prejudice and discrimination, minority groups. Current movements and change, strategies of change in dominant-minority relations. Opportunity to develop individual interests and applications of work in this field. Prereq: SOC 532 or equivalent, or consent of instructor.

SOC 650 PROSEMINAR IN SOCIAL CHANGE AND DEVELOPMENT. (3)
A systematic examination of the sociological concepts, literature, and current developments in the field of social change and development. Prereq: SOC 418 or equivalent or consent of instructor.

SOC 651 SYSTEMATIC SOCIOLOGY. (3)
Historical overview of selected thematic trends in classical sociological theory, beginning with the 18th Century precursors, continuing through to the culmination of the 19th Century sociological traditions as found in the work of Marx, Durkheim, Weber, and their contemporaries. 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 FHR 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 EDF 661.)

SOC 670 SEMINAR ON ROLE THEORY. (3)
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology and psychology. Emphasis is placed on the potentiality of role as a unifying concept in the behavioral sciences. Prereq: Consent of instructor; SOC 101. (Same as BSC 670 and ANT 670.)

SOC 679 PROSEMINAR IN SOCIAL INTERACTION AND SOCIAL PSYCHOLOGY. (3)
A systematic examination of the sociological concepts, literature, and current developments in the field of social psychology. Prereq: SOC 444 or equivalent or consent of instructor.

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 and students' designs. Prereq: Elementary statistics and SOC 581 or equivalent; SOC 101.

SOC 685 INTEGRATION OF THEORY AND RESEARCH. (3)
Systematic analysis of problems related to the verification of sociological theory through empirical research. Prereq: SOC 681; SOC 101.

SOC 695 SOCIAL ECOLOGY. (3)
The study of the adaptation of human populations to their environment. An elaboration of the principles governing community organization with special emphasis given to urban and metropolitan communities. (Same as GEO 695.)

SOC 700 SPECIAL TOPICS IN COMMUNITY. (1-3)
A focused treatment of one or more issues, topics, or problems in the field of community such as action analysis, power, participation, communication patterns, values, interrelations of institutions, conflict and the public interest, decision process, etc. May be repeated to a maximum of nine credits. Prereq: SOC 600 or equivalent or consent of instructor.

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 727 SEMINAR ON SOCIO-CULTURAL CHANGE. (3)
A seminar for advanced students. Emphasizes economic, religious, political, technological, psychological, etc., factors in change, and social and cultural patterns and processes of change. Prereq: ANT 527 or SOC 518, or consent of instructor; SOC 101. (Same as ANT 727.)

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 criminiolgy, 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 731 SEMINAR IN COMPARATIVE SOCIAL ORGANIZATION. (3)
A seminar for advanced students. Emphasizes principles in the comparative study of social systems; the role of kinship, age, sex, locality, and voluntary associations in determing relationships between individuals and between groups in nonliterate and literate societies.

May be repeated to a maximum of six credits. Prereq: Consent of instructor. (Same as ANT 731.)

SOC 738 SEMINAR: DRUG USE AS DEVIANT BEHAVIOR. (3)
A seminar for advanced students. Data on drug abuse and its control used to examplify 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. (Same as BSC 738.)

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 topics 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 development 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 systematic 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; the roles of sociology in education for the health professions in research on health related problems of society. Prereq: Predoctoral status in one of the social or behavioral sciences with a concentration or minor in medical behavioral science. (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 775 SEMINAR IN THE FAMILY. (3)
A seminar for students with a professional interest in the family. Selected topics are intensively examined. 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; corporation behavior and poverty and welfare. Prereq: Consent of instructor. (Same as BSC 776.)

SOC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY. (3)
Systematic study of contemporary concepts of mental health and mental illness, and their historical development; major forms of societal response to mental illness. Prereq: Graduate or advanced undergraduate work in a social science, 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 12 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 to 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. Lecture, one hour; studio work, three hours per credit hour. May be repeated to a maximum of nine credits. Prereq: Approval of the Director of the Community Development Program.

*These courses are also offered in the Department of Sociology, College of Agriculture.

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 system. Lecture, three hours.

SPI 101 ELEMENTARY SPANISH (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. Taped material used in the classroom is available in the language laboratory. Classes always meet on MWF and on Th with a different instructor.

SPI 102 ELEMENTARY SPANISH (spoken approach). (4)
A continuation of SPI 101. Classes always meet on MWF and on T with a different instructor. Prereq: SPI 101 or one year of high school Spanish.

SPI 103 ELEMENTARY SPANISH REVIEW. (3)
A remedial review course designed for the students who have not accomplished the objectives of elementary Spanish. Prereq: Two years of high school Spanish, but place lower than 201.

SPI 141 ELEMENTARY SPANISH (reading approach). (3)
The study of the basic principles of the language through grammar, with emphasis on rapid development of reading and comprehension skills.

SPI 142 ELEMENTARY SPANISH (reading approach). (3)
A continuation of SPI 141. Selected readings. Prereq: SPI 141 or consent of department and placement.

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. One hour recitation per week.

SPI 201 INTERMEDIATE SPANISH (spoken approach). (3)
Review and reinforcement of grammatical and phonological patterns. Oral practice or structural drills and conversational vocabulary. Prereq: SPI 102 or consent of department and placement test.

SPI 202 INTERMEDIATE SPANISH (spoken approach). (3)
Continuation of SPI 201. Prereq: SPI 201 or consent of department and placement test.

SPI 210 SPANISH COMPOSITION. (3)
This course is designed for Spanish majors and those students who wish to perfect their knowledge of Spanish grammar. Concentration on more sophisticated structures of Spanish syntax, and further vocabulary expansion.

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. (Sections limited to no more than 15 students each.)

SPI 212 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 202 or equivalent.

SPI 213 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 202 or equivalent.

SPI 214 MEXICAN CIVILIZATION. (3)
A lecture course on the cultural development of Mexico designed to furnish a working basis for required trips to important centers of Mexican civilization. To be offered only during the summer session in Mexico.

SPI 241 INTERMEDIATE SPANISH (reading approach). (3)
Readings of selected Spanish and Spanish American works and rapid review of principles of grammar. Emphasis on reading comprehension. Prereq: SPI 142 or consent of department and placement test.

SPI 242 INTERMEDIATE SPANISH (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. Prereq: SPI 241 or consent of department and placement test.

SPI 261 A SURVEY OF SPANISH LITERATURE FROM THE MIDDLE AGES TO THE PRESENT (in translation). (3)
A study of the major writers of Spain, using anthology selections and some complete works.

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 310 STYLISTIC STUDIES IN SPANISH. (3)
The study of optional variations in the sounds, forms and vocabulary of Spanish with emphasis on the written word. Textual passages and other materials are used in the analysis of language as characteristic of different users, varied situations of use and diverse literary types. 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 SPANISH FOR TECHNICAL PURPOSES. (3)
A course designed to acquaint the student with the peculiarities of Spanish for business and other technical purposes. Prereq: SPI 210 or equivalent.

SPI 315 MASTERPIECES OF SPANISH LITERATURE. (3)
An introduction to the literature of Spain, with selected readings from the works of major Spanish authors, from the Middle Ages to the present. Lecture and discussion. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 318 SURVEY OF SPANISH AMERICAN LITERATURE. (3)
An introduction to the literature of Spanish America with selected readings from the works of major Spanish American authors from the Colonial period to the present. Lecture and discussion conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 320 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.

SP1 321 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.

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. Prereq: Permission of the instructor and departmental chairman; completion of departmental learning agreement.

SP1 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 405 THE WORKS OF CERVANTES. (3)
Study and analysis of Miguel de Cervantes' *Don Quijote*, the Novelas Ejemplares, and selected dramatic works.

SPI 406 SPANISH LITERATURE OF THE 20th CENTURY. (3)
A study of the works of the Generation of 1898 and representative works of recent writers.

SPI 407G LITERATURE OF SOCIAL PROTEST IN SPANISH AMERICA. (3)
Analysis and study of the thematic use of socio-political elements in works by Spanish American poets and prose writers. Attention is focused on the novel of the Mexican Revolution, the Indigenista novel, Criollsta writers and other major groups. Prereq: SPI 318 or 319.

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 420G 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, and others. No knowledge of Spanish required. Not open to Spanish majors.

SPI 422G 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. Not open to Spanish majors.

SPI 423G LITERARY CURRENTS OF 20th CENTURY SPANISH LITERATURE IN TRANSLATION. (3)
A study of the major literary currents of 20th century Spanish literature, all genres, and analysis of the works through class discussion. Readings of selected works of Unamuno, Valle-Inclan, Baroja, Benavente, Machado, Garcia Lorca, Cela, Sender, Buero Vallejo and others. 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.

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 511 SPANISH CULTURAL AND INTELLECTUAL BACKGROUND TO 1500. (3)
A study of the cultural and intellectual background of Spain and its progress to national unity and awareness. Readings in Spanish historical and literary writings.

SPI 521 INTELLECTUAL AND CULTURAL BACKGROUND OF THE 16th AND 17th CENTURIES. (3)
A study of the history and the intellectual and cultural background of the 16th and 17th centuries. Readings in the Spanish humanists, moralists, and historians of the period and other collateral material.

SPI 522 SURVEY OF THE COMEDIA I. (3)
A survey of the masterworks of Lope de Vega and his contemporaries. Prereq: SPI 210 or 211.

SPI 523 SURVEY OF THE COMEDIA II. (3)
A survey of the masterworks of Calderón de la Barca and his contemporaries.

SPI 531 STUDIES IN MODERN SPANISH CIVILIZATION. (3)
A study of the historical, social, cultural, and intellectual trends in Spain from 1700 to the present.

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: SPI 315, or 316, or 318, or 319.

SPI 541 SPANISH AMERICAN SHORT STORY. (3)
A study of the Spanish American short story from Echeverria to the present with particular emphasis on Dario, Quiroga, Lillo and Borges. Prereq: SPI 319 or equivalent.

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 552 THE TEACHING OF MODERN FOREIGN LANGUAGES. (3)
A course for teachers and prospective teachers.

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 Mio 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 beginning 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 *Guzman 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, Gracian, 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 Leon, Luis de Granada, Santa Teresa, San Juan de la Cruz.

SPI 626 LOPE DE VEGA. (3)
The major dramatic and non-dramatic works of Lope de Vega.

SPI 627 THE THEATRE OF TIRSO DE MOLINA.(3)
The dramatic works of the Tirso de Molina.

SPI 628 THE THEATRE OF CALDERON 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 Garcia 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 preoccupation 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 Jimenez, Salinas and Guillen 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 Sanchez.

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 643 SPANISH AMERICAN POETRY: 1800-1910. (3)
Poetry from Romanticism through Modernism.

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 guachesca,* and the psychological novel.

SPI 647 SPANISH AMERICAN NOVEL: 1940 TO PRESENT. (3)
The new novel in Spanish America; Asturias, Fuentes, Carpentier, Cortazar, Garcia Marquez 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 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. Prereq: Twenty-one semester hours of college Spanish. May be repeated to a maximum of six credits.

SPI 771 SEMINAR IN SPANISH LINGUISTICS. (3)
Intensive study of specific problems in the Spanish language. Prereq: SPI 601 or equivalent.

SPI 772 SEMINAR IN MEDIEVAL SPANISH LITERATURE. (3)
Special and intensive study of a single problem in medieval Spanish literature. Prereq: SPI 601-602 or equivalent. May be repeated to a maximum of six credits.

SPI 773 SEMINAR IN GOLDEN AGE NON-DRAMATIC LITERATURE. (3)
Special and intensive study of the work or works of a single Golden Age writer or of a movement in the non-dramatic literature of the Golden Age. May be repeated to a maximum of six credits.

SPI 774 SEMINAR IN GOLDEN AGE THEATER. (3)
Special and intensive study of a specific area of the Golden Age theatre. 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 ITALIN. (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. (1 or 2)
Independent studies designed for the outstanding Italian major and, by permission, for students with related majors and adequate preparation in Italian. May be repeated to a maximum of four credits. Class hours arranged. Prereq: Major and 3.0 standing in the department; or special permission; for outstanding non-majors.

SPI 543 SURVEY OF ITALIAN LITERATURE I. (3)
A survey of Italian literature from its beginnings to the 17th century. Prereq: SPI 292 or 009.

SPI 544 SURVEY OF ITALIAN LITERATURE II. (3)
A survey of Italian literature from the 17th century to the present. Prereq: SPI 292 or 009.

SPI 561 OLD ITALIAN. (3)
An intensive study of the Old Italian language and its derivation, with mention of the development of the more important dialects along with the modern language. Examinations and study of medieval texts. Prereq: Adequate reading knowledge of modern Italian.

SPI 563 DANTE I. (3)
Dante, the Vita Nuova and the Divina Commedia, Inferno. Prereq: SPI 543 or 544 or consent of instructor.

SPI 564 DANTE II. (3)
Dante. The Divina Commedia: Purgatorio and Paradiso. Prereq: SPI 563.

SPI 565 PETRARCH AND BOCCACCIO. (3)
Study of the Italian works of Petrarch and Boccaccio. Prereq: SPI 543 or 544, or consent of instructor.

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 571 MODERN ITALIAN NOVEL. (3)
A study of the origins and development of the modern Italian novel, with emphasis on major 19th Century trends as represented by the works of Foscolo, Manzoni, Verga, Fogazzaro, and D'Annunzio, and on Pirandello and selected contemporary novelists. Prereq: SPI 292 or consent of instructor.

SPI 572 MODERN ITALIAN DRAMA. (3)
A study of the origins and development of modern Italian drama, from Goldoni and Alfieri in the 18th century, through Verga and D'Annunzio to Pirandello, Betti, Sem Benelli and other contemporary dramatists. Prereq: SPI 292 or consent of instructor.

SPI 573 MODERN ITALIAN POETRY. (3)
A study of the development of modern Italian poetry, with emphasis on major figures and trends, and close readings of texts. Prereq: SPI 292 or consent of instructor.

SPI 591 DANTE IN TRANSLATION. (3)
A study of the works of Dante from the literary viewpoint. Emphasis given to his sources, his enormous impact upon subsequent Italian and European literatures. The Divine Comedy is the focal point of the course, but the poet's lesser works are studied. Not open to graduate students in Italian.

SPI 592 ITALIAN RENAISSANCE MASTERPIECES IN TRANSLATION. (3)
A study of the great authors of the Italian Renaissance and their works in English translation: Petrarch, Boccaccio, Poggio, Piccolomini, Bruni, Pontano, and others. Not open to graduate students in Italian.

SPI 593 MODERN ITALIAN LITERATURE IN TRANSLATION. (3)
A study of the major trends and figures of 19th and 20th century Italian literature.

RUMANIAN

SPI 461G RUMANIAN I. (3)
An intensive and practical study of the Rumanian language, with emphasis on ability to read modern literature and expository texts. Prereq: Knowledge of a Romance or Slavic language, or consent of instructor.

SPI 462G RUMANIAN II. (3)
An intensive and practical study of the Rumanian language, with emphasis on ability to read modern literary and expository texts. Prereq: Knowledge of a Romance or Slavic language, or consent of instructor.

SPEECH

SP 181 BASIC PUBLIC SPEAKING. (3)
A course designed to give the student platform experience in the fundamentals of effective speaking.

SP 183 PARLIAMENTARY USAGE. (2)
The theory and practice of parliamentary procedure as it applies both to governmental and non-governmental organizations. Ample time is allocated for practice in organizing groups and conducting meetings.

SP 184 INTERCOLLEGIATE DEBATING. (1)
Preparation for and participation in intercollegiate debating. May be repeated to a maximum of two credits.

SP 280 DISCUSSION. (3)
A study of communication processes in small group situations including participation in the various forms of discussion.

SP 283 ARGUMENTATION AND DEBATE. (3)
A course in the theory of argument, with practice in the several forms of debate.

SP 284 INTERCOLLEGIATE DEBATING. (1)
Preparation for and participation in intercollegiate debating. May be repeated to a maximum of four credits.

SP 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.)

SP 287 PERSUASIVE SPEAKING. (3)
A study of the processes involved in attitude change, with emphasis on the preparation and delivery of persuasive messages.

SP 288 ORAL INTERPRETATION. (3)
An analysis of prose and poetry for oral interpretation. Helpful to those who plan to teach literature.

SP 388 ORAL INTERPRETATION OF PROSE. (3)
This course focuses on the study of some of the more important forms of prose literature (Bible, short story, novel) by helping the student develop effective techniques for interpreting prose literature for an audience. Prereq: SP 288.

SP 488 INTERPRETATION OF POETRY. (3)
The study of poetry through the medium of oral performance. Prereq: SP 288.

SP 500 SPEECH ANALYSIS AND PERCEPTION.(3)
Physics of sound; acoustic and structural properties of speech and their relationship to speech perception; analysis of speech intensity, fundamental frequency, wave composition, and time (rate, duration, and transitional change). (Same as EDS 500.)

SP 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.

SP 584 TEACHING OF SPEECH. (3)
An analysis of the field of speech education as related to the teacher of speech.

SP 585 AMERICAN PUBLIC ADDRESS TO 1865. (3)
An historical and critical study of public discussion in the United States, from the Colonial Period to 1865, through the analysis of major speakers, speeches, and debates. Prereq: Consent of instructor.

SP 586 AMERICAN PUBLIC ADDRESS SINCE 1865. (3)
An historical and critical study of public address in the United States from 1865 to the present. Prereq: Consent of instructor.

SP 588 ORAL INTERPRETATION OF DRAMA. (3)
The cutting and adapting of the three-act play for oral presentation.

SP 589 DIRECTION OF FORENSIC ACTIVITIES. (3)
The organization, administration, and management of the forensic program with special emphasis on a study of current attitudes and approaches. Lecture/discussion, three hours; observation, two hours. Prereq: Six hours of speech or consent of instructor.

SP 687 STUDIES IN ANCIENT AND MEDIEVAL RHETORIC. (3)
A comparative and critical study of the major treatises on the art of speaking, from the time of Aristotle to the Renaissance, with attention to the rhetorical practice, criticism, and pedagogy of the succeeding periods. Prereq: Consent of instructor.

SP 688 STUDIES IN THE RENAISSANCE AND MODERN RHETORIC. (3)
A comparative and critical study of the major contributions to the body of rhetorical theory from the Renaissance to the present. Prereq: Consent of instructor.

SP 780 DIRECTED STUDIES. (3)
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.

SP 782 SPECIAL TOPICS IN SPEECH. (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.

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, criteria by which published statistics may be judged, interpretation of probability and the art of decision making.

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 or MA 122 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 or 122 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 $\bar{X}$ and S^2; confidence intervals and tests of hypotheses about the mean and variance of a normal population: the χ^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. (Note: Not open for graduate credit to graduate students in statistics and mathematics.) 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 109 or equivalent.

STA 381 INTRODUCTION TO ENGINEERING STATISTICS. (3)
Probability; population and sample distributions; sampling; hypothesis testing; regression on one variable; quality control. Coreq: MA 214.

STA 390 INTRODUCTION TO REGRESSION AND CORRELATION. (3)
Simple linear regression, the use and interpretation of correlation, multiple regression, analysis of variance tables, testing of subhypotheses, stepwise regression, partial and multiple correlation. Emphasis upon use of computer library routines. Prereq: STA 370 or STA 381.

STA 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. (Note: Not open for graduate credit to graduate students in Statistics and Mathematics.) Prereq: MA 416G or equivalent and MA 423G. (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 482G DISCRETE METHODS AND MODELS IN APPLIED MATHEMATICS. (3)
Probability on finite sample spaces, combinatorial mathematics, finite Markov chains, linear programming, theory of games. Prereq: MA 214 or equivalent. (Same as CS 482, MA 482.)

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 462G, coreq: STA 531.

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 515.)

STA 523 PROBABILITY MODELS. (3)
Markov chains, Poisson processes and generalizations, continuous time Markov chains, renewal theory, reliability models, time series models and their applications. Prereq: STA 320 or equivalent. (Same as MA 523.)

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.

STA 525 INTRODUCTORY STATISTICAL INFERENCE. (3)
Simple random samplings, statistics and their sampling distribution, 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.

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 and previous statistical experience. 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; hypotheses-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 non-central χ^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 321; coreq: STA 531.

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 STA 531 or consent of instructor.

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 non-stationary models, minimum mean square error forecasts and their properties; model identification, estimation and diagnostic checking. (Same as ECO 626.) Prereq: STA 422G or equivalent.

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 642 RESPONSE SURFACE TECHNIQUES. (3)
Analysis in vicinity of stationary point; canonical analysis; steepest ascent for locating optima; first order designs for fitting response surfaces; orthogonal designs; second order designs; rotatability; central composite designs; conditions for orthogonal blocking; designs to minimize bias and mean squared error; designs for sets of constrained variables. 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 mulitvariate 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, non-linear regression, stepwise 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. Prereq: STA 570 or EDP 557. Offered the first or second half of each semester.

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. Prereq: STA 671. Offered the first or second half of each semester.

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. Prereq: STA 570 or EDP 557. Offered the first or second half of each semester.

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: non-response, call-backs, questionnaire construction, mail questionnaires, and area sampling. Lecture: three hours per week; laboratory: two hours per week for seven and half weeks. Prereq: STA 570 or EDP 557. Offered the first or second half of each semester.

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 BIO 620 or consent of instructor. (Same as AGR 678 and BIO 678.)

STA 681 STATISTICAL TECHNIQUES FOR ENGINEERS AND PHYSICAL SCIENTISTS. (3)
Primarily in the engineering and physical sciences. Random variables; distribution functions; hypothesis testing; simple and multiple regression; transformations; estimation of functional relationships from experimental data; full, fractional and central composite designs. Prereq: MA 214.

STA 690 SEMINAR IN STATISTICS. (1)
May be repeated to a maximum of two credits.

STA 691 SPECIAL TOPICS IN THE PLANNING AND ANALYSIS OF EXPERIMENTS. (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 695 SPECIAL TOPICS IN STATISTICAL THEORY. (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; UMVU estimators; Cramer-Rao inequality and its generalizations; Bayes, minimax and invariant estimators; asymptotic properties of maximum likelihood and other BAN estimators; sequential estimation; interval estimation. Prereq: MA 571 and STA 601.

STA 702 ADVANCED STATISTICAL INFERENCE II. (3)
UMP and UMP unbiased tests for one-parameter exponential family; UMP unbiased tests for the multiparametric exponent family; invariance and permutation tests, UMP invariant tests for linear hypotheses; UMP invariant tests in multivariate analysis; SPRT; confidence sets. UMA unbiased and invariant confidence sets. Prereq: MA 571 and STA 601; concur: STA 701.

STA 703 ADVANCED PROBABILITY. (3)
Probabilty spaces, extension theorem, random varaibles, independence, conditional probability, conditional expectation, laws of large numbers, law of the iterated logarithm, convergence in distribution, characteristics functions, (inversion, uniqueness, and continuity theorem), central limit theorems, (stable laws, infinitely divisible laws), martingale convergence theorems. Prereq: MA 571 and STA 524 or consent of instructor.

STA 704 ADVANCED PROBABILITY—STOCHASTIC PROCESSES. (3)
Random functions, Kolmogorov construction, separability, Gaussian processes, stationary stochastic process, spectral representation, prediction and filtering, process with independent increments, jump Markov process, diffusion process, limit theorems. Prereq: STA 703 or consent of instructor.

STA 722 TOPICS IN NONPARAMETRIC INFERENCE. (3)
Order statistics, estimation of density functions, rank orders; rank order tests; sequential nonparametric procedure, asymptotic normality and efficiency. Prereq: MA 571, STA 621.

STA 762 MULTIVARIATE ANALYSIS II. (3)
A more rigorous study of distribution theory than in STA 661; random and mixed effects models; multivariate non-normal analysis. Assorted other topics. Prereq: STA 661.

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. Lecture, two hours; discussion, one hour.

TEL 305 TELECOMMUNICATIONS PROGRAM ANALYSIS. (3)
Course designed to assist student in developing criteria for analyzing structure and content or program material and for analyzing the relationships of audiences, programs, and American telecommunications systems. Lecture, two hours; laboratory, two hours. (Same as JOU 305.) Prereq: TEL 101.

TEL 312 SIGNS, IMAGES, AND SYMBOLS. (3)
An exploration of the creative use of image making and symbol making in the encoding of broadcasting and film messages. Aspects of comprehension, observation, perception, and representation are to be studied. Lecture, two hours; viewing, two hours; laboratory, two hours.

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.

TEL 432 FILM PRODUCTION. (2)
Integration of visual images with emphasis on idea presentation, form, and structure for motion pictures. Lecture, one hour; laboratory, four hours. Prereq: TEL 312.

TEL 500 TELECOMMUNICATIONS AUDIENCE ANALYSIS. (3)
An introduction to behavioral research relating to telecommunications basic survey and experimental methodology including reliability of simple measurements. Prereq: TEL 305 and 312, or consent of instructor.

TEL 501 TELECOMMUNICATIONS REGULATIONS. (3)
A study of the governmental regulations of telecommunications by the FCC, and other federal, state and local agencies; licensing, libel and slander, copyrights, illegal practices, self regulation. (Same as JOU 521.)

TEL 504 TELESYSTEMS. (3)
To introduce students to the principles of modern telesystems management as applied to telecommunications properties. (Same as JOU 504.) Prereq: Consent of department.

TEL 505 TELLECOMMUNICATIONS PROGRAM POLICIES. (2)
The determination of program policies, program scheduling, and program planning for a community. Prereq: TEL 500.

TEL 507 THE PUBLIC AFFAIRS PROGRAM. (2)
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. (Same as JOU 527.) Prereq: TEL 500.

TEL 510 BROADCAST ADVERTISING. (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. (Same as JOU 567.)

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: Consent of department.

TEL 512 TELETECTONICS. (3)
Each student will design, create, and test a telecommunications statement utilizing one or more media for the recording and presentation of messages. Students will be required to test the effectiveness of the message. May be repeated to a maximum of six credits. Laboratory, four hours. Prereq: TEL 305, 312, 500, or consent of department.

TEL 530 PROSEMINAR IN RADIO AND TELEVISION. (2)
Discussion and reports on current broadcasting highlights and problems. Required of all seniors. (Same as JOU 579.)

TEL 599 TELECOMMUNICATIONS TOPICAL SEMINAR. (2)
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. (Same as JOU 598.) 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 102 DESIGN FOR THEATRE. (3)
An opportunity for students to develop an understanding of and skills in using the elements and principles of basic design and an understanding of the relationships of these elements and principles to theatre process and product. Lecture, three hours; laboratory, five hours.

TA 125 ACTING: VOCAL PRODUCTION FOR THE STAGE. (3)
The theory and practice of stage diction as it pertains to interpreting the role. Prereq: Major/minor; others by consent of instructor.

TA 126 ACTING I. (3)
An introduction to the basic language and responsibilities of the actor: historical and contemporary theories of acting, script analysis, elementary stage movement, approaches to characterization and examination of the actor-audience relationships. Lecture, three hours; laboratory, two hours. Prereq: TA 125 or consent of instructor.

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 ACTING: 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 125 or consent of instructor.

TA 226 ACTING II. (3)
A continuation of 126 with increased emphasis on individual growth and creative developments. Lecture, three hours; laboratory, two hours. Prereq: TA 126 or consent of instructor.

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 102 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 102 or consent of instructor.

TA 266 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 102 or consent of instructor.

TA 272 SCENOGRAPHICS. (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. Three hours lecture per week; three hours laboratory per week. Prereq: TA 102 or consent of instructor.

TA 325 ACTING III. (3)
Study of acting styles from antiquity to the present, with emphasis on important acting periods. Lecture and weekly demonstrations for the development of skill. Lecture, two hours; laboratory, two hours. Prereq: TA 226 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 350-359 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 374 SCENOGRAPHY I. (3)
Study of theory, principles and techniques of scene and lighting design for the contemporary theatre. Comprehensive analysis of a play and the development of a design through the media of floor plans, lighting plot, and perspective line drawings. Lecture, three hours plus laboratory assignments. Prereq: TA 272 or consent of instructor.

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 chairman.

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 chairman; 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 425 ACTING IV. (3)
Study and acting of scenes from classical and modern dramatic literature. Intensive application of techniques studied in TA 126, TA 226, TA 325. Two hours of lecture; two hours of laboratory. Prereq: TA 325 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 465 COSTUME DESIGN II. (3)
An advanced course in the area of costume design with special attention paid to individual experimentation and development. Lecture, three hours; laboratory, five hours. Prereq: TA 365.

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. Pass/fail only. 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 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 574 SCENOGRAPHY II. (3)
Intensified and expanded application of TA 374. Advanced theory and practice in scene and lighting design for the theatre. Lecture, three hours plus laboratory assignments. Prereq: TA 374 or consent of instructor.

TA 580 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 581 HISTORY OF THE THEATRE II. (3)
A continuation of TA 580 a study of the theatre from the Jacobean period to the present.

TA 588 CONTEMPORARY THEATRE. (3)
Philosophies and aesthetics of recent theatre and their effect on current practice.

TA 589 HISTORY OF THEATRE IN THE U.S. (3)
Theatre as a social force and art form in the United States from the pre-Colonial period to 1950.

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 REPERTORY 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. Prereq: Consent of instructor. May be repeated to a maximum of six credits.

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 chairman.

TA 730 DIRECTING. (3)
Seminar and research in the aesthetics and techniques required for the production of period classics of dramatic literature. Lecture, three hours; laboratory, two hours. May be repeated to a maximum of six credits.

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.

UNIVERSITY WIDE

UK 300 UNIVERSITY COURSE. (1-3)
A special interdisciplinary topical course sponsored by faculty from two or more colleges, to be approved by the Undergraduate Council. A particular course may be taught only twice under this number. Open to upper division students, subject to limits or prerequisites set by instructor. Prereq: As 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 611 COMPARATIVE IMMUNOGENETICS. (3)
The genetics and serology of red blood cell and histocompatibility antigens in cattle, horses, sheep, dogs, swine, chickens, mice and human beings are presented. Emphasis is placed on the origin and physiology of cellular alloantigens. Prereq: Introductory courses in immunology and genetics or consent of instructor.

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 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 775 REPRODUCTIVE PHYSIOLOGY SEMINAR. (1)
This course is designed to develop oral presentation skills of graduate students studying reproductive physiology and to review current topics in mammalian reproductive physiology. May be repeated to a maximum of four credits. Prereq: Permission 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 783 INFECTIOUS DISEASES OF DOMESTIC ANIMALS. (3)
Etiology, pathogenesis, epizootiology, prophylaxis and therapy of selected infectious diseases of domestic animals. Alternate years. Prereq: Microbiology and pathology in D.V.M. curriculum or equivalent and approval of staff.

VS 785 ADVANCED VETERINARY PARASITOLOGY. (3)
Experimental methodology and host-parasite relationships of the protozoan and helminth parasites of domestic animals. Prereq: Parasitology in D.V.M. curriculum or equivalent and approval 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.

VS 793 TECHNIQUES IN VETERINARY PARASITOLOGY. (1-9)
Independent research in veterinary parasitology. May be repeated to a maximum of 24 credits. Prereq: Consent of staff.

VS 794 RESEARCH IN NUTRITIONAL PATHOLOGY. (1-9)
Independent research in nutritional pathology. May be repeated to a maximum of 24 credits. Prereq: Consent of staff.

WOMEN'S STUDIES

WS 200 INTRODUCTION TO WOMEN'S STUDIES. (3)
The purpose of this course is to introduce the student to an historical perspective and a set of organizing ideas which form the framework for conceptualizing issues and problems of women in contemporary society.

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.

ZOOLOGY

(See courses in Biology.)

LAW

LAW 001 LEGAL BIBLIOGRAPHY. (0)
Lectures on use of legal materials. Satisfactory completion of LAW 001 or LAW 802 required for graduation. Pass/Fail grading only.

LAW 802 LEGAL BIBLIOGRAPHY. (1)
Practical problems in the use of statutes, reports, digests, encyclopedias, annotated cases, citation books, periodicals, reference tables, and indices.

LAW 805 TORTS. (4)
Intentional torts and defenses, negligence, causation, duties of occupants of land and manufacturers and ven-

dors 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 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. (4)
Arrest, preliminary examination, bail, methods of prosecution, the grand jury, indictment and information, arraignment and pleas, *nolle prosequi* and motions to quash, trial and verdict, motions after trial.

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 815 PRACTICE AND PROCEDURE I. (3)
Common law forms, theory of the case, composition of pleadings, demurrer, aider, duplicity, traverses, pleas, motions; code and federal rule pleading, claims, answers, objection and correction of pleadings, parties and joinders of actions.

LAW 817 PRACTICE AND PROCEDURE II. (2-3)
Venue, service of summons, provisional remedies, discovery and pretrial practice, summary judgment, trials, verdict, judgment and appeals, including final judgment rule, and appeal practice; *res judicata;* correction of judgments; extraordinary remedies.

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 826 ADVANCED LITIGATION SKILLS. (3)
Advanced Litigation Skills is an advanced course in trial advocacy. Students will be taught forensic medicine (including lectures by staff physicians at the Medical Center) and how to present expert testimony (particularly medical evidence) before a court or administrative tribunal. Assignments will require students to engage in all phases of trial work, including voir dire, opening statements, presentation of evidence, direct and cross examination and closing arguments. Students will try at least one sophisticated personal injury case involving medical evidence on a simulated basis. Students will be individually critiqued by the instructor on their preparation and performance in assignments and the overall trial. Prereq: LAW 815, 817, 821, 890.

LAW 828 WORKMEN'S COMPENSATION. (2-3)
A study of statutes, administrative reports, regulations, legislative hearings and judicial decisions relating to modern social legislation, including Social Security, Workmen's Compensation, medical care insurance, unemployment insurance, wages and hours, and public assistance.

LAW 830 LEGAL HISTORY. (2)
Basic introduction to the development of the common law in England prior to 1700. Topics covered include the nature of the common law, the feudal background, the development of the central courts, original writs and the forms of action, the origins of jury trial, the growth of equity jurisdiction, the rise of Parliament, judicial protection of individual rights, and the development of the law merchant.

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 viewpoint of varying types of practicing lawyers to the pervasive problems of the legal profession.

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 860 TAXATION I. (3)
Problems in federal and state income taxation.

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 868 CORPORATE TAXATION. (3)
Advanced income tax problems of business organization—of corporations and their shareholders connected with dividends and other distributions, liquidation and reorganization; of partners and partnerships; and of trusts and estates.

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 development and operations, coal mine employment, sale and marketing of extracted minerals, and legal issues affecting the use of minerals.

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 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 intestate 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 decedents' 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 881 SALES FINANCING AND COMMERCIAL TRANSACTIONS PLANNING. (2)
An analysis of and practice in the planning, negotiating, and formalizing of the security devices and financing patterns which facilitate the sale of goods under the Uniform Commercial Code.

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; non-bankruptcy 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 892 STATE AND LOCAL GOVERNMENT LAW. (3)
An advanced course in the legal problems caused by the great variety of functions performed by state and local governments; including historical development of traditional functions, configuration of contemporary intergovernmental relations, examination of areas of conflict, and in-depth consideration of lawyer roles in dealing with special problems of financing, borrowing of money, and furnishing services as to health, education, natural resources, transportation, and welfare.

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 908 COMPARATIVE LAW. (2-3)
Foreign legal materials are analyzed to determine how the normative ordering concepts and procedures of other cultures might aid in the solving of certain American legal dilemmas. Materials from the Scandinavian, Soviet and Japanese systems of jurisprudence are those most closely scrutinized.

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 trade marks, 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 PRACTICE COURT. (1)
This course, conducted mainly under the Kentucky code (but treated to give a fair understanding of like work in other states) is designed to fit students for actual court practice following training in substantive law.

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 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 LEGAL AID. (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 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 966 CIVIL CLINIC. (5)
Supervised handling of cases for clients of legal aid agency; instruction and practice in interviewing, counseling, negotiation, and study of applicable substantive law. Prereq: LAW 815, 817, 821, 890.

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 PRACTICE ENVIRONMENT AND PRACTICE MANAGEMENT. (1)
A seminar course for graduate and post-doctoral students in dentistry, concerning community needs, attitudes and programs for dental services, particularly those provided by specialists. Lecture, one and one-half hours. Prereq: Admission to graduate programs of College of Dentistry; D.D.S. or D.M.D. degree.

CDE 810 PROFESSIONAL COMMITMENTS AND DENTAL PRACTICE. (1)
This introductory course for first-year dental students is designed to assist them in examining and formulating attitudes and values regarding current issues in the dental profession and the health care system. Students are also provided an opportunity to begin a process of career planning by examining how current issues may affect career options and selections in the future. Lectures, seminars and office visits are used to expose students to the total environment in which dentistry is being practiced and the direction the profession will be taking in the future. Lecture, laboratory, seminar: 28 hours. Prereq: Admission to the College of Dentistry.

CDE 830 INTRODUCTION TO DENTAL PRACTICE FIELD EXPERIENCE. (1)
Concepts, issues and practices which will be encountered by students during the dental practice field experience are discussed. Topics include practice management, patient management, clinical treatment, health care delivery, community assessment and career plan development. Lecture: 20 hours. Prereq: Third-year standing in the College of Dentistry.

CDE 841 DENTAL PRACTICE FIELD EXPERIENCE. (10)
Students are provided a full-time, off-campus assignment to a dental practice environment for a period of 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 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 field 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. (4)
A conjoint course which presents the basic concepts of communication, history taking, physical evaluation, soft and hard tissue examination, oral radiology, treatment planning and case presentation. Lecture, 37 hours; clinic, 53 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 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 828 GROWTH AND DEVELOPMENT. (3)
This course covers the dental, physical, emotional and environmental growth and development of the normal child from birth through adolescence with some discussion of the aging problem. Will also contain special material relating to cranio-facial components. Prereq: Admission to the College of Dentistry or consent of instructor.

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 DENTISTRY FOR THE HANDICAPPED. (1)
This course is designed to introduce the dental student to various handicapping conditions and to teach the proper methods of physical management of handicapped patients and the modifications required in the delivery of dental care. Lecture, two hours per week for 10 weeks. Prereq: PDO 820 or consent of instructor.

CDS 834 PRINCIPLES OF PATIENT MANAGEMENT II. (1)
This course presents the basic principles of Phase II treatment planning for comprehensive care patients as well as basic principles of patient motivation. Treatment planning seminars are also held with the students presenting cases they are treating in clinic. Prereq: CDS 824.

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 844 INTRODUCTION TO DENTAL PRACTICE MANAGEMENT. (3)
The course is designed to provide the fifth-level dental students with basic information for establishing and maintaining a successful dental practice. Among the topic areas offered are the role of an attorney, accountant, C.P.A., and a banker in a private practice; facility design; current trends in dental equipment, and insurance needs for the private practitioner. Prereq: Fourth-year standing in the College of Dentistry or consent of course director.

CDS 846 DENTAL AUXILIARY UTILIZATION. (1)
This course teaches the student current concepts of auxiliary utilization. The duties of all dental auxiliary personnel are discussed. The technique of working with the chairside assistants is emphasized. Prereq: Fourth-year standing in the College of Dentistry or consent of instructor.

CDS 847 CLINCAL TRAINING IN DENTAL AUXILIARY UTILIZATION. (1)
The student is scheduled in the Dental Auxiliary Utilization clinic, utilizing the services of a fully trained assistant. Dental auxiliary utilization principles are stressed while the student performs all disciplines of dentistry except oral surgery. Lecture, three hours; clinic, 63 hours. Prereq: CDS 846.

CDS 848 TRAINING IN EXPANDED AUXILIARY MANAGEMENT. (1)
This course is designed to provide the student with an overview of the management process as it relates to dentistry. Major emphasis is on the human relations aspects of management including basic management function, group dynamics, employee motivation, and leadership. Seminar, 16 hours. Prereq: CDS 846.

CDS 849 CLINICAL TRAINING IN EXPANDED AUXILIARY MANAGEMENT. (1)
During clinic activity the student learns to manage, work with and supervise a group of expanded duty auxiliaries in an environment which closely simulates an expanded duty private practice. Emphasis is given to managerial behavior, delegation of duties, staff meetings, quality and productivity, scheduling and the interview process. Lecture, three hours; clinic, 42 hours. Prereq: CDS 847, CDS 848.

ENDODONTICS

END 600 BASIC ENDODONTIC THEORY. (2)
Lecture and seminar discussions which relate to basic endodontic theory including instrumentation, filling techniques, and diagnosis and treatment of endodontic problems. Lecture, three hours. Prereq: D.D.S. or D.M.D. degree.

END 610 CLINICAL ENDODONTICS. (2)
The students will treat routine nonsurgical endodontic cases on patients in the postgraduate clinic. They will also treat endodontic emergencies one day per week. Laboratory, eight hours. May be repeated to a maximum of eight credits. Prereq: D.D.S. or D.M.D. degree.

END 620 ENDODONTIC RESEARCH. (2)
The students will be presented instruction in biostatistics and research methodology, complete a review of the literature, perform the necessary project, compile the data, write a thesis and defend it before the members of the postgraduate faculty. Lecture, two hours; laboratory, four hours. May be repeated to a maximum of eight credits. Prereq: D.D.S. or D.M.D. degree.

END 630 ENDODONTIC SEMINAR. (2)
This course will consist of seminars related to specific topics such as root canal culturing, other filling methods, new concepts or procedures and other related topics. May be repeated to a maximum of six credits. Prereq: D.D.S. or D.M.D. degree.

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. Prereq: RSD 810 and 812, 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 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 810 DISINFECTION AND STERILIZATION IN DENTAL PRACTICE. (1)
The role of microorganisms as the etiologic agents of infectious diseases and the rationale for disinfection and sterilization are discussed. Emphasis is placed on prevention of cross-infection among dentists, dental auxiliaries and patients through the design of an effective program of clinical asepsis specifically tailored for a dental operatory. Instructional methods include self-instruction, lectures and laboratories. Lecture and self-instruction, 12 hours, laboratory, four hours. Prereq: Enrollment in the College of Dentistry or consent of course director.

OBI 812 THE CHEMICAL BASIS OF LIFE. (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 and self-instruction: 52 hours. Prereq: OBI 810 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 process. Study includes nucleic acid and protein synthesis; metabolic control mechanisms; carbohydrate, lipid and amino acid metabolism; and bio-energetics. Information is related to current concepts of oral disease and its prevention. Lecture and self-instruction: 54 hours. Prereq: OBI 812 or consent of course director.

OBI 816 PRINCIPLES OF INFECTION AND IMMUNITY. (2)
This course is devoted to the study of the mechanisms of pathogenesis of infectious diseases and the immune systems used by the host in resisting these diseases. Emphasis is placed on oral microbial ecology and the pathogenic mechanisms of oral infectious diseases caused by both the normal oral microflora and exogenous microorganisms. Prereq: OBI 814.

OBI 818 INFECTIOUS DISEASES. (1)
A lecture and study-guide course using an organ system approach to the biologic and clinical bases of infectious diseases. Emphasis is placed on those infectious diseases most pertinent to the practice of dentistry. Lecture: 20 hours. Prereq: OBI 816 or consent of course director.

OBI 820 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS I. (3)
This course presents the basic principles of drug action with respect to absorption, distribution, metabolism, and excretion. The pharmacology of local anesthetic agents and antibiotic therapy are presented. As an introduction to the organ systems, the physiological aspects of conducting and contracting tissues, connective tissues, lining and secretory tissues, and other specialized tissues are discussed. Lecture and self-instruction: 44 hours. Prereq: OBI 814, or consent of course director.

OBI 824 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS II. (4)
The physiology and pharmacology of mammalian nervous, cardiovascular and respiratory systems, as relevant to the practice of dentistry. Special emphasis on classes of therapeutic agents which act on these systems, including analgesics, sedatives and hypnotics, autonomic nervous system drugs, anesthetics, psychotropics, and drugs used to treat respiratory and cardiovascular disorders. Stresses interaction of basic physiology and pharmacology with clinical science. Lecture and self-instruction: 68 hours. Prereq: OBI 820 or consent of course director.

OBI 830 THE PHYSIOLOGY AND PHARMACOLOGY OF MAMMALIAN SYSTEMS III. (3)
The physiology and pharmacology of mammalian endocrine, reproductive, renal and gastrointestinal systems. Emphasis is on aspects particularly relevant to dentistry, e.g., endocrine and genetic diseases, calcium metabolism, temperature regulation, metabolism, and effects of stress on physiological processes. Therapeutic agents which act on these systems, including hormones, diuretic agents and agents which affect the GI tract, also are presented. The interaction of physiology and pharmacology with clinical science is stressed. Lecture and self-instruction: 44 hours. Prereq: OBI 824 or consent of course director.

OBI 840 DENTAL THERAPEUTICS. (3)
This course provides the student with a basic understanding of the mode of action of drugs, with emphasis on their therapeutic use in disease states. Consideration is given to drug prescribing and the pharmacologic management of patients with oral disease and systemic disease. The possible interaction of concurrent medication, emergency dental drugs and drug abuse are included. Instructional method is participation in seminar course. Lecture/discussion, four hours plus self-instruction. Prereq: OBI 830 or consent of course director.

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 610 DEVELOPMENTS IN ORAL MEDICINE. (2)
A seminar course for graduate students in dentistry, covering medical implications of dental treatment and current research in oral medicine. Prereq: Admission to graduate program of the College of Dentistry.

ODM 820 ORAL RADIOLOGY. (1)
Principles of x-ray and film image production, radiation biology and hygiene and interpretation are covered. Also included are pedodontic and extraoral radiographic techniques and interpretation and special radiograph procedures. Prereq: CDS 811.

ODM 821 CLINICAL ORAL DIAGNOSIS I. (2)
This course consists of examination, diagnosis and treatment planning procedures for patients in general clinics. Prereq: CDS 824 or consent of course director.

ODM 830 MANAGEMENT OF THE MEDICALLY COMPROMISED DENTAL PATIENT. (3)
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. Differential diagnosis and treatment of common soft tissue lesions of the oral cavity are also taught. Students are required to rotate through the clinical laborabory where they learn a variety of laboratory tests which may be ordered for their patients. Lecture/self instruction, 50 hours. Prereq: OPT 820 or consent of course director.

ODM 831 CLINICAL ORAL DIAGNOSIS II. (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, 40 hours. Prereq: ODM 821; Coreq: CDS 824.

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 831 and 832.

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 prerequisities 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, 37 hours. Prereq: OPT 820 or consent of course director.

OPT 840 ORAL PATHOLOGY II. (1)
This course is designed to teach the dental student an effective approach to patients with oral lesions. Building on the factual information presented in OPT 830, 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. Lecture: 17 hours. Prereq: OPT 830.

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 prerequisities 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 prerequisities 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 SEMINAR-CLINIC. (2)
Seminar, laboratory and clinical instruction in orthodontic theory and practice. Lecture, one and one-half hours; laboratory, 15 hours. Prereq: Admission to graduate program of College of Dentistry; D.D.S. or D.M.D. degree.

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 700 ORTHODONTIC SEMINAR. (1)
Seminar in orthodontic theory and practice for advanced graduate and post-doctoral students in orthodontics. May be repeated to a maximum of five credits. Lecture, three hours. Prereq: ORT 660, 661.

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 orthdontic 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)
An introduction to the basic principles of orthodontic diagnostic data collection and analyses. The planning

and integration of limited orthodontic treatment in primary and comprehensive dental care delivery systems are emphasized. Laboratory exercises simulate appliance fabrications used in treating selected occlusal irregularities in children and adults. Lecture: 32 hours; laboratory: 32 hours. Prereq: CDS 828 or consent of the course director.

ORT 831 CLINICAL ORTHODONTICS I. (1)
In this clinical course the dental student must provide orthodontic therapy to those assigned patients who require minor tooth movements judged to be within the capability of the general dental practitioner. The student has the opportunity to apply the principles of diagnostic data collection and analysis, diagnostic and treatment planning procedures, appliance fabrication and orthodontic treatment. Clinic/laboratory, 44 hours. Prereq: ORT 820.

ORT 841 CLINICAL ORTHODONTICS II. (2)
This clinical course is a continuation of ORT 831. The student will receive further experience in providing care for assigned patients who require more complex orthodontic treatment judged to be within the capability of the general dental practitioner. Prereq: ORT 831 or consent of instructor.

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 prerequisities will be announced for each topic.

PEDIATRIC DENTISTRY

PDO 631 DENTAL CARE FOR THE CHRONICALLY ILL AND HANDICAPPED CHILD. (2)
A seminar course for graduate students in dentistry dealing with special dental problems of handicapped children. Lecture, two hours. Prereq: Admission to dental graduate programs; D.D.S. or D.M.D. degree.

PDO 820 BASIC CHILDREN'S DENTISTRY. (2)
A lecture-laboratory course designed to introduce basic modern concepts in dentistry for children. Emphasis is placed on principles of child behavior management and basic restorative dentistry techniques. Lecture: 32 hours; laboratory: 4 hours. Prereq: CDS 828.

PDO 830 INTERMEDIATE CHILDREN'S DENTISTRY (1)
In this course in dentistry for children emphasis will be placed on the principles of oral surgical procedures for children, advanced restorative techniques and the diagnosis and treatment of traumatic injuries to children's teeth. Lecture: 16 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 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 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: Admission to the College of Dentistry or 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, 15 hours. Prereq: PER 810 or consent of instructor.

PER 820 PERIODONTICS II. (1)
This course is designed to provide the student with information necessary to learn and understand the components of the first stages of periodontal therapy. During this course the student is introduced to the principles of periodontal surgery. This is a course devoted to diagnosis, prognosis, treatment planning and therapy of the periodontally involved patients. Lecture, 25 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, three 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 prerequisities will be announced for each topic.

PROSTHODONTICS

PRO 820 INTRODUCTION TO COMPLETE DENTURE PROSTHODONTICS. (3)
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 of constructing complete dentures are presented and certain laboratory phases of construction are performed by the student in simulated situations. Lecture: 21 hours; laboratory: 58 hours. Prereq: ANA 530, ANA 534; RSD 810.

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 INTERMEDIATE REMOVABLE PROSTHODONTICS. (1)
A lecture and laboratory course which introduces the student to clinical and laboratory procedures involved in complete denture treatment situations, such as the immediate denture, relining of dentures, and denture repairs. Also taught are the uses of the dental cast surveyor and the design of removable partial dentures for selected situations in the laboratory. Lecture, 14 hours; laboratory five hours. 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 a patient with removable partial denture needs. The student will recall two removable prosthodontic patients and perform any treatment necessary for these patients. Clinic, 96 hours. Prereq: PRO 821; coreq: PRO 832.

PRO 832 ADVANCED REMOVABLE PROSTHODONTICS. (2)
Removable partial denture fabrication for the general dentist. Emphasis is on the associated biologic and technical procedures in a removable partial denture service and on diagnosis and treatment planning for the partial denture patient. Bio-mechanical principles of the design of components of the partial denture are examined from the standpoint of their relationship to the entire prosthesis. Lecture, 24 hours; laboratory, 16 hours. Prereq: 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 a patient with removable partial denture needs. The student will recall three removable prosthodontic patients and will perform any treatment necessary for these patients. 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 810 DENTAL PHYSICAL SCIENCES I. (1)
This course introduces the student to the theories of and fundamental mechanisms responsible for the behavior of materials, emphasizing the basic principles underlying their application to dentistry. It is concerned with the physical and chemical properties of materials used in other first-year dentistry courses and, later, during patient treatment. Lecture, 12 hours; self-instruction, 18 hours; laboratory, 10 hours. Prereq: Admission to the College of Dentistry or consent of course director.

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, 21 hours; self-instruction, 25 hours; laboratory, 118 hours. Prereq: Admission to College of Dentistry or consent of course director.

RSD 814 PRECLINICAL RESTORATIVE DENTISTRY I. (4)
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 materials, and acrylic resin are presented. Procedures are done on manikins or extracted teeth in a laboratory setting. Lecture, 24 hours; Laboratory, 72 hours. Corequisite:RSD 810 and RSD 812. (Same as DH 930.)

RSD 820 DENTAL PHYSICAL SCIENCES II. (1)
This course continues the presentation of the theories of and fundamental mechanisms responsible for the behavior of materials, emphasizing the basic principles underlying their application to dentistry. It is concerned with the physical and chemical properties of materials used in other second-year dentistry courses and during patient treatment. Lecture, eight hours; self-instruction, 14 hours; laboratory, seven hours. Prereq: RSD 810.

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 OCCLUSAL PATHOLOGY. (2)
This course is directed toward the examination, diagnosis, treatment planning and treatment of occlusal disharmonies of the natural dentition associated with mandibular dysfunction and occlusal trauma. It emphasizes both theory and practice and includes clinical experience in examination and biteguard fabrication and preclinical experience in selective grinding. Lecture, 12 hours; laboratory, 38 hours; clinic, 18 hours. Prereq: CDS 811, RSD 812.

RSD 824 PRECLINICAL RESTORATIVE DENTISTRY II. (5)
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 amalgam, composite restorative material and cast gold are performed using manikins and extracted teeth. Knowledge gained in dental morphology, occlusion and dental physical sciences is applied in this course. Lecture, 29 hours; laboratory, 114 hours. Prereq: RSD 814;corequisite, RSD 822.

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 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

ANATOMY

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 consent of instructor.

ANA 512 MICROSCOPY AND ULTRASTRUCTURE. (3)
The organization of cells, tissues and organs are presented through lectures and in the laboratory, through the microscopic study of in vivo materials, 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 consent of instructor.

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 intra-uterine development, and includes some discussion of common abnormalities. Prereq: ANA 511, which may be taken concurrently, and consent of instructor.

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. Contact hours, 68. Course taught four hours per week throughout semester. Lecture, two hours; laboratory, two hours. Prereq: ANA 511, 512, 513; PGY 511; consent of instructor.

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. May be repeated to a maximum of four hours. Prereq: Advanced work in biology, preferably a major or minor in a biological science, and consent of the staff.

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. (If a student has taken ANA 530, he cannot take ANA 533.)

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 533 ORAL HISTOLOGY. (2)
A detailed study of the microscopic organization and ultrastructure of the several gross structures of the oral cavity and tooth development. Texts and original articles are assigned. Discussion will be carried out within the laboratory periods. ANA 533 may not be taken by students who have completed ANA 530. Prereq: ANA 512, 513, and 532 and 534 or equivalent, 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 within each region. Lecture, two hours; laboratory, six hours. Prereq: ANA 532.

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 and ANA 534.

ANA 538 HUMAN NEUROANATOMY, AN ABBREVIATED COURSE. (1)
A concise presentation of functional organization of the human nervous system. Lecture, two hours. Prereq: ANA 532, 534 and 536.

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. Available as elective course for senior medical students.

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. Prereq: Previous senior college or graduate level work in biology and consent of instructor. May be repeated to a maximum of four hours.

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 equivalents; and consent of instructor.

ANA 634 ADVANCED ENDOCRINOLOGY. (2-5)
The objectives of this course include interrelating the microscopic and ultrastructural morphology of endocrine glands with the functions of these glands. Emphasis will be placed on functional aspects, chemistry

and mode of action of specific hormones. All endocrine organs will be studied and given equal importance. The relationship between the central nervous system and the endocrine system will be covered in detail. Prereq: Fundamental background in biology including some previous work in endocrinology. consent of instructor.

ANA 636 ADVANCED NEUROANATOMY. (3-5)
The objectives include specific and detailed correlation of anatomical materials with clinical data particularly in the areas of the sub-specialties of neurology, psychiatry, ophthalmology, otolaryngology, internal medicine, and neurosurgery. Clinical data from these sub-specialties will be related to the location of nuclei, the precise patterns of fiber tracts, and to blood supply. The detailed content and emphasis will depend upon both the background and the purposes of the students. Prereq: ANA 511, 512, 513, 516, or equivalents and consent of instructor.

ANA 638 THE GENETIC BASIS OF HUMAN MORPHOLOGY. (2-5)
The course will provide an historical survey of human genetics as background for current concepts. The genetics of man will be studied together with the problems of data gathering which are unique and are inherent in this field. The interrelations of known errors of human metabolism to alterations of cell and system morphology will be presented. Prereq: Elementary genetics and consent of instructor.

ANA 651 SPECIAL PROJECTS IN ANATOMY OF HEAD AND NECK CORRELATED WITH NEUROANATOMY. (3-5)
The objective of the course is to provide the opportunity for the learning of detailed information about gross anatomical relations in the head and neck. Prereq: A course in regional gross anatomy and neuroanatomy and consent of instructors.

ANA 662 ULTRASTRUCTURAL ANATOMY. (2-5)
The objectives of this course are to advance the student's knowledge of the mammalian tissues and the human body. Those students registering for more than two hours of credit will do advanced laboratory work in electron microscopy and micro-radiographic techniques. Correlation of intra- and extracellular morphology and function will be stressed. Prereq: Previous work in microscopy including histology or cytology and previous technique work with microbiology; consent of instructor.

ANA 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
This course is for residence credit for the Master's Degree candidates. May be repeated to a maximum of 12 hours.

ANA 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
This is for residence credit for the doctoral degree candidates. May be repeated indefinitely.

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 phsyiological 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 therapists 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 consent of instructor.

ANA 813 DEVELOPMENTAL ANATOMY FOR PHYSICAL THERAPY STUDENTS. (1)
The course of intra-uterine somatic development is presented through lectures, visual aids, and occasional laboratory demonstrations in conjunction with ANA 811. The development of abdominal viscera, respiratory system, and urogenital system is omitted. This course should not be elected by a student desiring a complete review of prenatal human development. Prereq: ANA 811, which may be taken concurrently, and consent of instructor.

BEHAVIORAL SCIENCE

BSC 212 HUMAN GROWTH AND DEVELOPMENT. (3)
A study of individual growth and development from conception through senescence, focusing on the sequence of physical, social, and psychological development, including the influence of internal and external forces, and the individual characteristics and developmental tasks of each age group with special reference to health experiences in the life cycle. Prereq: PSY 100, SOC 101.

BSC 331 BEHAVIORAL FACTORS IN HEALTH AND DISEASE. (3)
The study of human behavior relating to health and disease and the organization of medicine as a social system. Selected concepts from the psychological and social sciences are presented in a holistic 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 in perspective of historical, cross-cultural and contemporary analysis. This course is designed primarily for students preparing for careers in an allied health science and profession. Prereq: SOC 101. (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 and cultural factors in the recognition, course, and management of mental health problems; social organization of the mental hospital and cultural alternatives of hospitalization. Prereq: Consent of instructor; SOC 101. (Same as SOC 546.)

BSC 670 SEMINAR ON ROLE THEORY. (3)
An exploration of differences and similarities in the utilization of the concept of role in sociology, anthropology and psychology. Emphasis is placed on the potentiality of role as a unifying concept in the behavioral sciences. Prereq: Consent of instructor; SOC 101. (Same as SOC 670 and ANT 670.)

BSC 738 SEMINAR: DRUG ABUSE 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. (Same as SOC 738.)

BSC 761 INTERPERSONAL PROCESSES IN CRITICAL SITUATIONS. (3)
A review of the processes underlying the manner in which people react to situations involving potentially serious consequences for themselves and others. The evidence to be reviewed will come from studies of reactions in disaster situations; laboratory studies of stress; patterned responses to victims of physical and social pathology. Prereq: PSY 444G and introductory statistics. (Same as PSY 761.)

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) History and theory of medical anthropology; (2) research design, field work, analysis of data, and report writing. Lecture, two hours; laboratory, three hours. Prereq: Graduate status in ANT, SOC, or PSY, a concentration or minor in medical behavioral science and consent of instructor. (Same as ANT 765.)

BSC 766 CONCEPTS IN MEDICAL SOCIOLOGY. (3)
A systematic 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; the roles of sociology in education for the health professions in research on health related problems of society. Prereq: Predoctoral status in one of the social or behavioral sciences with a concentration or minor in medical behavioral science. (Same as SOC 766.)

BSC 767 RESEARCH PROBLEMS IN MEDICAL SOCIAL PSYCHOLOGY. (3)
Advanced training in research strategies, designs, and techniques applicable to problems 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 the medical students. Prereq: Introductory statistics, consent of instructor.

BSC 772 TOPICAL SEMINAR IN MEDICAL BEHAVIORAL SCIENCE. (1-3)
Advanced study of topics of current importance in medical behavioral science such as alcoholism, social psychological processes related to health, social structure of mental hospitals, social epidemiology of disease, institutional dependency, computer-aided medical diagnosis. May be repeated to a maximum of six credits. 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; corporation behavior; and poverty and welfare. Prereq: Consent of instructor. (Same as SOC 776.)

BSC 777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY. (3)
Systematic study of contemporary concepts of mental health and mental illness, and their historical development; major forms of societal response to mental illness. Prereq: Graduate or advanced undergraduate work in a social science, 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; graduate level standing.

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, graduate level standing.

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: For students taking a concentration or a minor in medical behavioral science as part of their doctoral programs or as elective for graduate, medical or dental students.

BSC 810 CONCEPTS OF DENTAL BEHAVIORAL SCIENCE. (2)
Selected concepts from the behavioral sciences (psychological, socio-cultural, historical) are considered with special reference to the understanding of the nature and organization of dental resources and human behavior with respect to dental health and disease. Principles of human communication are considered in terms of the dentist-patient relationship. Concepts fundamental to the basic sciences of dentistry are introduced through lectures, seminars and laboratory exercises. Lecture, seminar and laboratory. Note: For dental students only.

BSC 811 HEALTH AND SOCIETY. (2)
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 for-

mat permits exploring selected topics in depth. Prereq: For medical and graduate students only.

BIOCHEMISTRY

BCH 395 INDEPENDENT WORK IN BIOCHEMISTRY. (3-12)
Students will carry out a laboratory research project and related reference reading. Laboratory: Six-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 202 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 202 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 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, 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 613 BIOCHEMISTRY OF CARBOHYDRATES. (3)
Primarily a lecture course devoted to the chemistry, enzymology and function of simple and complex carbohydrates of biological interest. Also included will be selected aspects of procaryotic and eukaryotic metabolism of various sugars, sugar polymers, and glycoconjugates in normal and pathological states. Prereq: CHE 232 and BCH 401G or BCH 502 or BCH 811 or equivalent. May be taken concurrently with BCH 502.

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 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

BCH 780 TOPICS IN BIOCHEMISTRY. (1-3)
A lecture and seminar course offered on topics of special interest to graduate students. May be repeated to a maximum of six credits.

BCH 811 BIOCHEMISTRY FOR MEDICAL STUDENTS. (6)
A selective summary of available information on cellular activities at the moelcular 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.

COMMUNITY MEDICINE

CM 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.

CM 611 BEHAVIORAL AND SOCIAL ASPECTS OF HEALTH CARE ADMINISTRATION. (2)
An analysis of the cultural, social and behavioral factors affecting the interaction of health care providers and consumers. Consideration will be given to acceptability and utilization of health services, the impact of and response to illness, health education, and the interaction of various health professionals and professional groups. Prereq: or concurrent, CM 601 or consent of instructor.

CM 621 HEALTH ECONOMICS AND FINANCING. (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, CM 601 or consent of instructor.

CM 622 HEALTH PROGRAM PLANNING AND EVALUATION. (2)
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, CM 601 or consent of instructor.

CM 631 HEALTH POLICY DEVELOPMENT. (2)
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: CM 601 and one of the following courses: CM 611, CM 621, CM 622 or consent of instructor.

CM 775 SPECIAL TOPICS IN HEALTH CARE 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.

CM 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.

CM 821 COMMUNITY MEDICINE. (2)
The major purpose of the course, open only to medical students, is to prepare the student to understand and deal effectively with health problems of a community so that he can apply this knowledge in giving comprehensive quality care to individuals and families. The course will include lectures, seminars, demonstrations and field and laboratory assignments with emphasis on concepts of clinical public health, preventive medicine, epidemiology, environmental and ecological health, biostatistics and comprehensive medical care needs of communities.

CM 841 COMMUNITY MEDICINE CLERKSHIP. (7)
Student becomes involved with the health and medical affairs of a selected Kentucky area under the supervision of a community medicine faculty member. Choice is offered the student of taking five-week experience as a member of a self-selected group of students studying an area from the perspective of comprehensive health planning agencies or health departments; as individual students working from the perspective of selected public health departments, or ambulatory care centers or health maintenance organizations, or in conjunction with selected extramural clinical clerkships. Prereq: Admission to fourth year, College of Medicine.

A list of Community Medicine electives for medical students is available in the office of the department. Also, a list of the Master of Public Administration—Health Specialty courses can be obtained from the Area Coordinator's office, MN 109.

CONJOINT

(College of Medicine)

CON 812 INTRODUCTION TO THE PROFESSION. (5)
This course introduces medical students to their future professional role. Normal development, techniques of interviewing and examination, observation of practice, and response to common emergiencies are presented. Prereq: Admission to the College of Medicine.

CON 815 FIRST-YEAR ELECTIVE. (1-3)
With the advice and approval of his faculty adviser, the first year student may choose approved electives offered by the various departments of the College of Medicine. The intent is to provide the student an opportunity for individual thinking and for the development of his own intellectual initiative. Prereq: Admission to the first year, College of Medicine.

CON 818 CONJOINT SCIENCES. (2)

CON 825 SECOND-YEAR ELECTIVE. (1-4)
Electives to be offered by various College of Medicine departments will vary in length from 25 to 100 hours and will carry one to four hours credit. A student will select his elective with the advice and approval of his adviser. Prereq: Admission to second-year medical curriculum and approval of adviser.

CON 835 MEDICAL CARE AND THERAPEUTICS. (3)
Presentation of selected topics from the medical subspecialties, pharmacology, neurology, anesthesiology, and emergency medicine. Pass/fail basis only. One and one-half hours lecture per week. Prereq: Completion of basic science years; admission to third year, College of Medicine.

CON 836 THIRD-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
Elective offerings in basic medical sciences and clinical medicine; will vary in length from 25-150 hours and will carry 1-6 hour credit. Electives will be chosen with advice and approval of faculty advisor and Curriculum Committee. Prereq: Admission to third year, College of Medicine.

CON 845 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (18-30)
A list of the electives offered by all departments is published by the Office of Acadamic Affairs. Prereq: Admission to fourth year, College of Medicine.

DIAGNOSTIC RADIOLOGY

DR 821 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 second year, College of Medicine.

FAMILY PRACTICE

FP 841 FAMILY PRACTICE PRECEPTORSHIP. (6)
A six-weeks 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. Prereq: Admission to the fourth year, College of Medicine.

Family Practice electives are currently offered as Conjoint courses.

MEDICAL MICROBIOLOGY AND IMMUNOLOGY

MMI 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.)

MMI 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.)

MMI 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 615.) Prereq: BIO 404G or equivalent; BCH 401G or equivalent.

MMI 707 CONTEMPORARY TOPICS IN IMMUNOLOGY. (3)
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: BCH 401G or consent of instructor. (Same as BIO 707.)

MMI 710 SPECIAL TOPICS IN MICROBIOLOGY.(2)
A variety of topics relating to modern molecular and cell biology. Prereq: Consent of instructor.

MMI 811 BASIC MICROBIOLOGY FOR MEDICAL STUDENTS. (3)
A course in general microbiology designed to provide the medical student with an understanding of the structure, function, genetic and control mechanisms in various microorganisms. Prereq: Admission to the College of Medicine.

MMI 812 IMMUNOLOGY AND GENETICS FOR MEDICAL STUDENTS. (2)
An introduction to the basic principles of immunochemistry and immunobiology. The second part is an introduction to the basic principles of gene transmission and cytology as related to human genetics. (Same as PAT 812.) Prereq: Admission to the College of Medicine.

MMI 821 PATHOGENIC MICROBIOLOGY FOR MEDICAL STUDENTS. (4)
Cell biology of pathogenic organisms with emphasis on their relation to disease in man. Prereq: Admission to second year, College of Medicine.

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 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.

NEUROLOGY

NEU 821 BASIC NEUROSCIENCES. (3)
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.

OBSTETRICS AND GYNECOLOGY

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 out-patient 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.

PATHOLOGY

PAT 324 HUMAN PATHOLOGY. (4)
This course constitutes a general survey of human disease with particular emphasis on diseases of interest to dental students. Lectures, 32 hours; laboratory, 97 hours. Prereq: Consent of instructor.

PAT 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 594 or equivalents and consent of instructor. (Same as BIO 611)

PAT 621 PATHOLOGIC MECHANISMS. (4)
Seminar program in pathologic mechanisms of disease, using human and animal models to derive general principles of pathology, and to indicate experimental approaches to pathobiological mechanisms. Prereq: Graduate standing or consent of department chairman.

PAT 622 SYSTEMATIC PATHOLOGY. (7)
Systematic study of pathologic processes affecting all systems, using human and animal disease as models. Seminar-lecture-laboratory format is used to provide practical experience and exposure to experimental methods. Prereq: Graduate standing or consent of department chairman.

PAT 685 ADVANCED IMMUNOLOGY. (3)
Current trends in immunology covering the organization and structure of cells relevant to immunity, immunochemistry, types of immune responses, cellular immunology, immunogenetics, and immunopathology. Prereq: BIO 594, BCH 501, or equivalents, and consent of instructor.

PAT 812 IMMUNOLOGY AND GENETICS FOR MEDICAL STUDENTS. (2)
An introduction to the basic principles of immunochemistry and immunobiology. The second part is an introduction to the basic principles of gene transmission and cytology as related to human genetics. (Same as MMI 812.) Prereq: Admission to the College of Medicine.

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 826 PRINCIPLES OF HUMAN PATHOLOGY. (3)
A course in the principles of human pathology in which the fundamental reactions to injury are interpreted in the perspective of basic sciences. Prereq: Enrollment in a Medical Center college or consent of the dean.

PAT 839 FORENSIC MEDICINE. (1)
The third-year medico-legal series is designed to cover information in three interrelated areas, most of which are not formally taught in most medical schools. These are (1) forensic medicine as seen by a forensic pathologist with emphasis on the possibilities and limitations of the field; (2) the interrelation between law and medicine with emphasis on problems for medicine and how to make the two systems interact better; and (3) legal medicine as the lawyer sees it with emphasis on the legal responsibilities of physicians. Prereq: Admission to the third-year medical curriculum.

PAT 840 POST-SOPHOMORE FELLOWSHIP. (0)
A post-sophomore fellowship in pathology is for medical students who wish to augment and integrate their basic science studies through intensive participation in the activities of a Department of Pathology not possible in the formal medical school curriculum. Such fellowships do not include formal classwork, but demand extensive guided and independent study of all clinical and morphologic data relating to patients, conferences with faculty advisors, and participation in departmental and interdepartmental conferences and seminars. Students enrolled in the Pathology Fellowship devote six to eight months in the intensive study of autopsy and surgical pathology material, and four to six months in elective periods in the various divisions of laboratory medicine, neuropathology, electronmicroscopy, experimental pathology, or other mutually acceptable areas. Each student's program is individually planned with the Chairman of the department, and is academically demanding. Prereq: Completion of second year of medical school.

PEDIATRICS

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 medicial information. Prereq: Admission to third year, College of Medicine.

PHARMACOLOGY

PHA 521 GENERAL PHARMACODYNAMICS AND TOXICODYNAMICS. (2)
A fundamental discussion of the response of the living organism to drugs analyzed primarily on the cellular and subcellular levels. Factors which affect the absorption, distribution and the dispoal of drugs in the body will be discussed. The quantitative aspects of dose-response relationships to drugs will be analyzed including an introduction to the problems of biological assay. Prereq: Consent of instructor. (Same as TOX 521.)

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 chairman.

PHA 560 WHOLE-BODY AUTORADIOGRAPHY. (2)
Primarily a laboratory exercise which acquaints the student with the details for autoradiography of whole-body sections. The technique allows one to visualize the distribution of radioactively labeled drugs and chemicals in the entire body of a small laboratory animal. Laboratory, four hours. Prereq: Consent of instructor.

PHA 590 GNOTOBIOTIC METHODOLOGY. (2)
A practice 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, consent of instructor. (Same as BIO 590.)

PHA 601 PRINCIPLES OF MEDICAL PHARMACOLOGY.* (5)
Discussion of the pharmacodynamic principles by which the main classes of drugs exert their action on living organisms. Prereq: Consent of instructor.

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: 4 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. (2)
Quantitative treatment of dynamics of drug absorption, distribution, metabolism and excretion, including development of mathematical models for these processes and application of techniques such as analog simulation. Prereq: PHA 521 and consent of instructor. (Same as PHR 612.)

PHA 616 ADVANCED PHARMACOLOGY.* (4)
Work conducted outside the thesis area and with a preceptor, other than the thesis director, by special arrangement. Prereq: Consent of instructors. Lecture, two hours; laboratory, four hours.

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 632 PRINCIPLES OF PHARMACOLOGY, LABORATORY. (2)
Experimental study of drug action, emphasis being placed on whole animals and isolated organ effects. 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 641 BIOASSAY WITH HUMAN SUBJECTS. (2)
Discussion and illustration of statistical principles and techniques which form the basis of bioassay. Special emphasis is placed on analysis of variance techniques for experimental designs useful in parallel line quantitative assays. Prereq: STA 670, PHA 541, PHA 521, or equivalent; consent of instructor.

PHA 645 PHYSIOLOGY AND PHARMACOLOGY OF BIOLOGICAL MEMBRANES AND TRANSPORT. (1)
Advanced study of the structure, functions and permeability of biological membranes and the effect of change of chemical environment upon them. Prereq: BCH 514/515 or PHR 400 or CHE 552 or equivalent, PGY 502/503 or 511 or equivalent, PHA 521; consent of instructor.

PHA 650 HOST-CONTAMINANT RELATIONSHIPS. (2)
The course deals with the effects of microbial associates on various systems of the animal host with special reference to gastrointestinal, cardiovascular, defensive functions and aging. Materials will be presented as a comparative study between gnotobiotic and conventional animals. Prereq: BSC 421/422, CHE 220, 230, 444G, BIO 240, BIO 276, 594 or equivalent; consent of instructor.

PHA 658 ADVANCED NEUROPHARMACOLOGY. (4)
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 416 or equivalent, PHA 521, 522; consent of instructor.

PHA 660 PHARMACOLOGY OF STEROIDS. (4)
Lectures and laboratory work dealing with the chemistry, metabolism and pharmacology of steroids. Emphasis will be placed on methods of research which will be illustrated in laboratory exercises. Prereq: CHE 232, BCH 514/515 or PHR 400 or CHE 522 or equivalent, PHA 521; consent of instructor.

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 664 ADVANCED MOLECULAR PHARMACOLOGY. (2)
An advanced discussion of actions of drugs at the molecular level. The mechanism by which drugs alter the biochemical machinery which operates in the maintenance in the cellular integrity will be emphasized. Chemical events which occur when drug molecules interact with macromolecules with cell constituents which modulate the activities of the cell will be discussed. Prereq: PHA 521 and consent of instructor.

PHA 666 HUMAN PHARMACOLOGY. (3)
Discussion of pharmacodynamics and practical therapeutic applications of drugs particularly as related to humans. Lecture, two hours; laboratory, two hours. Prereq: PHA 521, 522, 541, 641; consent of instructor.

PHA 670 CLINICAL PSYCHOPHARMACOLOGY. (2)
Purposes, indications and contraindications, methods of administration and effects of psychotropic drugs on human behavior. Prereq: PHA 521, 522, PSY 210, 330 and 336 or equivalent and consent of the Director of Graduate Studies in pharmacology.

PHA 671 INTEGRATIVE PSYCHOPHARMACOLOGY. (2)
Mechanisms of action of pscyhotropic drugs. Prereq: PHA 521, 522, PSY 100, 330, and 336 or equivalent and consent of Director of Graduate Studies in pharmacology. PSY 505 and 507 or 509, PGY 516, ANA 516, and PHA 670 are strongly recommended.

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 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. Maximum of six credits can be applied to the master's degree with thesis.

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 821 MEDICAL PHARMACOLOGY I. (5)
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.

PHYSIOLOGY AND BIOPHYSICS

PGY 206 ELEMENTARY PHYSIOLOGY. (3)
Emphasis is placed upon the physiology of muscle, circulation, respiration, digestion, absorption, energy metabolism, and excretion. Open to freshmen by instructor's consent. Prereq: One of the following: ANA 206, one semester college chemistry, college biology or consent of instructor.

PGY 502 PRINCIPLES OF PHYSIOLOGY. (4)
A comprehensive discussion of physiology using advanced texts and library reading; includes function as related to major body systems. Prereq: One year each, physics, general chemistry and biology. (Same as BIO 502.)

PGY 503 EXPERIMENTAL METHODS. (2)
A laboratory course in physiology utilizing advanced techniques that emphasize the development of laboratory skills, experimental design, data reduction, interpretation and presentation. Prereq: PGY 502 or equivalent; may be taken concurrently. (Same as BIO 503.)

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 507 INTRODUCTION TO ENDOCRINOLOGY. (3)
Introductory study of the development, structure, and fundamental functions of endocrine glands. Prereq: General chemistry; 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 MMI 512.)

PGY 520 THEORETICAL BIOPHYSICS. (3)
A multidisciplinary approach to the study of biological systems as viewed from the fundamental laws of the physical sciences. Magnitudes: space, time, forces, particles, allometric relationships. The fundamental biological unit: information, ordering processes, evolution, biological necessity and religious freedom. The organism: cell as a machine, man as a machine, physics of death. The ecosystem: systems and analysis, energy flow, species level, ecological crisis. Prereq: MA 113, PGY 502 or 512 or BIO 530 or consent of instructor.

PGY 522 MATHEMATICAL BIOPHYSICS. (3)
Intended for the student of the biological sciences who wishes to gain skill in reading biomathematical literature or for the student of the physical sciences, engineering, or mathematics who wishes to apply his analytic abilities to the biological sciences. Typical topics: reversible thermodynamics and transport, etc. Prereq: MA 114 or equivalent.

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 602 PHYSIOLOGICAL INSTRUMENTATION I. (3)
Electronic circuits in physiological measuring systems. Prereq: MA 113; knowledge of integration and differentiation of simple functions or consent of instructor.

PGY 603 PHYSIOLOGICAL INSTRUMENTATION II. (3)
Physical basis of physiological measurement and analogs of physiological systems. Lecture, three hours. Home assignments will emphasize problem solving and will include a term problem to be selected by the student in consultation with the instructor. Topics to be covered in this course include non-linear electronic circuits; transducers; synthesis of instrumentation systems; and analogs of biological and mechanical systems. Prereq: MA 113, PGY 511, PGY 602, or consent 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

*Will be taught, in most part, on the University of Louisville campus.

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 627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY. (2)
An intensive examination of theories, methods of investigation, and current developments in the field of phsyiological psychology. Prereq: Graduate student 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 phsyiological systems. Prereq: PGY 522 or consent of instructor.

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 once.

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 810 PRINCIPLES OF HUMAN PHYSIOLOGY. (5)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year of inorganic chemistry; one semester of college anatomy or one year of college biology. (Same as CNU 502.)

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 812 PRINCIPLES OF HUMAN PHYSIOLOGY LECTURES. (4)
A basic course in human physiology including the function and regulation of the major body systems. Prereq: One year of inorganic chemistry; one semester of college anatomy or one year of college biology. (Same as CNU 504.)

PSYCHIATRY

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 831 PSYCHIATRIC CLERKSHIP. (8)
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.

RADIATION MEDICINE

RM 472G INTERACTION OF RADIATION WITH MATTER. (3)
Sources of radiation; penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; radiation detection and spectroscopy; dosimentry of ionizing radiations. (Note: Not open for graduate credit to graduate students in Radiation Medicine and Physics.) (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 hours. Prereq: One year college physics. (Same as PHY/HRS 545.)

RM 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (2)
Following a mathematics and physics review, the nature, origin, uses and dosimetric aspects of radiation will be discussed. Application in the fields of diagnostic radiology, therapeutic radiology and nuclear medicine will be emphasized. Prereq: PHY 361 or consent of instructor. (Same as PHY 546.)

RM 547 MEDICAL RADIATION IMAGING—I, PHYSICAL ASPECTS OF DIAGNOSTIC RADIOLOGY. (2)
Medical radiation and the generation of information; x-ray circuits and operation of the x-ray apparatus; the radiological image and the retrieval of information; x-ray image intensification; image intensifiers; fluoroscopy; cinefluorography; special procedures and patient dosimetry. Prereq: PHY 361, or RM 546 or consent of instructor. (Same as PHY 547.)

RM 548 THE PHYSICS OF RADIATION THERAPY. (2)
The terminology and advanced methods of treating various diseases using beam devices such as x-rays, Co-60, and linear accelerators as well as brachytherapy (interstitial and intracavitary implantation of radioactive sources). Emphasis will be placed on treatment planning including dose calculation and methods of optimizing tumor to health tissue dosage by both hand and computer methods. Prereq: PHY 361 or RM 546 or consent of instructor. (Same as PHY 548.)

RM 549 THE PHYSICS AND INSTRUMENTATION OF NUCLEAR MEDICINE. (3)
A lecture and laboratory course designed to cover the basic principles of nuclear medicine with emphasis on the instrumentation and techniques used. Topics covered include rectilinear scanners, collimator design, scintillation cameras, the autofluroscope, positron scanners and cameras, the application of minicomputers, and special procedures and patient dose. Lecture, two hours; laboratory, two hours. Prereq: PHY 361 or consent of instructor. (Same as PHY 549.)

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 540, 562, or two years of chemistry, physics, and biological sciences and consent of instructor. (Same as BIO 640.)

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 works. Prereq: Consent of instructor; BIO/RM 540 or RM 546 or equivalent. (Same as BIO 740.)

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.

SURGERY

SUR 831 GENERAL SURGICAL 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 CLERKSHIP. (6)
A six-week 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. Prereq: Satisfactory completion of SUR 831 and admission to the fourth year of the College of Medicine.

TOXICOLOGY

TOX 521 GENERAL PHARMACO- AND TOXICODYNAMICS. (2)
A fundamental discussion of the response of the living organism to drugs analyzed primarily on the cellular and subcellular levels. Factors which affect the absorption, distribution, and the disposal of drugs in the body will be discussed. The quantitative aspects of dose-response relationships to drugs will be anlayzed including an introduction to the problems of biological assay. Prereq: Consent of instructor. (Same as PHA 521.)

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 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 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 TOXICOLOGY. (5)
The course will acquaint students with the various toxicological principles as they apply to problems arising from the complexities of modern society. Lectures, demonstrations, and informal discussions. Prereq: Consent of the Director of Graduate Studies in toxicology. (Offered as a conjoint course.)

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 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. (1)
Prereq: Consent of Director of Graduate Studies in toxicology.

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. (1-5)



FACULTY

COLLEGE OF AGRICULTURE

Charles E. Barnhart, dean

AGRICULTURAL ECONOMICS
Robert W. Rudd, chairman

Kim Anderson, assistant extension professor, Ph.D., Oklahoma State, 1980
Kurt Ramon Anschel, professor, Ph.D., Michigan State, 1965
Robert Lee Beck, associate professor, Ph.D., Michigan State, 1963
Barry Wright Bobst, associate professor, Ph.D., Washington State, 1966
Garnett Lowell 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, Ph.D., Kentucky, 1969
George B. Byers, professor emeritus, Ph.D., Iowa, 1948
Dana G. Card, professor emeritus, Ph.D., Cornell, 1939
Ella Kay Carl, assistant extension professor, Ph.D., Florida, 1980
Carl M. Clark, professor emeritus, M.S., Oklahoma State, 1929
James Earnest Criswell, assistant professor, Ph.D., Minnesota, 1966
Shirley Cunningham, assistant extension professor, J.D., Kentucky, 1980
Joe Thomas Davis, associate professor, Ph.D., Tennessee, 1974
David Lee Debertin, professor, Ph.D., Purdue, 1973
Ernest D. Gooch, assistant professor emeritus, Ph.D., Illinois, 1962
Harry Hale Hall, associate professor, Ph.D., Iowa State, 1968
Woodrow Wilson Hourigan, extension professor, Ph.D., Kentucky, 1969
Craig Lynn Infanger, associate extension professor, Ph.D., Washington State, 1974
Fred Edward Justus, Jr., professor, Ph.D., Illinois, 1955
Harold Gibson Love, extension professor, Ph.D., Missouri, 1969
Loys L. Mather, associate professor, Ph.D., Wisconsin, 1968
A. Lee Meyer, assistant extension professor, Ph.D., Purdue, 1979
Charles Lee Moore, associate extension professor, Ph.D., Illinois, 1972
Angelos Pagoulatos, associate professor, Ph.D., Iowa, 1975
Alan John Randall, professor, Ph.D., Oregon State, 1971
John C. Redman, professor, Ph.D., Kentucky, 1951
Michael R. Reed, assistant professor, Ph.D., Iowa, 1978
Steven K. Riggins, assistant professor, Ph.D., Cornell, 1977
Lynn Wayne Robbins, associate professor, Ph.D., Michigan State, 1975
Robert William Rudd, professor, Ph.D., California, 1952
Dallas Milton Shuffett, professor, Ph.D., Kentucky, 1956
Jerry Robert Skees, assistant professor, Ph.D., Michigan State, 1981
Eldon D. Smith, professor, Ph.D., Wisconsin, 1954

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
John W. Dickens, assistant professor, Ph.D., Ohio State, 1978
Rodney W. Tulloch, associate professor, Ph.D., Penn State, 1972

AGRICULTURAL ENGINEERING
Ira Joseph Ross, chairman

Bill J. Barfield, professor, Ph.D., Texas A&M, 1968
Jesse B. Brooks, associate professor emeritus, M.S., Auburn, 1950
Donald G. Colliver, assistant professor, Ph.D., Purdue, 1979
George A. Duncan, associate extension professor, Ph.D., Kentucky, 1980
Robert L. Fehr, associate extension professor, Ph.D., Iowa State, 1976
Wiley Hix Henson, Jr., associate professor, Ph.D., North Carolina State, 1962
O. J. Loewer, professor, Ph.D., Purdue, 1973
Ian D. Moore, assistant professor, Ph.D., Minnesota, 1979
Blaine Frank Parker, professor, Ph.D., Michigan State, 1954
Ira Joseph Ross, professor, Ph.D., Purdue, 1960
Edward Manson Smith, professor, M.S., Kansas State, 1950
Joseph L. Taraba, assistant extension professor, Ph.D., Ohio State, 1978
John Neal Walker, professor, Ph.D., Purdue, 1961
Linus R. Walton, associate professor, Ph.D., Tennessee, 1974
Richard C. Warner, assistant extension professor, Ph.D., Clemson, 1981
Larry G. Wells, associate professor, Ph.D., North Carolina State, 1975
Gerald Martin White, professor, Ph.D., Purdue, 1960

AGRONOMY
Andrew Jackson Hiatt, chairman

Roger Allen Andersen, associate professor adjunct, Ph.D., Wisconsin, 1963
Harry Hudson Bailey, professor, Ph.D., Michigan State, 1956
Richard Irven Barnhisel, professor, Ph.D., Virginia Polytechnic Institute, 1964
Morris Jay Bitzer, associate extension professor, Ph.D., Purdue, 1968
Robert L. Blevins, professor, Ph.D., Ohio State, 1967
Robert Cecil Buckner, professor adjunct, Ph.D., Minnesota, 1955
Harold Rhodes Burton, associate professor, Ph.D., Louisville, 1964
Lowell Palmer Bush, professor, Ph.D., Iowa State, 1964
George M. Cheniae, professor, Ph.D., North Carolina State, 1959
Glenn Burton Collins, professor, Ph.D., North Carolina State, 1966
Paul Leroy Cornelius, professor, Ph.D., Illinois, 1972
Daniel Layton Davis, professor, Ph.D., North Carolina State, 1967
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, assistant extension professor, Ph.D., California-Davis, 1980
Verne Clifford Finkner, professor, Ph.D., Iowa State, 1950
Wilbur W. Frye, associate professor, Ph.D., Virginia Polytechnic Institute, 1969
John Hamman Grove, assistant professor, Ph.D., Georgia, 1980
James Herbek, associate extension professor, Ph.D., Illinois, 1970
James Watt Herron, extension professor, Ph.D., Cornell, 1951
Andrew Jackson Hiatt, professor, Ph.D., North Carolina State, 1960
Robert Mark Jacques, assistant extension professor, Ph.D., Montana State, 1979

Michael John Kasperbauer, professor adjunct, Ph.D., Iowa State, 1961
Garry D. Lacefield, associate extension professor, Ph.D., Missouri, 1974
James Everett Leggett, professor adjunct, Ph.D., Maryland, 1965
Paul P. C. Lin, assistant professor, Ph.D., Michigan State, 1971
Charles T. MacKown, assistant professor adjunct, Ph.D., Arizona, 1978
James R. Martin, assistant extension professor, Ph.D., Kentucky, 1978
Herbert Fane Massey, Jr., professor, Ph.D., Wisconsin, 1952
Robert D. Miller, assistant professor, Ph.D., Kentucky, 1979
Lloyd W. Murdock, Jr., extension professor, Ph.D., Virginia Polytechnic Institute, 1967
Mark T. Nielsen, assistant professor, Ph.D., Kansas State, 1980
James H. Orf, assistant professor, Ph.D., Illinois, 1979
Doyle Eugene Peaslee, professor, Ph.D., Iowa State, 1960
Ronald Edward Phillips, professor, Ph.D., Iowa State, 1959
Charles Gustav Poneleit, associate professor, Ph.D., Purdue, 1967
Andrew J. Powell, extension professor, Ph.D., VPI, 1966
John Leonard Ragland, professor, Ph.D., North Carolina State, 1959
Monroe Rasnake, assistant extension professor, Ph.D., Kentucky, 1973
Harold B. Rice, associate extension professor, Ph.D., North Carolina State, 1966
Roy Edward Sigafus, professor, 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, assistant professor, Ph.D., Michigan State, 1978
Granville Woolman Stokes, professor, Ph.D., Wisconsin, 1953
Norman Linn Taylor, professor, Ph.D., Cornell, 1953
Timothy Henry Taylor, professor, Ph.D., Penn State, 1955
Dennis M. TeKrony, associate professor, Ph.D., Oregon State 1969
William Orville Thom, assistant extension professor, Ph.D., Missouri, 1975
Grant Worthington Thomas, professor, Ph.D., North Carolina State, 1958
Kenneth Lincoln Wells, extension professor, Ph.D., Iowa State, 1963
William W. Witt, associate extension professor, Ph.D., North Carolina State, 1974
Paul S. Zorner, assistant professor, Ph.D., Colorado State, 1981

ANIMAL SCIENCES
Virgil W. Hays, chairman

Curtis W. Absher, extension professor, Ph.D., Tennessee, 1969
Richard L. Anderson, professor, Ph.D., Iowa State, 1941
Edward B. Aylward, extension specialist, M.S., Kentucky, 1979
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, Ph.D., Cornell, 1953
Walter R. Burris, associate 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
Carla G. Chenette, assistant extension professor, Ph.D., Oklahoma State, 1981
Perry W. Clark, assistant extension professor, Ph.D., Missouri, 1978
William L. Crist, associate extension professor, Ph.D., Ohio State, 1970
Gary L. Cromwell, professor, Ph.D., Purdue, 1967
Karl A. Dawson, assistant professor, Ph.D., Iowa State, 1979
Ben T. Dean, professor emeritus, Ph.D., Missouri, 1961
Ray H. Dutt, professor, Ph.D., Wisconsin, 1948
Lee A. Edgerton, assistant professor, Ph.D., Purdue, 1970
Donald G. Ely, professor, Ph.D., Kentucky, 1966
J. Dennis Fox, associate professor, Ph.D., Louisiana State, 1968
T. R. Freeman, professor emeritus, Ph.D., Penn State, 1937
W. P. Garrigus, professor emeritus, Ph.D., Illinois, 1935
Nelson Gay, professor, Ph.D., Illinois, 1962
Rebecca C. Gentry, instructor, B.S., Cornell, 1978
Robert E. Goodwill, associate professor, Ph.D., Minnesota, 1969
Robert J. Harmon, assistant professor, Ph.D., Guelph, Ontario, 1977
Virgil W. Hays, professor, Ph.D., Iowa State, 1957
George Heersche, Jr., assistant extension professor, Ph.D., Kansas State, 1975
Roger W. Hemken, professor, Ph.D., Cornell, 1957
Clair L. Hicks, assistant professor, Ph.D., Wisconsin, 1974
Dean D. Householder, assistant extension professor, Ph.D., Texas A&M, 1979
John T. Johns, associate extension professor, Ph.D., Michigan State, 1974
James D. Kemp, professor, Ph.D., Illinois, 1952
Gary T. Lane, associate extension professor, Ph.D., Purdue, 1968
Bruce E. Langlois, professor, Ph.D., Purdue, 1962
Dennis O. Liptrap, extension professor, Ph.D., Michigan State, 1969
C. Oran Little, professor, Ph.D., Iowa State, 1960
Donald W. MacLaury, professor emeritus, Ph.D., Iowa State, 1955
George E. Mitchell, Jr., professor, Ph.D., Illinois, 1956
William G. Moody, professor, Ph.D., Missouri, 1963
William M. Muir, assistant professor, Ph.D., Purdue, 1977
Russell B. Muntifering, assistant professor, Ph.D., Arizona, 1980
Durward Olds, professor, Ph.D., Illinois, 1956
Joseph O'Leary, associate professor, Ph.D., Minnesota, 1974
Kenneth E. Olson, assistant extension professor, Ph.D., Wisconsin, 1976
Gary R. Parker, assistant extension professor, Ph.D., Kentucky, 1975
John C. Robertson, professor, Ph.D., Kentucky, 1960
Kob Ryen, assistant professor emeritus, M.S., Winters College, 1934
Tim S. Stahly, assistant professor, Ph.D., Nebraska, 1975
D. M. Seath, professor emeritus, Ph.D., Iowa State, 1939
D. G. Steele, professor emeritus, Ph.D., Wisconsin, 1926
Paul A. Thornton, associate professor, Ph.D., Michigan State, 1956
Fred A. Thrift, professor, Ph.D., Oklahoma State, 1968
Ray E. Tucker, associate professor, Ph.D., Kentucky, 1966
John W. Tuttle, extension professor, Ph.D., Michigan State, 1968
W. Y. Varney, extension professor, Ph.D., Michigan State, 1960
M. D. Whiteker, extension professor, Ph.D., Kentucky, 1961
Karen E. Winn, instructor, B.A., Massachusetts, 1976
Patch G. Woolfolk, professor, Ph.D., Cornell, 1950
Panayiotis M. Zavos, assistant professor, Ph.D., Minnesota, 1978

COOPERATIVE EXTENSION
John Ragland, associate dean for Extension

ENTOMOLOGY
Bobby Clifton Pass, chairman

Grayson C. Brown, assistant professor, Ph.D., Washington State University, 1977
Christian M. Christensen, assistant extension professor, Ph.D., Purdue, 1974
Douglas Lee Dahlman, associate professor, Ph.D., Iowa State, 1965
H. Wyman Dorough, professor, Ph.D., Wisconsin, 1963
Paul Harold Freytag, associate professor, Ph.D., Ohio State, 1963
Douglas W. Johnson, assistant extension professor, Ph.D., Florida, 1980
Fred William Knapp, professor, Ph.D., Kansas State, 1961
Gerald L. Nordin, associate professor, Ph.D., Illinois, 1971
Bobby Clifton Pass, professor, Ph.D., Clemson, 1962
Daniel A. Potter, assistant 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, Ph.D., Rutgers, 1952
Lee Hill Townsend, assistant extension professor, Ph.D., Virginia Polytechnic Institute, 1977
Kenneth V. Yeargan, associate professor, Ph.D., California, 1974

FORESTRY
Bart A. Thielges, chairman

Stanley B. Carpenter, associate professor, Ph.D., Michigan State, 1971
Sun Joseph Chang, assistant professor, Ph.D., Wisconsin, 1979
George B. Coltharp, associate professor, Ph.D., Michigan State, 1958
David L. Erickson, assistant professor, Ph.D., Ohio State, 1969
Donald L. Fogus, assistant extension professor, Ph.D., North Carolina State, 1973
Donald H. Graves, associate extension professor, Ph.D., Kentucky, 1974
Deborah B. Hill, assistant extension professor, Ph.D., Yale, 1977
Calvin J. Liu, assistant professor, Ph.D., Louisiana State, 1976
William C. McComb, assistant professor, Ph.D., Louisiana State, 1979
Robert N. Muller, assistant professor, Ph.D., Yale, 1975
James R. Olson, assistant professor, Ph.D., California-Berkeley, 1979
Bart A. Thielges, professor, Ph.D., Yale, 1968
Robert F. Wittwer, associate professor, Ph.D., Syracuse, 1973
Allan J. Worms, associate extension professor, Ph.D., Texas A&M, 1972

HORTICULTURE AND LANDSCAPE ARCHITECTURE
Albert S. Williams, chairman

Robert G. Anderson, assistant extension professor, Ph.D., Florida, 1976
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
Carl E. Chaplin, associate professor emeritus, M.S., Illinois 1948
Winston Dunwell, assistant extension professor, Ph.D., Idaho, 1978
William Fountain, assistant extension professor, Ph.D., Louisiana, 1979
David L. Hensley, assistant extension professor, Ph.D., Purdue, 1978
Thomas R. Kemp, associate professor, Ph.D., Kentucky, 1970
Dean E. Knavel, professor, Ph.D., Michigan State, 1959
Raymond G. Lockard, professor, Ph.D., University of London, England, 1954
Dale M. Maronek, assistant professor, Ph.D., Purdue, 1975
Robert E. McNiel, associate extension professor, Ph.D., Purdue, 1975
Hubert C. Mohr, professor, Ph.D., Texas A&M, 1955
Kent Mullinix, research specialist, M.S., Missouri, 1980
Thomas J. Nieman, associate professor, Ph.D., Southern Illinois, 1973
C. R. Roberts, extension professor, Ph.D., Texas A&M, 1964
Horst Schach, associate professor, M.L.A., California, 1966
G. W. Schneider, professor, Ph.D., Rutgers, 1950
Robert Southerland, assistant professor, M.L.A., Syracuse, 1976
John C. Snyder, assistant professor, Ph.D., Minnesota, 1978
Leonard P. Stoltz, associate professor, Ph.D., Purdue, 1965
John G. Strang, assistant extension professor, Ph.D., Oregon State, 1978
Albert S. Williams, extension professor, Ph.D., North Carolina State, 1954
Mary L. Witt, associate extension professor, Ph.D., Oregon State, 1976

PLANT PATHOLOGY
Thomas P. Pirone, chairman

Richard A. Chapman, professor, Ph.D., Illinois, 1948
Stephen Diachun, professor emeritus, Ph.D., Illinois, 1938
Richard S. Ferriss, assistant professor, Ph.D., Florida, 1979
Said A. Ghabrial, associate professor, Ph.D., Louisiana State, 1965
John R. Hartman, associate extension professor, Ph.D., Wisconsin, 1971
James W. Hendrix, professor, Ph.D., North Carolina State, 1963
Joseph A. Kuc, professor, Ph.D., Purdue, 1955
William C. Nesmith, assistant extension professor, Ph.D., North Carolina State, 1977
Thomas P. Pirone, professor, Ph.D., Wisconsin, 1960
Louis Shain, associate professor, Ph.D., North Carolina State, 1967
John G. Shaw, professor, Ph.D., Wisconsin, 1960
S. J. Sheen, professor, Ph.D., North Dakota, 1958
Malcolm R. Siegel, professor, Ph.D., Maryland, 1962
David A. Smith, associate professor, Ph.D., Cornell, 1974
Richard E. Stuckey, associate extension professor, Ph.D., Michigan State, 1973
Harry E. Wheeler, professor, Ph.D., Louisiana State, 1949

SOCIOLOGY
Willis A. Sutton, Jr., chairman

Howard Beers, professor emeritus, Ph.D., Cornell, 1935
Janet Bokemeier, assistant professor, Ph.D., Iowa State, 1978
James S. Brown, professor, Ph.D., Harvard, 1950
L. M. Busch, associate professor, Ph.D., Cornell, 1974
J. A. Christenson, associate professor, Ph.D., Washington State, 1972
A. Lee Coleman, professor emeritus, Ph.D., Cornell, 1950
C. Milton Coughenour, professor, Ph.D., Missouri, 1953
Lori E. Garkovich, assistant professor, Ph.D., Missouri, 1976
William F. Kenkel, professor, Ph.D., Ohio State, 1952
Richard Maurer, assistant extension professor, Ph.D., Ohio State, 1977
Charles Perry, assistant professor, Ph.D., Cornell, 1978
Kenneth E. Pigg, associate extension professor, Ph.D., Cornell, 1976
Paul D. Warner, associate extension professor, Ph.D., Ohio State, 1973

VETERINARY SCIENCE
John T. Bryans, chairman

G. P. Allen, assistant professor, Ph.D., Kentucky, 1975
E. F. Bailey, assistant professor, Ph.D., California-Davis, 1979
J. W. Blake, associate professor, Ph.D., Ohio State, 1968
John T. Bryans, professor, Ph.D., Cornell, 1954
M. W. Crowe, professor, D.V.M., Auburn, 1957
R. W. Darlington, professor, Ph.D., Mississippi, 1962
J. M. Donahue, assistant professor, Ph.D., Missouri, 1971
R. H. Douglas, assistant professor, Ph.D., Wisconsin, 1975
J. H. Drudge, professor, D.V.M., Michigan State, 1943; Sc. D., Johns Hopkins, 1950
R. C. Giles, assistant professor, D.V.M., Auburn, 1970
C. B. Hong, assistant professor, B.V.Sc., National Taiwan University, 1965; Ph.D., Cornell, 1972
D. E. LaBore, associate extension professor, D.V.M., Colorado State, 1942
R. G. Loy, associate professor, Ph.D., Wisconsin, 1959
E. T. Lyons, professor, Ph.D., Colorado State, 1963
W. H. McCollum, professor, Ph.D., Wisconsin, 1954
D. Miksch, associate extension professor, D.V.M., Kansas State, 1957
L. E. Newman, associate professor, D.V.M., Cornell, 1956; Ph.D., Michigan State, 1970
K. B. Poonacha, associate professor, D.V.M., Madras University, India, 1963; Ph.D., Wisconsin, 1972
P. A. Prickett, assistant professor, D.V.M., Michigan State, 1954
T. W. Swerczek, professor, D.V.M., Kansas State, 1964; Ph.D., Connecticut, 1969
Thomas Tobin, professor, M.V.B., University College Dublin, Ireland, 1964; Ph.D., Toronto, Canada, 1969

R. R. Tramontin, assistant professor, D.V.M., Auburn, 1965
W. E. Wise, associate extension professor, D.V.M., Auburn, 1955

COLLEGE OF ALLIED HEALTH PROFESSIONS

Joseph Hamburg, dean

ALLIED HEALTH EDUCATION AND RESEARCH
Jane Emanuel, chairman

Daniel Clark, associate professor, M.H.A., Washington University, 1974
Jane Emanuel, associate professor, Ed.D., Alabama, 1970
Davis Gardner, associate professor, M.A., Kentucky, 1950
Joseph Hamburg, professor, M.D., Hahnemann, 1951
Bonnie Kincaid, associate professor, Ed. S., Iowa, 1973
Richard Kingston, professor, D.D.S., Minnesota, 1961
Judine Lambert, instructor, M.S.Ed., Kentucky, 1979
Dennis Parsons, associate professor, Ed.D., Georgia, 1972
William Pfeifle, assistant professor, Ed.D., Kentucky, 1977
Nicholas J. Pisacano, professor, M.D., Hahnemann, 1951
Janet Pisaneschi, associate professor, Ph.D., St. Louis University, 1972
Helen Robillard, instructor, M.S.N., Kentucky, 1979
Thomas C. Robinson, associate professor, Ph.D., SUNY at Buffalo, 1971
Karen O. Skaff, associate professor, M.S., Columbia, 1971
Robert Storat, adjunct assistant professor, M.Ed., Vermont, 1973

CLINICAL ASSOCIATE PROGRAM
Glen E. Combs, program director
Samuel R. Scott, medical director

Glen E. Combs, assistant professor, M.A., Michigan State, 1977
Gerry Gairola, assistant professor, Ph.D., Kentucky, 1975
Doris Rapp, assistant professor, Pharm.D., Kentucky, 1975
Samuel R. Scott, associate professor, M.D., Bowman Gray, 1969
Robert Wildman, instructor, M.A., Temple, 1976

CLINICAL NUTRITION
Paul Thornton, chairman

Willena Beagle, associate professor, Ph.D., Kentucky, 1973
Dale Sherer, assistant professor, M.S., Kentucky, 1977
Paul A. Thornton, professor, Ph.D., Michigan State, 1956

CLINICAL PASTORAL COUNSELING
Ralph S. Carpenter, chairman

Ralph S. Carpenter, professor, S.T.M., Union Theological Seminary, 1961
O. Ray Fitzgerald, assistant professor, Ph.D., Boston, 1969; American University, 1978

COMMUNITY HEALTH
David Berry, chairman

David Berry, associate professor, Dr. P.H., North Carolina, 1971
Carl J. Peter, associate professor, Ph.D., Nebraska, 1973

DENTAL HYGIENE
Karen O. Skaff, associate professor, M.S., Columbia, 1971

HEALTH RADIATION SCIENCES
Joseph Sayeg, chairman

Joseph L. Beach, associate professor, Ph.D., Wisconsin, 1972
John D. Calkins, associate 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

MEDICAL TECHNOLOGY
Marie Vittetoe, chairman

Patricia Ann Collins, associate professor, M.T. (ASCP), M.S., West Virginia, 1971
Linda Gorman, assistant professor, M.T. (ASCP), M.S., Medical College of Virginia, 1980
Rita Hill, instructor, M.T. (ASCP), S.B.B., B.S., Kentucky, 1975
Mary Frances James, professor emeritus, M.T. (ASCP), M.S., Alabama, 1961
Lynne H. Lyons, instructor, M.T. (ASCP), B.S., Kentucky, 1973
John Seabolt, instructor, M.T. (ASCP), M.S., Kentucky, 1974
E. Anne Stiene-Martin, associate professor, M.T. (ASCP), M.S., Minnesota, 1969
Marie Vittetoe, professor, M.T. (ASCP), Ed.D., West Virginia, 1973

PHYSICAL THERAPY
Richard McDougall, chairman

Timothy Alberhasky, assistant professor, M.S., Kentucky, 1977
Sherry Clark, assistant professor, M.S.Ed., Kentucky, 1977
Dean Currier, professor, Ph.D., Maryland, 1971
D. LaVonne Jaeger, associate professor, P.T., M.S., Washington, 1966
Richard V. McDougall, professor, P.T., M.E., Kentucky, 1965
Ron Seymour, assistant professor, P.T., M.H.S., Ohio State, 1973
Duane Williams, associate professor, M.A., Iowa, 1972

COLLEGE OF ARCHITECTURE

Anthony Eardley, dean

Paul J. Amatuzzo, associate professor, B. Arch., Cooper Union, 1969
Clyde R. Carpenter, associate dean and associate professor, M.Arch., Pennsylvania, 1962
Dennis W. Carpenter, assistant professor, M.F.A., Florida, 1979
Caruthers A. Coleman, Jr., visiting professor, B. Arch., California-Berkeley, 1958
Maria G. Dallerba-Ricci, associate professor, Dottore in Architecture and Town Planning, University of Florence, Italy, 1964
Margaret Deamer, assistant professor, B.Arch., Cooper Union, 1977
Stephen C. Deger, associate professor, M.S. Arch. Engr., Illinois, 1966
Judith DiMaio, assistant professor, M. Arch., Harvard, 1976
Anthony Eardley, dean and professor, M.A., Cambridge, England, 1961
Richard A. Etlin, assistant professor, Ph.D. Arch., Princeton, 1977
Jonathan B. Friedman, associate professor, M.F.A., Princeton, 1969
Hans Gesund,* professor, D. Engr., Yale, 1958
Harry C. Gilbert, librarian, M.A., Denver, 1963
Douglas E. Graf, assistant professor, M. Arch., Harvard, 1971
Charles P. Graves, dean emeritus and professor, M. Arch., Pennsylvania, 1957
Herbert Greene, professor, B. Arch., Oklahoma, 1952
John R. Groves, assistant professor, B. Arch., Kentucky, 1970, Juris Doctor, Kentucky, 1972
George W. Gunther, professor, M.F.A., Indiana, 1951
Peter J. Hoppner, visiting associate professor, M. Arch., Yale, 1964
Michael D. Kennedy, associate professor, M.S., Louisville, 1978
Pedro L. Koe-Krompecher, professor emeritus, Diploma in Architecture, Technical University of Budapest, 1926; Dr. Pol. Sci., Erzebet, Pecs, 1942
Richard S. Levine, associate professor, M. Arch., Rennsselaer, 1963

Shauna McManus, assistant professor, B. Arch., Carnegie-Mellon, 1976
J. Philip Noffsinger, professor, D. Arch., Catholic, 1955
Paul Pinney, associate dean and associate professor, M.S. Arch., Columbia, 1967
James A. Prestridge, associate professor, M.S. Arch., Columbia, 1949; M.C.P., Pennsylvania, 1964
Richard P. Rauh, adjunct assistant professor, M. Arch., Harvard, 1974
Leonardo Ricci, visiting professor, Dottore in Arch., Rome, 1952
Anthony Roccanova, associate professor, M. Arch., Cornell, 1972
David A. Spaeth, associate professor, M. Arch., Illinois Inst. of Technology, 1966
John P. Strickland, associate professor, M.F.A., Cranbrook, 1959
J. Peter Wilcox, assistant professor, B. Arch., Cooper Union, 1979
Thomas C. Wilson, assistant professor, B. Arch., Kansas State, 1960
Leonard F. Wujcik, assistant professor, M.A., Eastern Kentucky, 1974

*joint appointment

COLLEGE OF ARTS AND SCIENCES

Michael A. Baer, dean

AEROSPACE STUDIES
(Air Force ROTC)
Colonel Thomas A. Rush, chairman

Captain Donald R. Bertoldo, assistant professor, M.B.A., St. Mary's University of Texas, 1975
Captain Larry L. Bird, administrative counselor, M.Ed., Wayne State, 1974
Captain Louis Lancaster, assistant professor, M.A., Central Michigan, 1977
Colonel Thomas A. Rush, professor, M.S., Central Michigan, 1978
Major Stephen M. Taylor, assistant professor, M.Ed., Wayne State, 1975

ANTHROPOLOGY
John van Willigen, chairman

Susan Abbott, associate professor, Ph.D., North Carolina, 1974
William Y. Adams, professor, Ph.D., Arizona, 1958
Albert S. Bacdayan, associate professor, Ph.D., Cornell, 1967
Robert H. Biggerstaff, professor, D.D.S., Howard, 1955, Ph.D., Pennsylvania, 1969
Michael B. Collins, associate professor, Ph.D., Arizona, 1973
Billie R. DeWalt, associate professor, Ph.D., Connecticut, 1975
Kathleen M. DeWalt, assistant professor, M.A., Connecticut, 1976
Lathel F. Duffield, associate professor, Ph.D., Wisconsin, 1970
Art Gallaher, Jr., professor, Ph.D., Arizona, 1956
Kenneth Hirth, assistant professor, Ph.D., Wisconsin-Milwaukee, 1974
Donald L. Hochstrasser, professor, Ph.D., Oregon, 1961, M.P.H., California, 1969
Marion Pearsall, professor, Ph.D., California, Berkeley, 1950
Walter E. Precourt, assistant professor, Ph.D., SUNY at Buffalo, 1975
Eugenie C. Scott, assistant professor, Ph.D., Missouri, 1974
John Van Willigen, associate professor, Ph.D., Arizona, 1971
Richard L. Warren, professor, Ph.D., Stanford, 1966
H. Jean Wiese, associate professor, Ph.D., North Carolina, 1971

BIOLOGICAL SCIENCES
Wesley J. Birge, interim director

M. I. H. Aleem, professor, Ph.D., Cornell, 1959
Roger W. Barbour, professor, Ph.D., Cornell, 1949
Thomas C. Barr, Jr., professor, Ph.D., Vanderbilt, 1958
Jerry M. Baskin, associate 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, associate 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, assistant professor, Ph.D., Michigan State, 1975
Wayne H. Davis, professor, Ph.D., Illinois, 1957
Leo S. Demski, associate professor, Ph.D., Rochester, 1969
Patsy Dickinson, visiting assistant professor, Ph.D., University of Washington, 1979
J. M. Edney, associate professor emeritus, M.S., Iowa, 1934
O. F. Edwards, associate professor emeritus, Ph.D., Yale, 1936
Thomas C. Gray, associate professor, Ph.D., Vanderbilt, 1965
Barbara Hanson, assistant professor, Ph.D., California, 1975
Denny O. Harris, associate professor, Ph.D., Indiana, 1967
Carl E. Henrickson, associate professor, Ph.D., Ohio State, 1950
James C. Humphries, professor emeritus, Ph.D., Yale, 1944
Makota Iwaya, assistant professor, Ph.D., Tokyo, 1967
John J. Just, associate professor, Ph.D., Iowa, 1968
Robert A. Kuehne, associate professor, Ph.D., Michigan, 1958
Judith A. Lesnaw, associate professor, Ph.D., Illinois, 1969
Willem Meijer, associate professor, Ph.D., Amsterdam, Holland, 1951
Janet L. Morgan, assistant professor, Ph.D., Colorado, 1975
Christopher Osgood, visiting assistant professor, Ph.D., Brown, 1977
N. J. Pisacano, professor, M.D., Hahnemann, 1951
David J. Prior, associate professor, Ph.D., Virginia, 1972
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
P. S. Sabharwal, professor, Ph.D., New Delhi, India, 1963
Morris Scherago, professor emeritus, DVM, Cornell, 1949; Hon. Doctorate, Kentucky, 1966
Sheldon Steiner, associate professor, Ph.D., Kentucky, 1967
Harvey Thomas, assistant professor, Ph.D., Johns Hopkins, 1975
Gary L. Uglem, associate professor, Ph.D., Idaho, 1972
Ralph F. Wiseman, professor, Ph.D., Wisconsin, 1956
Arthur L. Williams, assistant professor, Ph.D., Purdue, 1975

CHEMISTRY
William F. Wagner, chairman

Rodney E. Black, associate professor emeritus, Ph.D., Wisconsin, 1942
Carolyn P. Brock, associate professor, Ph.D., Northwestern, 1972
David A. Butterfield, associate professor, Ph.D., Duke, 1974
Audrey L. Companion, professor, Ph.D., Carnegie, 1958
Paul L. Corio, professor, Ph.D., Columbia, 1957
William D. Ehmann, professor, Ph.D., Carnegie, 1957
Phillip E. Fanwick, assistant professor, Ph.D., Iowa State, 1977
Robert D. Guthrie, professor, Ph.D., Rochester, 1963
Floyd J. Holler, assistant professor, Ph.D., Michigan State, 1977
James R. Kincaid, assistant professor, Ph.D., Marquette, 1974
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, associate professor, Ph.D., California, 1969
John M. Patterson, professor, Ph.D., Northwestern, 1953
William K. Plucknett, associate professor, Ph.D., Iowa State, 1942
Donald E. Sands, professor, Ph.D., Cornell, 1955
Paul G. Sears, professor, Ph.D., Kentucky, 1953
John P. Selegue, assistant professor, Ph.D., Massachusetts Institute of Technology, 1979
Stanford L. Smith, associate professor, Ph.D., Iowa State, 1961
Walter T. Smith, Jr., professor, Ph.D., Indiana, 1946
Laren M. Tolbert, assistant professor, Ph.D., Wisconsin, 1974
William F. Wagner, professor, Ph.D., Illinois, 1947

Joseph W. Wilson, associate professor, Ph.D., Indiana, 1961
Steven W. Yates, associate professor, Ph.D., Purdue, 1973

CLASSICAL LANGUAGES AND LITERATURES
Hubert Martin, Jr., chairman

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
Robert J. Rabel, assistant professor, Ph.D., Michigan, 1975
Louis J. Swift, associate professor, Ph.D., Johns Hopkins, 1963
Lawrence S. Thompson, professor, Ph.D., North Carolina, 1938

COMPARATIVE LITERATURE
John L. Greenway, chairman

Jay F. Bodine, assistant professor of German, Ph.D., Princeton, 1973
Brian J. Dendle, professor of Spanish, Ph.D., Princeton, 1966
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
Forbes D. Lewis, chairman

Ronald Alter, associate professor, Ph.D., Pennsylvania, 1965
Anthony Q. Baxter, associate professor, Ph.D., Virginia, 1972
Albert D. Bethke, assistant professor, Ph.D., Michigan, 1980
Frank M. Brown,* associate professor of Electrical Engineering, Ph.D., Ohio, 1967
Thaddeus B. Curtz, professor, Ph.D., Yale, 1960
John J. Keohane, assistant professor, Ph.D., SUNY at Stony Brook, 1978
James F. Lawrence,* assistant professor of Mathematics, Ph.D., Washington, 1970
Forbes D. Lewis, associate professor, Ph.D., Cornell, 1970
Michael C. McCord, associate professor, Ph.D., Yale, 1963
Patricia E. Murphy, instructor, M.S., Kentucky, 1979
A. Chris Newbery, professor, Ph.D., London, England, 1962
Garth L. Olde,* professor and Director of Data Systems, Medical Center, Ph.D., Western Ontario, Canada, 1960
Martin B. Solomon, associate professor and Director of Computing Center, Ph.D., Kentucky, 1967
Henry C. Thacher, Jr., professor, Ph.D., Yale, 1949

*joint appointment

DIPLOMACY AND INTERNATIONAL COMMERCE
Vincent Davis, director

Associate faculty:
Kurt R. Anschel, Department of Agricultural Economics
Raymond F. Betts, Department of History
Wilford A. Bladen, Department of Geography
Russell H. Brannon, Department of Agricultural Economics
William J. Chambliss, Department of History
Kenneth M. Coleman, Department of Political Science
James H. Donnelly, Jr., Department of Business Administration
Maurice A. East, Department of Political Science
Thomas P. Field, Department of Geography
George H. Gadbois, Department of Political Science
Richard E. Gift, Department of Economics
Curtis E. Harvey, Department of Economics
George C. Herring, Department of History
Charles W. Hultman, Department of Economics
P. P. Karan, Department of Geography
Tony McAdams, Department of Business Administration
Joseph L. Massie, Department of Business Administration
Karen Ann Mingst, Department of Political Science
Daniel Nelson, Department of Political Science
Robert Olson, Department of History
David F. Ross, Department of Economics
Hirofumi Shibata, Department of Economics
Gerard E. Silberstein, Department of History
Eldon Smith, Department of Agricultural Economics
Joe A. Thompson, Department of History
Stephen Vasek, College of Law
Robert D. Warth, Department of History
Harvey Zabinsky, Department of Economics

ENGLISH
Joseph A. Bryant, Jr., chairman

Michael E. Adelstein, professor, Ph.D., Michigan, 1958
Thomas A. Adler, assistant professor, Ph.D., Indiana, 1979
Richard G. Alvey, assistant professor, Ph.D., Pennsylania, 1974
Ben W. Black, assistant professor, Ph.D., Michigan, 1953
Thomas O. Blues, associate professor, Ph.D., Iowa, 1966
Joan H. Blythe, associate professor, Ph.D., North Carolina, 1970
George K. Brady, professor emeritus, Ph.D., Illinois, 1922
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, M.S., Peabody, 1941
John L. Cutler, associate professor emeritus, Ph.D., Ohio State, 1949
Guy M. Davenport, Jr., professor, Ph.D., Harvard, 1961
Kenneth W. Davis, assistant professor, Ph.D., Michigan, 1975
David S. Durant, associate professor, Ph.D., North Carolina, 1968
Lee A. Elioseff, associate professor, Ph.D., New York, 1959
Robert O. Evans, professor emeritus, Ph.D., Florida, 1954
Walter C. Foreman, assistant professor, Ph.D., Washington, 1974
Joseph H. Gardner, associate professor, Ph.D., California, Berkeley, 1969
Ann M. K. Gevere, assistant professor, M.A., Utah, 1974
William A. Gordon, associate professor, Ph.D., Tulane, 1963
Sandra Govan, assistant professor, Ph.D., Emory, 1980
John L. Greenway, associate professor, Ph.D., Wisconsin, 1969
James B. Hall, associate professor, M.A., Stanford, 1961
H. Joan Hartwig, associate professor, Ph.D., Washington, 1967
Maurice Hatch, associate professor emeritus, Ph.D., Cornell, 1948
Robert E. Hemenway, professor, Ph.D., Kent State, 1966
Kevin S. Kiernan, associate professor, Ph.D., Case-Western Reserve, 1970
James Leary, assistant professor, Ph.D., Indiana, 1976
Elizabeth B. Libbey, assistant professor, M.F.A., Iowa, 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
Linda Pannill, assistant professor, Ph.D., North Carolina, 1975
Jean G. Pival, associate professor, M.A, Kentucky, 1962
Armando Prats, associate professor, Ph.D., Florida, 1976
Anna K. Reed, assistant professor, Ph.D., Kentucky, 1973
Donald A. Ringe, professor, Ph.D., Harvard, 1954
Charles H. Rowell, associate professor, Ph.D., Ohio State, 1972
Dennis Schneider, assistant professor, Ph.D., Texas, 1975
John T. Shawcross, professor, Ph.D., New York, 1958
Thomas B. Stroup, professor emeritus, Ph.D., North Carolina, 1933
Larry J. Swingle, associate professor, Ph.D., Wisconsin, 1967
John E. Tidwell, assistant professor, M.A., Creighton, 1971

Gregory Waller, assistant professor, Ph.D., SUNY at Stony Brook, 1977
William S. Ward, professor emeritus, Ph.D., Duke, 1943
Steven Weisenburger, assistant professor, Ph.D., Washington, 1978
Arthur Wrobel, associate professor, Ph.D., North Carolina, 1968

FRENCH LANGUAGE AND LITERATURE
Phillip A. Duncan, chairman

Jean D. Charron, professor, Ph.D., North Carolina, 1956
Phillip A. Duncan, professor, Ph.D., Indiana, 1958
Raymond C. La Charité, professor, Ph.D., Pennsylvania, 1966
Virginia A. La Charité, professor, Ph.D., Pennsylvania, 1966
Theodore H. Mueller, professor, Ph.D., Northwestern, 1953
Rupert T. Pickens, professor, Ph.D., North Carolina, 1966
John A. Rea, assistant professor, A.B., Miami, 1948
Germaine Baril Van Oene, assistant profesor, Ph.D., Michigan, 1978

GEOGRAPHY
Stanley D. Brunn, chairman

Wilford A. Bladen, associate professor, Ph.D., Kentucky, 1972
Stanley D. Brunn, professor, Ph.D., Ohio State, 1966
Robert G. Cromley, assistant professor, Ph.D., Ohio State, 1978
Thomas P. Field, professor, Ph.D., North Carolina, 1948
Justin C. Friberg, assistant professor, Ph.D., Syracuse, 1977
P. P. Karan, professor, Ph.D., Indiana, 1956
Thomas Leinbach, associate professor, Ph.D., Pennsylvania State, 1971
E. Cotton Mather, adjunct professor (Special Title Series), Ph.D., Wisconsin, 1951
Karl B. Raitz, associate professor, Ph.D., Minnesota, 1970
Gary Shannon, associate professor, Ph.D., Michigan, 1970
J. R. Schwendeman, Sr., professor emeritus, Ph.D., Clark, 1941
Richard Ulack, associate professor, Ph.D., Pennsylvania State, 1972
William A. Withington, associate professor, Ph.D., Northwestern, 1955

GEOLOGY
William H. Dennen, chairman

Richard Irven Barnhisel, associate professor, Ph.D., Virginia Polytechnic Institute, 1964 (co-appointed with Agronomy)
William Howard Blackburn, professor, Ph.D., Massachusetts Institute of Technology, 1967
William Randall Brown, professor, Ph.D., Cornell, 1942
Lois Jeannette Campbell, associate professor, Ph.D., Ohio State, 1955
William H. Dennen, professor, Ph.D., Massachusetts Institute of Technology, 1949
Frank R. Ettensohn, associate professor, Ph.D., Illinois, 1975
John C. Ferm, professor, Ph.D., Penn State, 1952
Irving Sanborn Fisher, associate professor, Ph.D., Harvard, 1952
Donald C. Haney, adjunct professor, Ph.D., Tennessee, 1967
James C. Hower, adjunct professor, Ph.D., Pennsylvania State, 1978
Erwin J. Lyons, associate professor emeritus, Ph.D., Wisconsin, 1947
William C. MacQuown, professor, Ph.D., Cornell, 1943
Bruce Robert Moore, associate professor, Ph.D., Melbourne, Australia, 1967
Vincent E. Nelson, professor emeritus, Ph.D., Chicago, 1942
Nicholas Rast, professor, Ph.D., University of Glasgow, 1956
Thomas Glasdir Roberts, associate professor, Ph.D., Columbia, 1949
Ronald L. Street, assistant professor, Ph.D., St. Louis University, 1975
John Thrailkill, professor, Ph.D., Princeton, 1965
Frederick D. Wright, professor emeritus, M.S., Columbia, 1942 (Co-appointed with Civil Engineering)

GERMANIC LANGUAGES AND LITERATURES
Bernd Kratz, chairman

Jay F. Bodine, assistant professor, Ph.D., Princeton, 1973
Theodore Fiedler, associate professor, Ph.D, Washington University, 1969
Karl J. Fink, assistant professor, Ph.D., Illinois, 1974
Lilian Hoverland, assistant professor, Ph.D., California, Santa Cruz, 1973
Bernd Kratz, professor, Ph.D., Marburg, Germany, 1963
Ingeborg F. Riester, assistant professor, M.A., Kentucky, 1952
John Wesley Thomas, professor, Ph.D., Penn State, 1942
Norman H. Binger, professor emeritus, Ph.D., Ohio State, 1942
Paul Stapf, professor emeritus, Ph.D., Berlin, Germany, 1937
Paul K. Whitaker, professor emeritus, Ph.D., Ohio State, 1942

HISTORY
Joe A. Thompson, chairman

James C. Albisetti, assistant professor, Ph.D. Yale, 1976
Lance Banning, associate professor, Ph.D., Washington University, 1971
Raymond F. Betts, professor, Ph.D., Columbia, 1958; D.d'U., Grenoble, France, 1955
John M. Carland, assistant professor, Ph.D., Toronto, 1977
Harry M. Caudill, professor, LL.B., Kentucky, 1948
William J. Chambliss, associate professor, Ph.D., Michigan, 1963
Steven A. Channing, associate professor, Ph.D., North Carolina, 1968
Eric H. Christianson, assistant professor, Ph.D., Southern California, 1976
Thomas D. Clark, professor emeritus, Ph.D., Duke, 1932
Carl B. Cone, professor emeritus, Ph.D., Iowa, 1940
E. Randolph Daniel, associate professor, Ph.D., Virginia, 1966
Susan M. Durant, instructor, Ph.D., North Carolina, 1972
Nancy Schrom Dye, associate professor, Ph.D., Wisconsin, 1974
Bruce S. Eastwood, associate professor, Ph.D., Wisconsin, 1964
Mary W. M. Hargreaves, professor, Ph.D., Radcliffe, 1951
George C. Herring, Jr., professor, Ph.D., Virginia, 1965
Bruce F. Holle, assistant professor, Ph.D., Michigan, 1978
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, associate professor, Ph.D., Indiana, 1973
Jeremy D. Popkin, associate professor, Ph.D., California, 1977
Robert W. Randall, associate professor, Ph.D., Harvard, 1965
Charles P. Roland, professor, Ph.D., Louisiana State, 1951
Daniel B. Rowland, associate professor, Ph.D., Yale, 1976
John Scarborough, professor, Ph.D., Illinois, 1967
Robert Seager II, professor, Ph.D., Ohio State, 1956
Gerard W. Silberstein, professor, Ph.D., Harvard, 1962
Daniel B. Smith, assistant professor, Ph.D., Virginia, 1977
Charles G. Talbert, associate professor emeritus, Ph.D., Kentucky, 1952
Rhea A. Taylor, associate professor emeritus, Ph.D., Chicago, 1948
Joe A. Thompson, associate professor, Ph.D., Stanford, 1966
Robert D. Warth, professor, Ph.D., Chicago, 1949

LINGUISTICS
Thomas M. Olshewsky, chairman

Susan Belmore, assistant professor of Psychology, adviser
Duncan Gardner, assistant professor of Slavic and Oriental Languages, adviser
Michael McCord, associate professor of Computer Science, adviser
Thomas Olshewsky, associate professor of Philosophy, adviser

Jean Pival, associate professor of English, adviser
John Rea, associate professor of French, adviser

MATHEMATICS
Roger Wets, chairman

David R. Adams, associate professor, Ph.D., Minnesota, 1969
Ioannis Athanasopoulos, assistant professor, Ph.D., Chicago, 1979
James C. Beidleman, associate professor, Ph.D., Pennsylvania State, 1964
Craig John Benham, assistant professor, Ph.D., Princeton, 1972
James E. Brennan, associate professor, Ph.D., Brown, 1969
J. D. Buckholtz, professor, Ph.D., Texas, 1960
Richard W. Carey, associate professor, Ph.D., SUNY, Stony Brook, 1970
Thomas A. Chapman, professor, Ph.D., Louisiana State, 1970
Frederick R. Cohen, associate professor, Ph.D., Chicago, 1972
Marcus S. Cohen, assistant professor, Ph.D., Chicago, 1977
Donald B. Coleman, professor, Ph.D., Purdue, 1961
Raymond H. Cox, associate professor, Ph.D., North Carolina, 1963
Julio Cesar Diaz, assistant professor, Ph.D., Rice, 1975
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
L. Craig Evans, associate professor, Ph.D., UCLA, 1975
Graeme Fairweather, associate 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, associate professor, Ph.D., Wayne State, 1969
Frederick Richard Giles, assistant professor, Ph.D., Waterloo, Canada, 1975
L. Wayne Goodwyn, associate professor, Ph.D., Maryland, 1968
William B. Gragg, professor, Ph.D., UCLA, 1974
Lawrence A. Harris, professor, Ph.D., Cornell, 1969
Thomas L. Hayden, professor, Ph.D., Texas, 1961
Henry C. Howard, professor, Ph.D., Carnegie-Mellon, 1958
Arne Jensen, assistant professor, Ph.D., Aarhus University, Denmark, 1979
Robert Jensen, associate professor, Ph.D., Northwestern, 1975
David C. Johnson, associate professor, Ph.D., Virginia, 1970
Steven Kaplan, assistant professor, Ph.D., California, Berkeley, 1976
Frank R. Keogh, professor, Sc.D, Cambridge, England, 1963
Daniel S. Kubert, associate professor, Ph.D., Harvard, 1973
Kenneth K. Kubota, professor, Ph.D., Faculte des Sciences de Paris, France, 1969
Stephen L. Langston, associate professor, Ph.D., Wisconsin, 1968
James F. Lawrence, assistant professor, Ph.D., University of Washington, 1975
Carl Lee, assistant professor, Ph.D., Cornell, 1980
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
John Lewis, associate professor, Ph.D., Illinois, 1970
Anders Lindquist, professor, Ph.D., Royal Institute Tech., Sweden, 1968
John E. Mack, professor, Ph.D., Purdue, 1959
Robert E. Molzon, assistant professor, Ph.D., Johns Hopkins, 1977
Raymond W. Rishel, professor, Ph.D., Wisconsin, 1959
Wimberly C. Royster, professor, Ph.D., Kentucky, 1952
Avinash Sathaye, assistant professor, Ph.D., Purdue, 1973
S. M. Shah, professor emeritus, Ph.D., London, England, 1942
James E. Simpson, associate professor, Ph.D., Yale, 1961
Kenneth W. Spackman, assistant professor, Ph.D., Colorado, 1977
Ted J. Suffridge, professor, Ph.D., Kansas, 1965
Cliff Swauger, Jr., adjunct instructor, M.S., Kentucky, 1962
Chris Vancil, administrative assistant, M.A., Murray State, 1974
Clasine van Winter, professor, Ph.D., Groningen, The Netherlands, 1957
James H. Wells, professor, Ph.D., Texas, 1958
Roger Wets, professor, Ph.D., California, Berkeley, 1964

MILITARY SCIENCE
(Army ROTC)
Lieutenant Colonel John M. Mitchell, chairman

Captain Thomas G. Corcoran, assistant professor, B.A., Murray State, 1974
Major Michael Hughes, assistant professor, B.S., Virginia, 1969
Captain Sidney C. Hughes, Jr., assistant professor, B.A., Texas A & M, 1972
Lieutenant Colonel John M. Mitchell, professor, M.A., Miami, 1973
Major Charles L. Mudd, assistant professor, M.S., Western Kentucky, 1976

PHILOSOPHY
Ronald Bruzina, chairman

J. Daniel Breazeale, associate professor, Ph.D., Yale, 1971
Ronald Bruzina, associate professor, Ph.D., Notre Dame, 1966; Doctorat de 3^{e} cycle, Paris-Nanterre, France, 1970
Jeffrey Burkhardt, assistant professor, Ph.D., Florida State, 1978
Jesse de Boer, professor emeritus, Ph.D., Harvard, 1942
James Force, assistant professor, Ph.D., Washington University (St. Louis), 1977; joint appointment Honors/Philosophy
Daniel H. Frank, assistant professor, M.A., Cambridge, England, 1975
Dallas M. High, professor, Ph.D., Duke, 1964
Don Howard, assistant professor, Ph.D., Boston University, 1979
James W. Manns, associate professor, Ph.D., Boston University, 1971
Patricia Milanich, assistant professor, Ph.D., Arizona, 1981
Janice Moulton, assistant professor, Ph.D., Chicago, 1971
Thomas M. Olshewsky, associate professor, Ph.D., Emory, 1965
Alan R. Perreiah, associate professor, Ph.D., Indiana, 1967
Henry A. S. Schankula, associate professor, Ph.D., Toronto, Canada, 1976

PHYSICS AND ASTRONOMY
Fletcher Gabbard, chairman

Joseph Lawrence Beach,* associate professor of radiation medicine, Ph.D., Wisconsin, 1972
Eugene Bradford Bradley,* professor of electrical engineering, Ph.D., Vanderbilt, 1964
Joseph Warren Brill, assistant professor, Ph.D., Stanford, 1978
John Ernest Christopher, associate professor, Ph.D., Virginia, 1967
Frank Oliver Clark, associate professor, Ph.D., Virginia, 1973
Lewis Wellington Cochran, professor, Ph.D., Kentucky, 1952
Marcel Coz, professor, D.Sc., Sorbone, France, 1960
Lance Eric DeLong, assistant professor, Ph.D., California, San Diego, 1977
Wendell Carden DeMarcus, professor, Ph.D., Yale, 1951
Peter Clay Eklund, assistant professor, Ph.D., Purdue, 1974
Moshe Elitzur, associate professor, Ph.D., Weizmann Institute, 1971
Gary J. Ferland, assistant professor, Ph.D., Texas, 1978
David Sheldon Flynn, visiting assistant professor, Ph.D., Duke, 1976
Fletcher Gabbard, professor, Ph.D., Rice, 1959
Richard Hanau, professor, Ph.D., Michigan, 1947
George Samuel Hurst,* professor, Ph.D., Tennessee, 1959
Craig Alan Jenkins, visiting instructor, M.A., SUNY, Binghampton, 1976
Bernard Donald Kern, professor, Ph.D., Indiana, 1949
Robert Edward Knight, associate professor, Ph.D., Texas, 1963
Wasley Swen Krogdahl, professor, Ph.D., Chicago, 1942
Guy Walter Lehman, professor, Ph.D., Purdue, 1954
Keith Bradford MacAdam, assistant professor, Ph.D., Harvard, 1972
Alan Douglas MacKellar, professor, Ph.D., Texas A&M, 1965
Marcus Thomas McEllistrem, professor, Ph.D., Wisconsin, 1956
Marvin G. Payne,* associate professor, Ph.D., Kentucky, 1965
George Harold Pepper, assistant professor, Ph.D., North Texas State, 1975

Mark Stephen Radomski, visiting assistant professor, Ph.D., Stanford, 1974
Marshall Saylors, visiting assistant professor, Ph.D., Tennessee, 1977
Earl Larsen Steele,* professor of Electrical Engineering, Ph.D., Cornell, 1970
Robert Allan Stokes*, associate professor, Ph.D., Princeton, 1968
Joseph Paul Straley, associate professor, Ph.D., Cornell, 1970
Kumble Ramarao Subbaswamy, assistant professor, Ph.D., Indiana, 1976
Thomas H. Troland, assistant 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
Lee Sigelman, chairman

Michael A. Baer, professor, Ph.D., Oregon, 1968
William D. Berry, assistant professor, Ph.D., Minnesota, 1979
Bradley C. Canon, professor, Ph.D., Wisconsin, 1967
Kenneth Coleman, associate professor, Ph.D., North Carolina, 1970
Pamela Johnston Conover, assistant professor, Ph.D., Minnesota, 1979
B. Vincent Davis, professor, Ph.D., Princeton, 1961
Herbert N. Drennon, associate professor, Ph.D., Duke, 1951
Maurice A. East, associate professor, Ph.D., Princeton, 1969
Stanley Feldman, assistant professor, Ph.D., Minnesota, 1978
George H. Gadbois, associate professor, Ph.D., Duke, 1965
Donald A. Gross, assistant professor, Ph.D., Iowa, 1976
Malcolm E. Jewell, professor, Ph.D., Penn State, 1958
David L. Lowery, assistant professor, Ph.D., Michigan State, 1979
William E. Lyons, professor, Ph.D., Penn State, 1965
Karen A. Mingst, associate professor, Ph.D., Wisconsin, 1974
Daniel N. Nelson, associate professor, Ph.D., Johns Hopkins, 1974
Herbert G. Reid, associate professor, Ph.D., North Carolina, 1968
Phillip Roeder, associate professor, Ph.D., Florida State, 1973
Lee Sigelman, professor, Ph.D., Vanderbilt, 1973
S. Sidney Ulmer, professor, Ph.D., Duke, 1956
Amry Vandenbosch, professor emeritus, Ph.D., Chicago, 1926
Kenneth E. Vanlandingham, professor, Ph.D., Illinois, 1950
Ernest Yanarella, associate professor, Ph.D., North Carolina, 1971

PSYCHOLOGY
Jesse G. Harris, Jr., chairman

Billie M. Ables,* associate professor, Ph.D., Purdue, 1954
Robert A. Baker, Jr., professor, Ph.D., Stanford University, 1952
Richard L. Bednar, professor, Ph.D., Minnesota, 1968
Susan Belmore, assistant professor, Ph.D., Penn State, 1976
Juris I. Berzins, professor, Ph.D., Connecticut, 1966
Teresa L. Bolick, assistant professor, Ph.D., Emory, 1980
Susan Burchfield, assistant professor, Ph.D., University of Washington, 1978
Jeffrey Brandsma,* associate professor, Ph.D., Penn State, 1971
James S. Calvin, professor, Ph.D., Yale, 1939
Sandra Candy, assistant professor, Ph.D., Wayne State, 1977
Richard Davis,* assistant professor, Ph.D., Vanderbilt, 1971
Ronald C. Dillehay, professor, Ph.D., California, 1962
William G. Drew,* associate professor, Ph.D., Tennessee, 1969
Edward Engel, associate professor, Ph.D., Princeton, 1955
Stuart Fisher, assistant professor, Ph.D., Illinois, 1977
John V. Haley,* professor, Ph.D., Loyola, 1963
Jesse G. Harris, Jr., professor, Ph.D., Duke, 1955
Michael Hubbard, assistant professor, Ph.D., Stanford, 1977
Russell A. Jones,* associate professor, Ph.D., Duke, 1969
Robert F. Lorch, assistant professor, Ph.D., Massachusetts, 1980
Carol Lowery, assistant professor, Ph.D., Kansas, 1977
Donald F. McCoy Jr., associate professor, Ph.D., Missouri, 1966
Michael T. Nietzel, associate professor, Ph.D., Illinois, 1973
Arthur Nonneman, associate professor, Ph.D., Florida, 1970
George Robinson*, assistant professor, Ph.D., Chicago, 1970
Caryl Rusbult, assistant professor, Ph.D., North Carolina, 1978
James E. Spivey, associate professor, Ph.D., Texas, 1964
Leonard Worell, professor, Ph.D., Ohio State, 1954
Thomas R. Zentall, associate professor, Ph.D., California, Berkeley, 1969
James F. Zolman*, associate professor, Ph.D., California, Berkeley, 1963

*joint or adjunct appointment

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES
Paul G. Forand, chairman

Roger B. Anderson, associate professor, Ph.D., Michigan, 1966
Paul G. Forand, associate professor, Ph.D, Princeton, 1962
Duncan Gardiner, assistant professor, Ph.D., Indiana, 1975
Gerald Janecek, associate professor, Ph.D., Michigan, 1972
Susan Janecek, part-time instructor, M.A., Michigan, 1969
Boris Sorokin, associate professor, Ph.D., Chicago, 1973
Larisa Sorokin, part-time instructor, M.A., UCLA, 1961
Leon Zolondek, professor, Ph.D., Chicago, 1957

SOCIOLOGY
Willis A. Sutton, Jr., chairman

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, assistant professor, Ph.D., Wisconsin, 1981
Janet Bokemeier, assistant professor, Ph.D., Iowa State, 1978
J. Michael Brooks, associate professor, Ph.D., Ohio State, 1970
James S. Brown, professor, Ph.D., Harvard, 1963
Lawrence M. Busch, associate professor, Ph.D., Cornell, 1974
James A. Christenson, associate professor, Ph.D., Washington State, 1972
Richard R. Clayton, professor, Ph.D., Tennessee, 1970
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
David R. Dickens, assistant professor, Ph.D., Kansas, 1979
Thomas R. Ford, professor, Ph.D., Vanderbilt, 1951
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Lorraine Garkovich, assistant professor, Ph.D., Missouri, 1976
Thomas F. Garrity, professor, Ph.D., Duke, 1971
James W. Gladden, professor emeritus, Ph.D., Pittsburgh, 1945
Robert Goldman, assistant professor, Ph.D., Duke, 1977
Jon Hendricks, associate professor, Ph.D., Penn State, 1971
James G. Hougland, associate professor, Ph.D., Indiana, 1975
William F. Kenkel, professor, Ph.D., Ohio State, 1952
William B. Lacy, associate professor, Ph.D., Michigan, 1975
Richard Maurer, assistant extension professor, Ph.D., Ohio State, 1977
Philip M. Moody, associate professor, Ph.D., Utah, 1967
Charles Perry, assistant professor, Ph.D., Cornell, 1978
Kenneth E. Pigg, associate extension professor, Ph.D., Cornell, 1976
Avery Sharron, assistant professor, Ph.D., Illinois, 1981
Jon M. Shepard, professor, Ph.D., Michigan State, 1967
Gerard T. Slatin, associate professor, Ph.D., Indiana, 1967
John B. Stephenson, professor, Ph.D., North Carolina, 1966
Robert Straus, professor, Ph.D., Yale, 1947
Willis A. Sutton, Jr., professor, Ph.D., North Carolina, 1952
Sandra A. Tausend, assistant professor, Ph.D., Washington, 1980

Ann R. Tickamyer, assistant professor, Ph.D., North Carolina, 1979
William H. Turner, assistant professor, Ph.D., Notre Dame, 1974
Harwin L. Voss, professor, Ph.D., Wisconsin, 1961
Paul Warner, extension associate professor, Ph.D., Ohio State, 1973
George L. Wilber, professor, Ph.D., Nebraska, 1952

SPANISH AND ITALIAN LANGUAGES AND LITERATURES
Daniel R. Reedy, chairman

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, Ph.D., North Carolina, 1946
John Lihani, professor, Ph.D., Texas, 1954
William C. McCrary, professor, Ph.D., Wisconsin, 1958
Laurence Prescott, assistant 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
Joseph M. Gani, chairman

David M. Allen, associate professor, Ph.D., North Carolina State, 1968
Vasant P. Bhapkar, professor, Ph.D., North Carolina, 1959
Paul L. Cornelius, associate professor, Ph.D., Illinois, 1972
Dipak K. Dey, assistant professor, Ph.D., Purdue, 1980
Mark Finster, assistant professor, Ph.D., Michigan, 1976
Zakkula Govindarajulu, professor, Ph.D., Minnesota, 1961
William Griffith, assistant professor, Ph.D., Pittsburgh, 1979
Harlley E. McKean, professor, Ph.D., Purdue, 1958
Shailendra Menjoge, assistant professor, Ph.D., Rochester, 1981
William Muir, assistant professor, Ph.D., Purdue, 1977
Peter Purdue, associate professor, Ph.D., Purdue, 1972
Steven W. Rust, assistant professor, Ph.D., Arizona, 1981
Constance L. Wood, assistant professor, Ph.D., Florida State, 1975

COLLEGE OF BUSINESS AND ECONOMICS

Richard W. Furst, dean

ACCOUNTING
Paul Michael Davis, chairman

John M. Alvis, instructor, Ph.D. cand., Arkansas; CPA
Richard C. Chen, assistant professor, Ph.D., Texas, 1980; CPA
Myrtle W. Clark, assistant professor, Ph.D., South Carolina, 1978; CMA
Stephen M. Courtenay, instructor, Ph.D. cand., Arkansas
Paul Michael Davis, professor, Ph.D., Illinois, 1969; LL.M., Boston, 1977; CPA
William W. Ecton, professor, Ph.D., Missouri, 1966; CPA
Daniel L. Fulks, assistant professor, Ph.D., Georgia State, 1980; CPA
Jesse C. Hammond, instructor, D.B.A. cand., Tennessee
James R. Holmes, assistant professor, Ph.D., Missouri, 1977
Stuart B. Keller, instructor, Ph.D., cand., North Carolina
James A. Knoblett, professor, Ph.D., Washington, 1963
Donald L. Madden, professor, Ph.D., Texas, 1967; CPA, CMA
Levis D. McCullers, professor, Ph.D., Florida, 1969; CPA
Terry J. Nunley, instructor, Ph.D. cand., Alabama; CPA
Albert W. Patrick, professor, Ph.D., Michigan, 1955; CPA
Clyde T. Stambaugh, assistant professor, D.B.A., Kentucky, 1981; CPA
Manuel A. Tipgos, associate professor, Ph.D., Louisiana State, 1974; CPA
James P. Trebby, instructor, D.B.A. cand., Kentucky; CPA
Relmond P. Van Daniker, professor, D.B.A., Maryland, 1970; CPA

BUSINESS ADMINISTRATION
Jon M. Shepard, chairman

Kashi R. Balachandran, associate professor, Ph.D., California, 1968
John J. Bernardo, associate professor, Ph.D., Purdue, 1972
Michael D. Carpenter, assistant professor, D.B.A., Arizona State, 1976
It Keong Chew, assistant professor, Ph.D., South Carolina, 1977
Ronnie J. Clayton, instructor, Ph.D. cand., Georgia
James Donnelly, professor, D.B.A., Maryland, 1968
Alan J. Dubinsky, assistant professor, Ph.D., Minnesota, 1979
Robert T. Edwards, instructor, M.B.A., Kentucky, 1975
Charles Fay, assistant professor, Ph.D., Washington, 1979
M. Andrew Fields, assistant professor, Ph.D. cand., Virginia Polytechnic Institute
Richard W. Furst, professor, D.B.A., Washington, 1968
James L. Gibson, professor, Ph.D., Kentucky, 1962
C. Michael Gray, assistant professor, J.D., Wisconsin, 1975
Andrew Grimes, associate professor, D.B.A., Minnesota, 1969
Joseph Guiltinan, associate professor, D.B.A., Indiana, 1969
Earnestine Hargrove, instructor, M.S.B.A., Massachusetts, 1974
Charles S. Haywood, professor, Ph.D., California, 1955
Paul Hensel, assistant professor, Ph.D. cand., Houston
Harold Hotelling, Jr., assistant professor, Ph.D. cand., Duke
Thomas Ingram, assistant professor, Ph.D., Georgia State, 1980
Clyde L. Irwin, associate professor, D.B.A., Illinois, 1966
Keith Johnson, associate professor, Ph.D., Illinois, 1970
Wesley Jones, associate professor, Ph.D., Purdue, 1975
James R. Lang, assistant professor, Ph.D., Massachusetts, 1976
Kenneth Marino, assistant professor, Ph.D., Massachusetts, 1978
Terry L. Maris, assistant professor, Ph.D., Nebraska, 1979
Len Martien, instructor, D.B.A. cand., Kentucky
Joseph L. Massie, professor, Ph.D., Chicago, 1955
John Masten, visiting associate professor, North Carolina at Chapel Hill, 1942
Tony McAdams, associate professor, J.D., Iowa, 1969
H. Brinton Milward, assistant professor, Ph.D., Ohio State, 1978
P. J. O'Connor, assistant professor, Ph.D., Florida, 1978
Donald Shannon, associate professor, Ph.D., North Carolina, 1972
Karyll N. Shaw, assistant professor, D.B.A. cand., Maryland
Jon M. Shepard, professor, Ph.D., Michigan State, 1968
C. Wayne Shepherd, assistant professor, J.D., Kentucky, 1969
Ralph Steuer, associate professor, Ph.D., North Carolina, 1973
Gary Sullivan, assistant professor, Ph.D., Florida, 1978
Marc J. Wallace, professor, Ph.D., Minnesota, 1972

ECONOMICS
William J. Stober, chairman

M. Mukhtar Ali, professor, Ph.D., Wisconsin, 1969
Mark C. Berger, instructor, Ph.D. cand., Ohio State
Glenn Blomquist, assistant professor, Ph.D., Chicago, 1976
Carl Cabe, professor, Ph.D., Illinois, 1952
Virgil L. Christian, professor, Ph.D., Kentucky, 1956
Stephen A. Clark, assistant professor, Ph.D., California, 1976
Carlos C. Erwin, associate professor emeritus, Ph.D., Illinois, 1952
James S. Fackler, assistant professor, Ph.D., Indiana, 1977
Richard E. Gift, associate professor, Ph.D., Duke, 1965
Merlin N. Hackbart, associate extension professor, Ph.D., Kansas State, 1968
H. W. Hargreaves, professor emeritus, Ph.D., Duke, 1941
Curtis E. Harvey, associate professor, Ph.D., Southern California, 1963
Barry T. Hirsch, visiting associate professor, Ph.D., Virginia, 1977
Charles W. Hultman, professor, Ph.D., Iowa, 1960
Joseph Krislov, professor, Ph.D., Wisconsin, 1954

Jeffrey E. Levin, assistant professor, Ph.D., Purdue, 1976
John L. Madden, associate professor, Ph.D., Kansas State, 1968
James R. Marsden, associate professor, Ph.D., Purdue, 1970
William B. Marxsen, assistant professor, Ph.D., Georgia State, 1976
L. Randolph McGee, extension professor, Ph.D., Tulane, 1963
W. Douglas McMillin, assistant professor, Ph.D., Louisiana State, 1979
Pamela J. Nickless, assistant professor, Ph.D., Indiana, 1976
Gregory Richardson, assistant professor, Ph.D., Cornell, 1975
David F. Ross, associate professor, Ph.D., Harvard, 1956
Rubin Saposnik, professor, Ph.D., Minnesota, 1959
Hirofumi Shibata, professor, Ph.D., Columbia, 1965
John Lew Silver, assistant professor, Ph.D., Duke, 1980
Don M. Soule, professor, Ph.D., Wisconsin, 1953
William J. Stober, professor, Ph.D., Duke, 1965
Robert H. Stroup, professor, Ph.D., Iowa, 1953
Michael A. Webb, assistant professor, Ph.D., Illinois, 1980
Robert L. Welch, assistant professor, Ph.D., Northwestern, 1974

COLLEGE OF COMMUNICATIONS

Herbert N. Drennon, acting dean

COMMUNICATION
Phillip C. Palmgreen, acting chairman

James L. Applegate, assistant 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
Thomas J. Housel, assistant professor, M.A., Wyoming, 1975
John F. Long, visiting instructor, Ph.D. cand., Utah
Robert D. Murphy, professor, Ph.D., Syracuse, 1951
Philip C. Palmgreen, assistant professor, Ph.D., Michigan, 1975
J. W. Patterson, associate professor, Ph.D., Oklahoma, 1960
Howard E. Sypher, assistant professor, Ph.D., Michigan, 1979
G. Norman Van Tubergen, associate professor, Ph.D., Iowa, 1968
Enid Waldhart, assistant professor, Ph.D., Indiana, 1975

SCHOOL OF JOURNALISM
Ronald T. Farrar, director

Ronald T. Farrar, professor, Ph.D., Missouri, 1965
Michael J. Kirkhorn, assistant professor, B.S., Wisconsin, 1961
Robert L. Orndorff, assistant professor, A.B., Kentucky, 1961
J. D. Rayburn, II, visiting assistant professor, Ph.D., Florida State, 1976
J. M. Ripley, professor, Ph.D., Ohio State, 1961
Bruce M. Swain, visiting assistant professor, Ed.D., Columbia, 1970
Leonard P. Tipton, associate professor, Ph.D., Wisconsin, 1969
Bruce H. Westley, professor, M.S., Columbia, 1941
S. Scott Whitlow, assistant professor, Ph.D., Southern Illinois, 1975

COLLEGE OF DENTISTRY

Merrill W. Packer, dean

COMMUNITY DENTISTRY
M. Raynor Mullins, chairman

Smith R. Armstrong, III*, (part-time) assistant profesor, D.M.D., Kentucky, 1968
James D. Bader, associate professor, D.D.S., Michigan, 1970; M.P.H., Michigan, 1973
Ervin C. Belcher*, associate professor, D.M.D., Kentucky, 1969
Thomas M. Cooper, professor, D.D.S., Tennessee, 1956
Richard C. Graves, associate professor, D.D.S., Michigan, 1954; M.P.H., Michigan, 1969; Dr. P.H., Michigan, 1971
Charlotte Haney, (part-time) assistant professor, D.M.D., Kentucky, 1976
Albert L. Heise, associate professor, D.M.D., Louisville, 1949; M.P.H., Michigan, 1969
Alan Kaplan, assistant professor, Ph.D., Kentucky, 1975
Karl W. Lange*, (part-time) associate professor, D.M.D., Louisville, 1960
Michael D. Martin (part-time) instructor, D.M.D., Kentucky, 1979
Donald R. McNeal, associate professor, D.M.D., Alabama, 1960; M.P.H., Michigan, 1968
M. Raynor Mullins, associate professor, D.M.D., Kentucky, 1968; M.P.H., North Carolina, 1970
Bruce Murray, assistant professor, Ph.D., Kentucky, 1979
Chris J. Nusbacher, (part-time) instructor, D.M.D., Kentucky, 1979
Merrill W. Packer, professor, D.D.S., Minnesota, 1959: M.S.D., Minnesota, 1964
Steven L. Reid, assistant professor, D.M.D., Kentucky, 1973
Hobson Sinclair, associate professor, D.M.D., Louisville, 1950
Timothy A. Smith, professor, Ph.D., North Carolina, 1963
Eric E. Spohn, associate professor, D.D.S., Michigan, 1969
Charles A. Thomas, (part-time) assistant professor, D.M.D., Kentucky, 1977
David B. Webster, Jr., assistant professor, D.D.S., Virginia Commonwealth, 1969; M.P.H., North Carolina, 1971
Robert C. Wesley*, associate professor, D.M.D., Louisville, 1954

*joint appointment

ENDODONTICS
Thomas P. Mullaney, chairman

Wesley B. Coffman, (part-time) assistant professor, D.M.D., Kentucky, 1978
Charles J. Cunningham, associate professor, D.D.S., Marquette, 1957; Cert. Endo., U.S.N. Graduate Dental School, 1965
Roland C. Duell, professor, D.D.S., Ohio State, 1963: M.S., Iowa, 1967
John B. Johnson, (part-time) assistant professor, D.D.S., West Virginia, 1972
Bernard L. Lutz, associate professor, 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
Richard K. Mullins, (part-time) assistant professor, D.M.D., Kentucky, 1972; Cert. Endo., Kentucky, 1976
Paul T. Wehrman, (part-time) assistant professor, D.M.D., Kentucky, 1973; Cert., Endo., Pittsburgh, 1978

ORAL BIOLOGY
Thomas L. Lillich, chairman

Raymond B. Bridges, associate professor, Ph.D., Vanderbilt, 1969
Albert T. Brown, associate professor, Ph.D., Vanderbilt, 1968
Robert B. Calmes, associate professor, Ph.D., West Virginia, 1972
James F. Drummond,* associate professor, D.D.S., St. Louis, 1963; M.S.D., St. Louis, 1966; Ph.D., St. Louis, 1970
William K. Elwood,* associate professor, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Thomas T. Lillich, associate professor, Ph.D., North Carolina, 1970
James L. Matheny, associate professor, Ph.D., Mississippi, 1971
Gerald I. Roth, professor, D.D.S., Columbia, 1957; Ph.D., Pennsylvania, 1969
Patrick J. Sammon, associate professor, Ph.D., Louisville, 1968

*joint appointment

ORAL DIAGNOSIS AND ORAL MEDICINE
Laurence R. Bean, chairman

Laurence R. Bean, professor, D.D.S., Ohio State, 1961
Donald A. Falace, associate professor, D.M.D., Kentucky, 1970; Cert. O.S., North Carolina, 1975
W. Spalding Green, Jr., (part-time) associate professor, D.M.D., Louisville, 1962
Don R. King, associate professor, D.D.S., Washington, St. Louis, 1953
Harry E. Moore, associate professor, D.M.D., Louisville, 1952
Edwin Struss, (part-time) assistant professor, D.M.D., Kentucky, 1978
Mark Thomas, (part-time) assistant professor, D.M.D., Kentucky, 1979

ORAL PATHOLOGY
Dean K. White, chairman

Douglas D. Damm, assistant professor, D.D.S., Louisiana State, 1977; Cert. O.P., Emory, 1979
James F. Drummond,* associate professor, D.D.S., St. Louis, 1963; M.S.D., St. Louis, 1966; Ph.D., St. Louis, 1970
Dean K. White, associate professor, D.D.S., Missouri, 1970; M.S.D., Indiana, 1972

*joint appointment

ORAL AND MAXILLOFACIAL SURGERY
Markell W. Kohn, chairman

Emmett R. Costich, professor, D.D.S., Pennsylvania, 1945; Cert. O.S., Rochester, 1947; Ph.D., Rochester, 1954
Joe W. Daugherty, (part-time) associate professor, D.M.D., Louisville, 1951; Cert. O.S., City-County Hospital, Houston, 1953
Arthur A. Gonty, associate professor, D.D.S., Marquette, 1968; Cert. O.S., Ohio State, 1974
Markell W. Kohn, professor, D.D.S., California, San Francisco, 1963; Cert. O.S., Parkland Memorial Hospital, Dallas, 1969
Robert D. Marciani, associate professor, D.M.D., New Jersey, 1966; Cert. O.S., Veterans Hospital, Allen Park, Michigan, 1971

ORTHODONTICS
Robert H. Biggerstaff, chairman

Robert H. Biggerstaff, professor, D.D.S., Howard, 1955; Ph.D., Pennsylvania, 1969, Cert. Ortho., Kentucky 1973
Olwyn Diamond, assistant professor, B.D.S., Witwatersrand, Johannesburg, South Africa, 1973; Cert. Ortho., Eastman Dental Center, 1979
Terry V. Gruelle, (part-time) assistant professor, D.M.D., Kentucky, 1972; M.S., North Carolina, 1977; Cert. Ortho., North Carolina, 1977
Judson M. Knight, (part-time) assistant professor, D.M.D., Kentucky, 1967; Cert. Ortho., Kentucky, 1972
J. F. Camilla Tulloch, assistant professor, B.D.S., London, England, 1965; Dipl. Ortho., R.C.S., Institute of Dental Surgery, London, England, 1969
Orhan C. Tuncay, associate professor, D.M.D., Ankara, Turkey, 1969; Cert. Ortho., Pennsylvania, 1974
Bonnie Daniels Wheatley, (part-time) assistant professor, D.M.D., Kentucky, 1973; Cert. Ortho., Kentucky, 1975; M.S., Kentucky, 1975
Raymond A. Yozwiak, (part-time) assistant professor, D.M.D., Kentucky, 1976; M.S., St. Louis, 1979

PEDIATRIC DENTISTRY
Susan A. McEvoy, acting chairman

Wayne Collier, (part-time) associate professor, D.M.D., Louisville, 1952
Gerald A. Ferretti, assistant professor, D.D.S., Georgetown, 1976; M.D.S. and Cert. Pedo., Connecticut, 1980
Milton E. Gellin, professor, D.D.S., Western Reserve, 1946
Susan McEvoy, associate professor, D.M.D., Kentucky, 1968; M.S., Ohio State, 1971
John R. Mink, professor, D.D.S., Indiana, 1956; M.S.D., Indiana, 1961
David M. Skaff, (part-time) assistant professor, D.D.S., West Virginia, 1972; Cert. Pedo., Louisiana State, 1976.
Robert H. Spedding, professor, D.D.S., Indiana, 1960; M.S.D., Indiana, 1963

PERIODONTICS
Raymond A. Kopczyk, chairman

Herbert Abrams, associate professor, D.D.S., Temple, 1958; M.S., Ohio State, 1966
Harry M. Bohannan*, professor, D.M.D., Louisville, 1953; M.S.D., Pennsylvania, 1961
C. Warner Bosman, assistant professor, B.Ch.D., Pretoria, South Africa, 1962; M.Sc., London, 1975; Cert. Perio., Kentucky, 1979
Samuel J. Jasper, Jr., assistant professor, D.D.S., Ohio State, 1976; M.S., Ohio State, 1980
Anthony J. Kopczyk, (part-time) assistant professor, D.M.D., Kentucky, 1976
Raymond A. Kopczyk, professor, D.D.S., Northwestern, 1956; M.Sc., Ohio State, 1966
Jan H. Kraal, professor, Doctoral and Tandarts., Netherlands, 1966; M.S., Michigan, 1972; Ph.D., Leiden, 1979
Keith J. Lemmerman, (part-time) assistant professor, D.M.D., Kentucky, 1974; Cert. Perio., Kentucky, 1976
Oakie G. Newsome, (part-time) associate professor, D.M.D., Kentucky, 1966
Stanley R. Saxe, professor, D.M.D., Harvard, 1958; M.S.D., Washington, 1960
Jerry L. Stovall, (part-time) assistant professor, D.M.D., Kentucky, 1969; Cert. Perio., Kentucky, 1975
Dan R. Trinler, (part-time) associate professor, D.M.D., Louisville, 1962; Cert. Perio., Kentucky, 1968

*Appointment outside the College of Dentistry

PROSTHODONTICS
A. George Wagner, chairman

Behruz J. Abadi, assistant professor, D.M.D., Istanbul, Turkey, 1972; Cert. Prosth., Eastman Dental Center, Rochester, 1976
Charles W. Ellinger, professor, D.D.S., Ohio State, 1959; M.Sc., Ohio State, 1965
John G. Gattozzi, associate professor, D.D.S., Ohio State, 1959
Hubert Hall, (part-time) instructor, D.M.D., Kentucky, 1978
Karl W. Lange*, (part-time) associate professor, D.M.D., Louisville, 1960
Harry M. Plummer, Jr., (part-time) assistant professor, D.M.D., Kentucky, 1967
A. George Wagner, associate professor, D.D.S., Michigan, 1954; M.S., Cert. Prosth., Missouri, 1968

*joint appointment

RESTORATIVE DENTISTRY
Harold R. Laswell, chairman

Steven B. Angelucci, (part-time) assistant professor, D.M.D., Kentucky, 1979

Neal D. Bellanti, associate professor, D.D.S., Missouri, 1966; M.A., Missouri, 1971
Thomas W. Brehm, associate professor, D.D.S., Ohio State, 1949
Hugh N. Burkett, associate professor, D.M.D., Kentucky, 1970
Mary Lou Head, (part-time) assistant professor, D.M.D., Kentucky, 1978
Howard Higgins, (part-time) assistant professor, D.M.D., Kentucky, 1975
John T. Kemper, assistant professor, D.M.D., Kentucky, 1976
Nedra Kimmel, assistant professor, D.M.D., Kentucky, 1978
Harold R. Laswell, professor, D.D.S., Indiana, 1961; M.S.D., Indiana, 1966
Laban T. McClure, (part-time) associate professor, D.D.S., Ohio State, 1944
Thomas Mee, assistant professor, D.D.S., New York, 1979
E. Allen Meyer, assistant professor, D.M.D., Kentucky, 1974
Richard Mitchell, assistant professor, Ph.D., Virginia, 1975
Jeffrey P. Okeson, assistant professor, D.M.D., Kentucky, 1972
Michael T. Romano*, professor, D.D.S., Temple, 1947
T. Milton Skeeters, assistant professor, D.M.D., Kentucky, 1968
James H. Timmons, assistant professor, D.D.S., Detroit, 1969
Erwin G. Turner, (part-time) assistant professor, D.M.D., Kentucky, 1975
Thomas M. Williams, (part-time) assistant professor, D.M.D., Kentucky, 1974

*Appointment outside the College of Dentistry

COLLEGE OF EDUCATION

George Denemark, dean

ADMINISTRATION AND SUPERVISION
Charles F. Faber, chairman

Kenneth W. Brooks, assistant professor, Ph.D., Ohio State, 1972
Fred Edmonds, professor, Ed.D., Kentucky, 1961
Charles F. Faber, professor, Ph.D., Chicago, 1961
Durbin Kemper, assistant professor emeritus, M.A., Kentucky, 1933
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

CURRICULUM AND INSTRUCTION
William H. Peters, chairman

Gary Anglin, assistant professor, Ed.D., Indiana, 1979
Ronald Atwood, professor, Ed.D., Florida State, 1966
Virginia Atwood, associate professor, Ph.D., Texas, 1968
Harry V. Barnard, professor, Ed.D., Alabama, 1959
Olive Barrett, assistant professor emeritus, M.A., Kentucky, 1949
Jacques S. Benninga*, assistant professor, Ph.D., George Peabody College, 1976
Frank Bickel, assistant professor, Ed.D., Kentucky, 1970
Ollie E. Bissmeyer, Jr., assistant professor, Ed.D., Indiana, 1964
Connie A. Bridge, associate professor, Ed.D., University of Arizona, 1977
Alma Carl, assistant professor emeritus, M.A., Kentucky, 1953
Georgia Collins*, assistant professor, Ph.D., Ohio State, 1978
George Denemark, professor, Ed.D., Illinois, 1956
Lyman Ginger, professor emeritus, Ed.D., Kentucky, 1950
Ruth Haines, assistant professor emeritus, M.A., Columbia, 1931
Elfrieda Hiebert, assistant professor, Ph.D., Wisconsin, 1979
James Hiebert, assistant professor, Ph.D., Wisconsin, 1979
Donald Hoffman*, associate professor, Ed.D., Georgia, 1972
Catherine Lytle, assistant professor emeritus, M.A., Kentucky, 1949
Nancy McClure, assistant professor, 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, Ph.D., Stanford, 1949
Vivan 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
Elizabeth Nelli, assistant professor, Ed.D., Kentucky, 1980
William Peters, professor, Ph.D., Virginia, 1968
E. Leon Porter, assistant professor emeritus, Ed.D., Kentucky, 1960
Opal Reynolds, assistant professor, M.A., Kentucky, 1952
James Simpson*, associate professor, Ph.D., Yale, 1961
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
Diana Wearne, assistant professor, Ph.D., Wisconsin, 1976
Jane White, UK librarian, M.S., Kentucky, 1965
Ayleene Whitehead, assistant professor emeritus, M.A., Kentucky, 1961
Angene Wilson, associate professor, Ph.D., Ohio State, 1976
Bernard Young*, instructor, M.F.A., Cornell, 1976

*joint appointment

EDUCATIONAL PSYCHOLOGY AND COUNSELING
Fred W. Danner, chairman

C. Dwight Auvenshine, associate professor, Ph.D., Missouri, 1962
James R. Barclay, professor, Ph.D., Michigan, 1959
Henry P. Cole, professor, Ed.D., SUNY, 1968
Fred W. Danner, associate professor, Ph.D., Minnesota, 1974
Stephen T. DeMers, assistant professor, Ed.D., Rutgers, 1976
Thomas R. Guskey, assistant professor, Ph.D., Chicago, 1978
Robert Harman, associate adjunct professor, Ed.D., Nebraska, 1969
Edward Kifer, associate professor, Ph.D., Chicago, 1973
Warren Lacefield, assistant professor, Ph.D., Kentucky, 1981
Gordon P. Liddle, professor, Ph.D., Chicago, 1959
Emanuel Mason, professor, Ed.D., Temple, 1972
Michael Nichols, adjunct assistant professor, Ph.D., Kentucky, 1978
Earl Rankin, professor, Ph.D., Michigan, 1958
Leonard Ravitz, associate professor, Ed.D., Maryland, 1957
Pam Remer, assistant professor, Ph.D., Colorado, 1972
Rory Remer, associate professor, Ph.D., Colorado, 1972
Harriet Rose, adjunct professor, Ph.D., Kentucky, 1964
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
Barbara Witten, assistant professor, Ph.D., Syracuse, 1980
Judith Worell, professor, Ph.D., Ohio State, 1956

HEALTH, PHYSICAL EDUCATION AND RECREATION
Hubert L. Garrett, chairman

Judy Bannister, assistant professor, M.S., Oregon, 1977
Barbara Call, associate professor, Ed.S., Eastern Ky., 1975
Martha Carr, professor emeritus, Ed.D., Indiana, 1944
Maurice Clay, professor emeritus, Ed.D., Kentucky, 1955
Jess L. Gardner, associate professor, Ed.D., Kentucky, 1964
Hubert L. Garrett, professor, Ed.D., George Peabody College, 1965
Stella Gilb, assistant professor emeritus, M.A., Kentucky, 1940
Joseph J. Gruber, professor, Ph.D., Purdue, 1959
John Hall, assistant professor, Ph.D., Oregon, 1975
Eugene Huff, assistant professor, M.A., Tennessee, 1964
Sharon Hunt, assistant professor, Ed.D., Georgia, 1977

Ada Mary Jobert, assistant professor emeritus, M.A., Kentucky, 1959
Bernard M. Johnson, assistant professor, M.A., Kentucky, 1949
Ernest Jokl, professor emeritus, M.D., Breslau, 1931
Earl Kauffman, professor emeritus, Ed.D., NYU, 1949
Jay T. Kearney, assistant professor, Ph.D., Maryland, 1972
Stanley Labanowich, associate professor, Ph.D., Illinois, 1975
Ralph V. Mann, associate professor, Ph.D., Washington State, 1976
James Nance, associate professor, M.A., Middle Tennessee State, 1965
Melody Noland, assistant professor, Ph.D., Maryland, 1980
Alfred Reece, assistant professor emeritus, P.E.D., Indiana, 1969
Abdelmonem Rizk, associate professor, Ed.D., Kentucky, 1968
Don Cash Seaton, professor emeritus, Ed.D., New York University, 1947
Pentti Teraslinna, associate professor, Ph.D., Purdue, 1966
Dennis Vinton, associate professor, Re.D., Indiana, 1969
Andrew Weiner, assistant professor, Ed.D., Georgia, 1976

HIGHER EDUCATION
Charles F. Elton, chairman

Collins W. Burnett, professor, Ph.D., Ohio State, 1948
Robert E. Carter, adjunct assistant professor, Ph.D., Indiana, 1968
Morris Cierley, professor emeritus, Ed.D., Illinois, 1953
Charles F. Elton, professor, Ph.D., Ohio State, 1951
Juanita W. Fleming, joint appointment, Ph.D., Catholic University, 1969
Jon F. Hesseldenz, adjunct assistant professor, Ed.D., Kentucky, 1976
Gerald H. Lunney, adjunct assistant professor, Ph.D., Minnesota, 1968
Leslie L. Martin, professor, Ph.D., Indiana, 1952
Edgar L. Sagan, associate professor, Ph.D., Ohio State, 1969
David H. Stockham, adjunct assistant professor, Ed.D., Kentucky, 1974

SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION
David E. Denton, chairman

Richard Angelo, assistant professor, Ed.D., Temple, 1978
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
Willis Griffin, associate professor, Ed.D., Columbia, 1952
Richard LaBrecque, associate professor, Ed.D., Boston, 1971
Richard L. Warren, professor, Ph.D., Stanford, 1966

SPECIAL EDUCATION
Donald P. Cross, acting chairman

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
Charlotte Clark, assistant professor, Ph.D., Minnesota, 1977
Donald P. Cross, associate professor, Ed.D., Kansas, 1968
Barbara K. Culatta, associate professor, Ph.D., Pittsburgh, 1975
Richard Culatta, associate professor, Ph.D., Pittsburgh, 1970
James Dworkin, assistant professor, Ph.D., SUNY, 1975
Carol Englert, assistant professor, Ph.D., Indiana, 1980
David Gast, associate professor, Ph.D., Kansas, 1975
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, instructor, Ph.D., Purdue, 1980
Beverly Stanley, assistant professor, M.A., Kentucky, 1959
George Sugai, assistant professor, Ph.D., Washington, 1980
Mark Wolery, assistant professor, Ph.D., Washington, 1980

VOCATIONAL EDUCATION
Herbert H. Bruce, Jr., chairman

Maurice Baker, associate professor emeritus, M.A., Kentucky, 1932
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
John Dickens, assistant professor, Ph.D., Ohio State, 1978
Bernard Fagan, professor, Ed.D., Kentucky, 1970
Inez H. Hill, assistant professor, 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
Carolyn Litchfield, assistant professor, Ed.D., Virginia Polytechnic Institute and State University, 1976
Leonard C. McDowell, professor, Ed.D., Kentucky, 1964
Jack McElroy, associate professor, Ed.D., Cincinnati, 1974
David C. McMurtry, associate professor, Ed.D., Indiana, 1966
Vernon Musselman, professor emeritus, Ed.D., Oklahoma, 1946
Clayton Omvig, professor, Ph.D., Iowa State, 1968
Devert Owens, associate professor, M.S., Kentucky, 1958
Kawanna Simpson, associate professor, Ed.D., Kentucky, 1976
Rodney Tulloch, associate professor, Ph.D., Penn State, 1972
Elaine Uthe, associate professor, Ph.D., Minnesota, 1966

COLLEGE OF ENGINEERING
Roger Eichhorn, dean

CHEMICAL ENGINEERING
Leonard K. Peters, chairman

Dibakar Bhattacharyya, associate professor, Ph.D., Illinois Institute of Technology, 1966
William L. Conger, associate professor, Ph.D., Pennsylvania, 1965
George F. Crewe, associate professor, Ph.D., West Virginia, 1970
Robert B. Grieves, professor, Ph.D., Northwestern, 1961
Charles E. Hamrin, Jr., professor, Ph.D., Northwestern, 1964
Richard I. Kermode, professor, Ph.D., Northwestern, 1962
Edward D. Moorhead, associate professor, Ph.D., Ohio State, 1959
Leonard K. Peters, associate professor, Ph.D., Pittsburgh, 1971
Asit K. Ray, assistant professor, Ph.D., Clarkson College of Technology, 1980
J. Thomas Schrodt, professor, Ph.D., Louisville, 1966
John Yamanis, assistant professor, Ph.D., Windsor, Ontario, 1975

CIVIL ENGINEERING
Vincent P. Drnevich, chairman

Staley F. Adams, professor, Ph.D., Colorado, 1965
George E. Blandford, assistant professor, Ph.D., Cornell, 1980
David K. Blythe, professor, M.S., Cornell, 1950
John A. Deacon, professor, D. Engr., California, Berkeley, 1965
John A. Dearinger, professor, M.S., Kentucky, 1948
Robert C. Deen, adjunct associate professor, Ph.D., Purdue, 1964
William B. Drake, lecturer, M.S., Kentucky, 1949
Vincent P. Drnevich, professor, Ph.D., Michigan, 1967
Edward G. Foree, adjunct associate professor, Ph.D., Stanford, 1967
Hans Gesund, professor, D.Engr., Yale, 1958
Ted D. Haley, professor, B.S., Kentucky, 1949
Bobby O. Hardin, professor, Ph.D., Florida, 1961
Yang H. Huang, professor, D.Sc., Virginia, 1966
John W. Hutchinson, professor, Ph.D., Illinois, 1961
David T. Kao, professor, Ph.D., Duke, 1967
George Land, Jr., associate professor, M.S., Kentucky, 1955
Robert A. Lauderdale, professor, Ph.D., Massachusetts Institute of Technology, 1958

Richard S. Mateer, professor, Ph.D., Pittsburgh, 1950
Sam A. Mory, professor emeritus, C.E., Kentucky, 1946
Jerry G. Rose, associate professor, Ph.D., Texas A&M, 1971
Debasish K. Roy, assistant professor, Ph.D., North Carolina State, 1979
Anthony B. Szwilski, associate professor, Ph.D., Nottingham University, 1975
Konstanty F. Unrug, professor, Ph.D., University of Krakow, 1966
Manouchehr Vaziri, assistant professor, Ph.D., California, Davis, 1980
Shien T. Wang, associate professor, Ph.D., Cornell, 1969
Don J. Wood, professor, Ph.D., Carnegie Institute of Technology, 1961
Frederick D. Wright, professor emeritus, M.A., Columbia, 1942

ELECTRICAL ENGINEERING
Benjamin J. Leon, chairman

Lyle N. Back, assistant professor, M.S., Kentucky, 1962
Eugene B. Bradley, professor, Ph.D., Vanderbilt, 1964
Frank M. Brown, associate professor, Ph.D., Ohio State, 1967
Raymond J. Distler, associate professor, Ph.D., Kentucky, 1964
Steven A. Dyer, assistant professor, Ph.D., Kansas State, 1977
J. Robert Heath, assistant professor, Ph.D., Auburn, 1973
Terry L. Henderson, associate professor, Ph.D., Texas-Austin, 1970
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
Syed A. Nasar, professor, Ph.D., California, Berkeley, 1963
Clayton R. Paul, associate professor, Ph.D., Purdue, 1970
Earl L. Steele, professor, Ph.D., Cornell, 1952
Lee T. Todd, associate professor, Ph.D., Massachusetts Institute of Technology, 1974
Hsi-Han Yeh, associate professor, Ph.D., Ohio State, 1967

ENGINEERING MECHANICS
Theodore R. Tauchert, chairman

Staley Fields Adams, professor, Ph.D., Colorado, 1965
Millard F. Beatty, Jr., professor, Ph.D., Johns Hopkins, 1964
Louis M. Brock, associate professor, Ph.D., Northwestern, 1972
Oscar W. Dillon, Jr., professor, D.Eng. Sci., Columbia, 1959
Stanley E. Jones, associate professor, Ph.D., Delaware, 1967
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
Frank J. Rizzo, professor, Ph.D., Illinois, 1964
David J. Shippy, professor, Ph.D., Iowa State, 1963
Theodore R. Tauchert, professor, D.Eng., Yale, 1964

MECHANICAL ENGINEERING
Clifford J. Cremers, chairman

Robert A. Altenkirch, associate professor, Ph.D., Purdue, 1975
Pramode K. Bhagat, associate professor, Ph.D., Ohio State, 1972
Richard C. Birkebak, professor, Ph.D., Minnesota, 1962
Roy D. Burberry, assistant professor emeritus, M.A., Kentucky, 1958
Joseph C. Carter, visiting associate professor, M.S., Columbia, 1937
Willis Merle Carter, professor, Ph.D., Michigan, 1953
Clifford J. Cremers, professor, Ph.D., Minnesota, 1964
Roger Eichhorn, professor and Dean of the College of Engineering, Ph.D., Minnesota, 1959
James McClelland Elliott, assistant professor, M.S., Kentucky, 1959
Edward E. Elsey, professor emeritus, M.E., Kentucky, 1947
James E. Funk, professor and associate vice president for Academic Affairs, Ph.D., Pittsburgh, 1960
Oliver William Gard, associate professor, M.S., Georgia Institute of Technology, 1952
Ottfried J. Hahn, associate professor, Ph.D., Princeton, 1964
Charles E. Knapp, associate professor, Ph.D., Notre Dame, 1968
James Francis Lafferty, professor, Ph.D., Michigan, 1967
Maurice Keith Marshall, associate professor, M.S., Kentucky, 1956
Harry Louis Mason, assistant professor, M.S., Kentucky, 1959
Robert E. Peck, assistant professor, Ph.D., California, Irvine, 1976
Mihail C. Roco, visiting associate professor, D. Eng., Bucharest, 1976
Andrew F. Seybert, assistant professor, Ph.D., Purdue, 1975
Shiva N. Singh, associate professor, Ph.D., Indian Institute of Technology, Kharagpur, India, 1959
Margaret L. Somers, visiting assistant professor, Ph.D., Cornell, 1974
Orville Watson Stewart, professor, M.S., Kentucky, 1955
Deh Chang Tao, lecturer, Ph.D., Purdue, 1951
Timothy W. Tong, assistant professor, Ph.D., California, Berkeley, 1980

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE
H. Alan Fine, acting chairman

Burton H. Davis, adjunct assistant professor, Ph.D., Florida, 1965
Robert J. DeAngelis, professor, Ph.D., Northwestern, 1965
Robert Carlisle Duncan, assistant professor, M.S., Kentucky, 1957
H. Alan Fine, associate professor, Sc.D., Massachusetts Institute of Technology, 1973
Peter Paul Gillis, professor, Ph.D., Brown, 1964
James Graham Morris, associate professor, Ph.D., Purdue, 1956
Wayne L. Ohlinger, adjunct assistant professor, Ph.D., Georgia Institute of Technology, 1977
William H. Reed, adjunct assistant professor, M.S., Kentucky, 1972
Phillip J. Reucroft, professor, Ph.D., London, England, 1959
Alberto A. Sagüés, adjunct assistant professor, Ph.D., Case-Western Reserve, 1972
Gordon A. Sargent, professor, Ph.D., London, England, 1964
Roy Erwin Swift, professor emeritus, D.Engr., Yale, 1949

COLLEGE OF FINE ARTS

Richard C. Domek, Jr., acting dean

ART
Leonard L. Hunter, chairman

Georgia Collins, assistant professor, Ph.D., Ohio State, 1978
Gerald Ferstman, associate professor, M.F.A., Washington, 1965
Elizabeth Finkenstaedt, associate professor, Ph.D., Harvard, 1963
Joseph Fitzpatrick, associate professor, M.A., Louisville, 1958
Deborah Frederick associate professor, M.F.A., Rochester Institute of Tech., 1967
Marilyn Hamann, associate professor, M.A., California, Berkeley, 1970
Donald H. Hoffman, associate professor, Ed.D., Georgia, 1972
Christine Havice, assistant professor, Ph.D., Pennsylvania State, 1978
Leonard L. Hunter, associate professor, M.F.A., California, 1972
Arthur F. Jones, associate professor, Ph.D., Case-Western Reserve, 1974
Mary S. Jones, assistant professor, Ph.D., Delaware, 1981
Jane S. Peters, associate professor, Ph.D., Wisconsin-Madison, 1975
James S. Pierce, professor, Ph.D., Harvard, 1959
Arturo A. Sandoval, associate professor, M.F.A., Cranbrook, 1971
George Szekely, associate professor, Ed.D., Columbia, 1975
Robert Tharsing, associate professor, M.A., California, 1967
John R. Tuska, professor, M.F.A., Alfred, 1960
Shirley Yee, assistant professor, M.F.A., California, 1978
Bernard Young, instructor, M.F.A., Cornell, 1976

SCHOOL OF MUSIC
Joe B. Buttram, director
Richard C. Domek, Jr., associate director

Joseph W. Baber, professor, M.M., Rochester, 1965
Arnold Blackburn, professor, M.M., Michigan, 1943
Lance W. Brunner, assistant professor, Ph.D., North Carolina, 1976
Joe B. Buttram, professor, Ph.D., Kansas, 1967
Wm. Harry Clarke, associate professor, M.A., George Peabody, 1963
Gordon B. Cole, assistant professor, M.M., New Hampshire, 1976
Kate R. Covington, instructor, M.M., Indiana, 1971
David A. Davenport, instructor (part-time), M.M., Cleveland Institute of Music, 1973
Vincent A. DiMartino, associate 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
Rodney K. Farrar, assistant professor, B.M., Oberlin, 1965
Arthur Graham, professor, Ed.D., Columbia, 1960
Harold R. Gray, instructor, M.M., Illinois, 1979
Gordon Henderson, assistant professor, M.M.E., Kentucky, 1977
Hubert P. Henderson, professor, Ph.D., North Carolina, 1962
Sara Holroyd, professor, M.A., Columbia, 1951
Donald W. Ivey, professor, D.M.A., Illinois, 1962
Phyllis Jenness, professor, M.A., Kentucky, 1958
Zoe Kelley, assistant professor, Ph.D., Wisconsin, 1981
Aimo Justus Kiviniemi, professor, M.A., Ohio State, 1952
John R. Lindsey, associate professor, M.M., Illinois, 1972
Rey M. Longyear, professor, Ph.D., Cornell, 1957
Charles H. Lord, assistant professor, Ph.D., Indiana, 1978
Mina F. Miller, assistant professor, Ph.D., New York University, 1978
Phillip Miller, associate professor, M.M.E., Boston, 1958
Ronald P. Monsen, assistant professor, Ph.D., Wisconsin, 1978
Patricia Montgomery, assistant professor, D.M.A., Indiana, 1979
Wesley K. Morgan, professor, Ph.D., Southern California, 1956
Barbara A. Morrison, instructor (part-time), B.M.E., Northwestern, 1958
Bruce N. Morrison, associate professor, M.M., Northwestern, 1960
Nathaniel Maxwell Patch, professor, M.M., Rochester, 1941
Carolyn M. Rankin, assistant professor, M.M., Louisiana State, 1950
Rita S. Salzberg, assistant professor, Ph.D., Florida State, 1977
Thomas E. Senff, assistant professor, D.M.A., Illinois, 1975
Peter C. Simpson, assistant professor, M.A., New Hampshire, 1975
Lucien P. Stark, professor, D.M.A., Michigan, 1968
Judith Vasek, instructor (part-time), M.M.E., Indiana, 1969
Cecilia Hoi-Mee Chu Wang, assistant professor, Ph.D., Texas Tech, 1975

THEATRE
James W. Rodgers, chairman

Robert S. Płock, assistant professor, M.A., Northern Illinois, 1971
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
Marjorie S. Stewart, dean

FAMILY STUDIES
John F. Crosby, chairman

Lisa K. Barclay, associate professor, Ph.D., Stanford, 1969
Jacques S. Benninga, assistant professor, Ph.D., George Peabody College, 1976
Gail A. Bjorklund, assistant extension professor, Ph.D., Indiana, 1979
John F. Crosby, associate professor, Ph.D., Syracuse, 1970
Ruth Ann Crum, instructor, M.S., Kentucky, 1980
Mary Ann Farley, instructor, M.S., Kentucky, 1976
Robert J. Fetsch, assistant extension professor, Ph.D., Wyoming, 1979
Robert H. Flashman, assistant extension professor, Ph.D., Ohio State, 1975
Peggy P. Kimsey, assistant professor, Ph.D., Pennsylvania State, 1977
Linda F. Little, assistant professor, Ph.D., Kentucky, 1980
David C. Payne, associate professor, Ed.D., Indiana, 1965
Mary Ann Paynter, assistant professor, Ph.D., Pennsylvania State, 1975
Samuel Quick, assistant extension professor, Ph.D., Florida State, 1975
April F. Ross-Lane, associate professor, M.S., Pennsylvania State, 1974
Jimmie R. Staley, instructor, M.A., Indiana, 1975
Helen M. Stevens, extension specialist, M.S., Purdue, 1955
M. O'Neal Weeks, associate professor, Ph.D., North Carolina, 1972

HUMAN ENVIRONMENT: DESIGN AND TEXTILES
Richard A. Rankin, chairman

Craig Congleton, instructor, M.S., Kentucky, 1975
Bette Jo Dedic, extension specialist, M.S., Purdue, 1973
John Garstka, associate professor, M.S., Massachusetts, 1975
Jo Ann Hilliker, assistant extension specialist, Ph.D., Ohio State, 1978
Sharla Jean Hoskin, assistant professor, Ph.D., Tennessee, 1978
Karen Ketch, instructor, M.A., Michigan State, 1979
Susan H. Kipp, instructor, M.S., Iowa State, 1980
Kathy Lafferty, assistant professor, Ph.D., Ohio State, 1977
Deborah LaMar, assistant professor, M.S.H.E., North Carolina, 1975
Linda Medlin, assistant extension professor, Ph.D., Ohio State, 1980
LoErna Palmer, assistant professor, M.S., Kansas State, 1963
Richard A. Rankin, professor, M.A., Stanford, 1952
Linda Reece, extension specialist, M.A., Iowa State, 1972
Joseph A. Rey-Barreau, assistant professor, B.Arch., Kentucky, 1975
Terry D. Rothgeb, associate professor, M.A., Missouri, 1972
Holly L. Schrank, professor, Ph.D., Ohio State, 1970
Patrick Snadon, assistant professor, M.S., Kentucky, 1976
Ann Whiteside, assistant professor, M.S., Florida State, 1976

NUTRITION AND FOOD SCIENCE
Donald Oberleas, chairman

Sue W. Burrier, extension specialist, M.S., Kentucky, 1953
Linda Huang Chen, professor, Ph.D., Louisville, 1964
Jose Concon, associate professor, Ph.D., Purdue, 1965
Ching Chow, associate professor, Ph.D., University of Illinois, 1969
Darlene Forester, assistant extension professor, Ph.D., R.D., Kentucky, 1975
Ralph Lane, assistant professor, Ph.D., R.D., Louisiana State, 1973
Sandra Lee, clinical instructor, M.S., R.D., Kentucky, 1977
Abby Marlatt, professor, Ph.D., R.D., California, 1947
Fudeko T. Maruyama, associate extension professor, Ph.D., R.D., California, 1955
Pam McMahon, clinical instructor, M.S., R.D., Framingham State College, 1975
David Newburg, assistant professor, Ph.D., Boston, 1976
Janet Noble, assistant professor, Ph.D., V.P.I. and S.U., 1980
Donald Oberleas, professor, Ph.D., Missouri, 1964
Leonard V. Packett, professor, Ph.D., Texas A & M, 1958
Helen Palmer, clinical instructor, M.S., R.D., Kentucky, 1965
Joe B. Paulk, associate professor, M.S., R.D., Alabama, 1956
Sandra Sayers, instructor, M.S., R.D., Ohio State, 1967
Myrna Wesley, assistant professor, M.S., R.D., Kentucky, 1975

COLLEGE OF LAW

Thomas P. Lewis, dean

Richard C. Ausness, professor, LL.M., Yale, 1973
Joseph Randolph Batt, professor, LL.M., Yale, 1960
Carolyn Schmoll Bratt, associate professor, J.D., Syracuse, 1974
Rutheford B. Campbell, Jr., professor, LL.M., Harvard, 1971
William Hifner Fortune, professor, J.D., Kentucky, 1964
Eugene R. Gaetke, assistant professor, J.D., Minnesota, 1974
John H. Garvey, professor, J.D., Harvard, 1974
Kenneth B. Germain, professor, J.D., New York, 1969
Richard Davenport Gilliam, Jr., emeritus professor, LL.B., Virginia, 1924
Alvin Lee Goldman, professor, LL.B., New York, 1962
Mary Louise Graham, assistant professor, J.D., Texas, 1977
Willburt Dunn Ham, professor, LL.M., Harvard, 1941
William James, law librarian and associate professor, J.D., Howard, 1972
Gerald P. Johnston, associate professor, LL.B., Duke, 1962
Robert Gene Lawson, professor, J.D., Kentucky, 1963
John Robert Leathers, professor, LL.M., Columbia, 1973
Thomas P. Lewis, dean and professor, S.J.D., Harvard, 1964
William Lewis Matthews, Jr., professor, S.J.D., Michigan, 1950
Martin J. McMahan, Jr., assistant professor, LL.M., Boston University, 1979
Eugene French Mooney, Jr., professor, LL.M., Yale, 1963
Paul Oberst, professor, LL.M., Michigan, 1942
James R. Richardson, emeritus professor, LL.M., Yale, 1955
John M. Rogers, associate professor, J.D., Michigan, 1974
Robert G. Schwemm, associate professor, J.D., Harvard, 1970
Carroll D. Stevens, associate dean, J.D., Kentucky, 1976
Reginald L. Thomas, assistant professor, J.D., Harvard, 1978
Richard H. Underwood, assistant professor, J.D., Ohio State, 1976
Paul C. VanBooven, associate dean, J.D., Kentucky, 1976
Stephen James Vasek, associate professor, LL.M., Harvard, 1969
Harold R. Weinberg, associate professor, J.D., Case-Western Reserve, 1969
Sarah N. Welling, assistant professor, J.D., Kentucky, 1978
Frederick William Whiteside, Jr., professor emeritus, LL.B., Cornell, 1936
Paul Allen Willis, professor, J.D., Kentucky, 1969

COLLEGE OF LIBRARY SCIENCE

Timothy W. Sineath, dean

Lawrence A. Allen, professor, Ph.D., Chicago, 1961
Trudi Bellardo, assistant professor, M.S.L.S., Kentucky, 1976
Robert E. Cazden, professor, Ph.D., Chicago, 1965
Lois M. Chan, professor, Ph.D., Kentucky, 1970
Rosemary Du Mont, assistant professor, Ph.D., Pittsburgh, 1975
Bradley Grissom,* instructor, M.S.L.S., Kentucky, 1976
Michael H. Harris, professor, Ph.D., Indiana, 1970
William James,* instructor, J.D., Howard, 1972
Gail Kennedy,* instructor, M.S.L.S., Kentucky, 1974
Anne Y. McConnell, associate professor, C.A.S., Illinois, 1978
William Marshall,* instructor, M.L.S., Kent State, 1973
Laura K. Martin, emeritus professor, M.A., Stanford, 1940
JoAnn Rogers, associate professor, Ph.D., Pittsburgh, 1977
Timothy W. Sineath, professor, Ph.D., Illinois, 1970
James D. Sodt, assistant professor, Ph.D., Syracuse, 1979
Janet Stith,* instructor, M.S.L.S., Kentucky, 1971
Joy Terhune, associate professor, Ed.S., George Peabody, 1977
Ray Turner,* instructor, M.S.L.S., Kentucky, 1976
Thomas J. Waldhart, associate professor, Ph.D., Indiana, 1972
Wayne Wiegand, assistant professor, Ph.D., Southern Illinois, 1974

*Part-time faculty

COLLEGE OF MEDICINE

D. Kay Clawson, dean

ANATOMY
Miroslava B. Nikitovitch-Winer, chairman

William B. Cotter, professor, Ph.D., Yale, 1956
William K. Elwood, associate professor, D.D.S., Ohio State, 1957; Ph.D., Wayne State, 1965
Ira Fowler, professor, Ph.D., Northwestern, 1952
Roger O. Lambson, professor, Ph.D., Tulane, 1965
Daniel H. Matulionis, associate professor, Ph.D., Tulane, 1970
Raymond E. Papka, associate professor, Ph.D., Tulane, 1971
Harold F. Parks, professor, Ph.D., Cornell, 1950
David Peck, associate professor, Ph.D., Johns Hopkins, 1961
Michael E. Rush, assistant professor, Ph.D., Florida State, 1979
Stephen Scheff, assistant professor, Ph.D., Missouri, 1974
Stephen D. Smith, associate professor, Ph.D., Tulane, 1965
Harold H. Traurig, professor, Ph.D., Minnesota, 1963
Richard F. Walker, assistant professor, Ph.D., Rutgers, 1972
Miroslava B. Nikitovitch-Winer, professor, Ph.D., Duke, 1957

ANESTHESIOLOGY
Ballard D. Wright, chairman

A. M. Bayani, assistant professor, M.D., Manila Central University, Manila, Philippines, 1966
Peter P. Bosomworth, professor, M.D., Cincinnati, 1955
Maria DeBrand, associate professor, M.D., Academy of Medicine, Warsaw, Poland, 1967
M. Frederica Godshalk, assistant professor, M.D., Maryland, 1969
Philip L. Hall, assistant professor, M.D., Kentucky, 1976
Sven O. Jakobson, visiting professor of research, M.D., Ph.D., Uppsala School of Medicine, Uppsala, Sweden, 1968
Tai-Shion Lee, assistant professor, M.D., National Taiwan University School of Medicine, Taiwan, 1965
Eddie L. Owens, assistant professor, M.D., Louisville, 1968
John E. Plumlee, professor, M.D., Missouri, 1959
Staffan Sjogren, assistant professor, M.D., University Hospital, Uppsala, Sweden, 1967
Pamela J. Webb, assistant professor, M.D., Kentucky, 1975
William O. Witt, assistant professor, M.D., Minnesota, 1976
Ballard D. Wright, associate professor, M.D., Kentucky, 1964
Susanne S. Zeok, assistant clinical professor (part-time), M.D., Thomas Jefferson, 1969

Voluntary Faculty

C. Patrick Beatty, assistant clinical professor, M.D., Kentucky, 1967
Mark Bowden, assistant clinical professor, D.D.S., Texas, 1967; M.D., Kentucky, 1975
John W. Cullen, assistant clinical professor, M.D., Case Western Reserve, Cleveland, Ohio, 1953
Paul Hodel, assistant clinical professor, M.D., Northwestern, 1961
Kentaro Tsueda, associate clinical professor, M.D., Okayama, Japan, 1958

BEHAVIORAL SCIENCE
Robert Straus, chairman

Susan Abbott,* assistant professor, Ph.D., North Carolina, 1974
Carolyn Bacdayan, adjunct assistant professor, M.A., Yale, 1959
Lawrence Busch,* associate professor, Ph.D., Cornell, 1974
Kathleen M. DeWalt, assistant professor, Ph.D., Connecticut, 1978
Ronald C. Dillehay,* professor, Ph.D., California, Berkeley, 1962
Thomas R. Ford,* professor, Ph.D., Vanderbilt, 1951
Abe Fosson,* associate 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
Leonard Heller,* associate professor, Ed.D., Kansas, 1972
Jon Hendricks,* associate professor, Ph.D., Penn State, 1971
Roy K. Jarecky, professor, Ed.D., Columbia, 1958
Russell A. Jones, professor, Ph.D., Duke, 1969
Terrence Leigh,* assistant professor, Ed.D., Kentucky, 1971
Michael Montagne,* assistant professor, Ph.D., Minnesota, 1980
Philip M. Moody, associate professor, Ph.D., Utah, 1967
Garth L. Olde,* professor, Ph.D., West Ontario, Canada, 1960
Marion Pearsall, professor, Ph.D., California, Berkeley, 1950
Gary Shannon,* associate professor, Ph.D., Michigan, 1970
John B. Stephenson,* professor, Ph.D., North Carolina, 1966
Robert Straus, professor, Ph.D., Yale, 1947
Sandra A. Tausend,* assistant professor, Ph.D., University of Washington, 1979
John VanWilligan,* associate professor, Ph.D., Arizona, 1971
Helen Jean Wiese, associate professor, Ph.D., North Carolina, 1971
John F. Wilson, assistant professor, Ph.D., Michigan, 1977

*joint appointment,

Voluntary Faculty

Robert Johnson, professor, M.P.H., Yale, 1951

BIOCHEMISTRY
Robert L. Lester, chairman

Mary D. Barkley, assistant professor, Ph.D., California, San Diego, 1969
Shung-Kai Chan, associate professor, Ph.D., Wisconsin, 1962
Mary Sue Coleman, associate professor, Ph.D., North Carolina, 1969
Martin R. Deibel, Jr., assistant research professor, Ph.D., Ohio State, 1977
Robert C. Dickson, associate professor, Ph.D., Calfornia, Los Angeles, 1970
Richard E. Galardy, associate professor, Ph.D., Rockefeller, 1973
Alfred S. L. Hu, professor, Ph.D., Oregon, 1957
Roger Allan Laine, associate professor, Ph.D., Rice, 1970
Robert L. Lester, professor, Ph.D., California, Institute of Technology, 1956
Edward Pavlik,* assistant research professor, Ph.D., Tennessee, 1975
Robert E. Rhoads, associate professor, Ph.D., George Washington, 1971
George W. Schwert, professor, Ph.D., Minnesota, 1943
S. J. Turco, assistant professor, Ph.D., Pittsburgh, 1976
Alfred D. Winer, associate professor, Ph.D., Duke, 1957

*joint appointment

COMMUNITY MEDICINE
Robert Straus, acting chairman

Howard L. Bost, professor, Ph.D., Michigan, 1947
David L. Cowen,* professor, M.D., Colorado, 1959
Grace G. Eddison, associate clinical professor, M.D. Columbia, 1960
Joseph Hamburg,* professor, M.D., Hahnemann, 1951

*joint appointment

DIAGNOSTIC RADIOLOGY
Harold D. Rosenbaum, chairman

Laurence R. Bean,* professor, D.D.S., Ohio State, 1966
Robert M. Beihn, instructor, M.S., Tennessee, 1969
Frank Deland,* professor, M.D., Louisville, 1952
Denise Duff, assistant professor (part-time), M.D., Vermont, 1974
Andrew M. Fried, associate professor, M.D., Alabama, 1968
Steven J. Goldstein, assistant professor, M.D., Hahnemann, 1974
Arthur Lieber, professor, M.D., Louisville, 1953
Fang Kum Loh, assistant professor, M.B., B.S., Singapore, 1972
James G. Lorman, professor, M.D., Indiana, 1944
Leonidas Mostowycz, professor, M.D., Innsbruck, Austria, 1951
Harold D. Rosenbaum, professor, M.D., Harvard, 1944
Calixto Pulmano, assistant professor, M.D., Santo Tomas, 1962
Joseph A. Sayeg,* associate professor, Ph.D., California, Berkeley, 1954
Albert Selke, Jr., professor, M.D., Pennsylvania, 1959
Carol B. Stelling, assistant professor, M.D., Northwestern, 1972
Richard K. Stevens, assistant professor, M.D., Cincinnati, 1960
John H. Woodring, assistant professor, M.D., Kentucky, 1976

*joint appointment

Voluntary Faculty

Jerry E. Anderson, assistant clinical professor, M.D., St. Louis, 1968
Robert S. Bain, assistant clinical professor, M.D., Tennessee, 1956
E. Gail Barker, Jr., assistant clinical professor, M.D., North Carolina, 1965
Joe D. Bernard, assistant clinical professor, M.D., Louisville, 1959
J. Roy Biggs, assistant clinical professor, M.D., Kentucky, 1965
W. Leroy Boswell, associate clinical professor, M.D., Tennessee, 1942
William Cooper, clinical instructor, M.D., Kentucky, 1970
Colby N. Cowherd, assistant clinical professor, M.D., Louisville, 1949
James R. Damron, assistant clinical professor, M.D., Indiana, 1971
Darryl Dochterman, assistant clinical professor, M.D., Iowa, 1966
Karen Fitzgerald, assistant clinical professor, M.D., Kentucky, 1976
Zymunt S. Gierlach, associate clinical professor, M.D., Wayne State, 1946
Robert B. Groves, assistant clinical professor, M.D., Louisville, 1964
William M. Hall, assistant clinical professor, M.D., Kentucky, 1965
Donnan B. Harding, clinical professor, M.D., Iowa State, 1920
Edward Hightower, assistant clinical professor, M.D., Tennessee, 1962
Prue Kelley, assistant clinical professor, M.D., Louisville, 1961
James C. King, Jr., assistant clinical professor, M.D., Vanderbilt, 1961
Marguerite Purcell, assistant clinical professor, M.D., Pennsylvania, 1965
Ralph C. Quillen, assistant clinical professor, M.D., Vanderbilt, 1944
Christine Riley, assistant clinical professor, M.D., Kentucky, 1975
A. Fred Schultz, assistant clinical professor, M.D., Kentucky, 1965
Robert D. Shepard, associate clinical professor M.D., Nebraska, 1941
Eugene Slusher, assistant clinical professor, M.D., Louisville, 1959
Ouida F. Tisdall, assistant clinical professor, M.D., Kentucky 1970

FAMILY PRACTICE
H. Thomas Wiegert, chairman

Smith R. Armstrong,* assistant professor, D.M.D., Kentucky, 1968
Ervin C. Belcher,* associate professor, D.M.D., Kentucky, 1969
Robert A. Biddle, assistant professor (part-time), M.D., Kentucky, 1973
Max A. Crocker, professor, M.D., Tennessee, 1963
Thomas Andrew Dale, II, assistant professor adjunct, M.D., Kentucky, 1972
Alan K. David, assistant professor, M.D., Missouri, 1971
Jerry E. Jones, assistant professor, M.D., Kentucky, 1976
Grace F. Maguire, assistant professor (part-time), M.D., Vermont, 1974
D. Mark Mahler, assistant professor, M.D., Ohio State, 1976
Martin B. Marx, professor, D.V.M., Texas A&M, 1951; M.P.H., Harvard, 1959; Ph.D., North Carolina, 1968
Frank R. Lemon,* professor, M.D., Loma Linda University, 1945
Benjamin F. Roach, clinical professor (part-time), M.D., Duke, 1943

Myron G. Sandifer,* professor, M.D., Harvard, 1947
E.C. Seeley, associate professor, M.D., Louisville, 1947
Allen L. Sklar,* associate professor, M.D., Maryland, 1950
Hugh F. Stallworth, assistant professor, M.D., Wayne State, 1970
Robert C. Wesley,* associate professor, D.M.D., Louisville, 1964
H. Thomas Wiegert, professor, M.D., Washington, 1955

*joint appointment

Voluntary Faculty

David T. Allen, assistant clinical professor, M.D., Case-Western Reserve, 1966
Richard Allnutt, associate clinical professor, M.D., Cincinnati, 1949
Charles F. Arnett, assistant clinical professor, M.D., Louisville, 1972
Rogers Quin Bailey, assistant clinical professor, M.D., Kentucky, 1969
James W. Baker, clinical instructor, M.D., West Virginia, 1968
Ted D. Ballard, assistant clinical professor, M.D., Louisville, 1961
George C. Barber, assistant clinical professor, M.D., Wake Forest, 1960
Donald C. Barton, assistant clinical professor, M.D., Louisville, 1960
W. B. Rogers Beasley, assistant clinical professor, M.D., Tennessee, 1949
Carol T. Berner, assistant clinical professor, M.D., St. Louis, 1977
Robert M. Blake, assistant clinical instructor, M.D., Louisville, 1956
William E. Blackburn, assistant clinical professor, M.D., Kentucky, 1969
Stephen M. Bobys, clinical instructor, M.D., Virginia, 1971
R. Eugene Bowling, associate clinical professor, M.D., Tulane, 1955
Robert Kendall Brown, assistant clinical professor, M.D., Louisville, 1962
Carl J. Brueggemann, assistant clinical professor, M.D., Louisville, 1959
Mark C. Buchanan, clinical instructor, M.D., Tufts, 1974
Robert C. Burkhart, associate clinical professor, M.D., Louisville, 1958
William K. Burkhart, associate clinical professor, M.D., Tennessee, 1961
Gus A. Bynum, clinical instructor, M.D., Mississippi, 1972
Joseph G. Caldwell, clinical instructor, M.D., Ohio State, 1964
C. Glyndon Click, clinical instructor, M.D., Kentucky, 1971
Guinn S. Cost, assistant clinical professor, M.D., Kentucky, 1972
Harry J. Cowherd, assistant clinical professor, M.D., Louisville, 1955
James D. Crase, assistant clinical professor, M.D., Louisville, 1962
Philip S. Crossen, associate clinical professor, M.D., Washington, 1954
Carlisle V. Dodson, assistant clinical professor, M.D., Louisville, 1943
Victor F. Duvall, assistant clinical professor, M.D., Kentucky, 1967
Kenneth M. Eblen, assistant clinical professor, M.D., Louisville, 1948
Stephen G. Edelstein, associate clinical professor, M.D., Harvard, 1961
Norman H. Ellingsen, assistant clinical professor, M.D., Georgetown Univ., 1970
Keith E. Ellis, assistant clinical professor, M.D., Louisville, 1962
William C. Ellis, associate clinical professor, M.D., Cincinnati, 1949
Rachel R. Eubank, assistant clinical professor, M.D., Kentucky, 1966
Claude H. Farley, assistant clinical professor, M.D., Kentucky, 1964
Harold T. Faulconer, assistant clinical professor, M.D., Louisville, 1958
James L. Ferrell, associate clinical professor, M.D., Virginia, 1958
Norman Fisher, assistant clinical professor, M.D., Louisville, 1958
Maureen A. Flannery, clinical instructor, M.D., Illinois, 1976
William S. Foley, assistant clinical professor, M.D., Kentucky, 1970
James A. Freer, clinical instructor, M.D., Kentucky, 1973
Robert P. Goodman, clinical instructor, M.D., Vanderbilt, 1963
John M. Hall, assistant clinical professor, M.D., Louisville, 1960
Harold D. Haller, assistant clinical professor, M.D., Bowman Gray, 1963
Bill H. Harris, assistant clinical professor, M.D., Virginia, 1974
David J. Hays, assistant clinical professor, M.D., Kentucky, 1976
Richard F. Hench, associate clinical professor, M.D., Pennsylvania, 1956
Donald E. Howard, assistant clinical professor, M.D., Louisville, 1955
Robert L. Houston, assistant clinical professor, M.D., Louisville, 1946
Donald G. Hughes, assistant clinical professor, M.D., Louisville, 1959
Yvonne Imbleau, assistant clinical professor, M.D.C.M., McGill, 1953
Stephen Jasper, clinical instructor, M.D., Louisville, 1967
Van R. Jenkins II, associate clinical professor, M.D., Louisville, 1962
Ellen M. Joyce, clinical instructor, M.D., Tufts, 1975
Stephen B. Kelley, assistant clinical professor, M.D., Ohio, 1962
William C. Kemp, clinical instructor, M.D., Louisville, 1973
Stephen B. Kiteck, clinical instructor, M.D., Kentucky, 1975
David T. Lewis, associate clinical professor, M.D., Louisville, 1959
Darrell Dean Life, assistant clinical professor, M.D., Kansas, 1964
Millard C. Loy, professor, M.D., Louisville, 1946
Paul F. Maddox, associate clinical professor, M.D., Louisville, 1962
Dan A. Martin, clinical professor, M.D., Harvard, 1952
David Marwil, assistant clinical professor, M.D., Michigan, 1974
William K. Massie, clinical professor, M.D., Harvard, 1937
William T. Maxson, II, assistant clinical professor, M.D., Kentucky, 1964
Ronald McFarland, clinical instructor, M.D., Kentucky, 1975
John D. Miller, clinical instructor, M.D., Iowa, 1970
Glenn I. Moore, clinical instructor, M.D., Kentucky, 1969
Edgar B. Morgan, assistant clinical professor, M.D., Louisville, 1950
Kelly G. Moss, assistant clinical professor, M.D., Kentucky, 1966
Sudhideb Mukherjee, assistant clinical professor, M.D., Calcutta, 1958
John E. Myers, associate clinical professor, M.D., Louisville, 1954
Ronald O. Naser, assistant clinical professor, M.D., Louisville, 1955
Charles G. Nichols, assistant clinical professor, M.D., Kentucky, 1971
Preston P. Nunnelley, associate clinical professor, M.D., Kentucky, 1970
Stephen D. Palmer, assistant clinical professor, M.D., Alabama, 1953
John D. Perrine, assistant clinical professor, M.D., Vanderbilt, 1960
Kenneth C. Peters, assistant clinical professor, M.D., Louisville, 1960
John W. Poundstone, assistant clinical professor, M.D., Kentucky, 1966
Charles L. Preston, associate clinical professor, M.D., Cincinnati, 1950
Emanuel H. Rader, assistant clinical professor, M.D., Kentucky, 1967
Elmer B. Ratcliff, assistant clinical professor, M.D., Kentucky, 1967
Howard L. Ravenscraft, assistant clinical professor, M.D., Louisville, 1955
Harold L. Reams, assistant clinical professor, M.D., Vanderbilt, 1963
Lon Edward Roberts, assistant clinical professor, M.D., Louisville, 1955
Marvin Roberts, clinical instructor, M.D., Virginia, 1974
Leo F. Rogers, clinical instructor, M.D., Louisville, 1973
Stephen C. Schindler, assistant clinical professor, M.D., St. Louis, 1961
Wilson Sebastian, clinical instructor, M.D., Kentucky, 1968
William Selvidge, clinical instructor, M.D., Louisville, 1975
Lee C. Shine, assistant clinical professor, M.D., Vanderbilt, 1959
Charles W. Sisk, assistant clinical professor, M.D., Louisville, 1953
Paul R. Smith, assistant clinical professor, M.D., Louisville, 1956
Robert E. Smith, assistant clinical professor, M.D., Louisville, 1959
Charles B. Spalding, assistant clinical professor, M.D., Louisville, 1953
Orville J. Stein, assistant clinical professor, M.D., Louisville, 1962
Don R. Stephens, associate clinical professor, M.D., Louisville, 1960
W. Grady Stumbo, assistant clinical professor, M.D., Kentucky, 1971
Garnett J. Sweeney, assistant clinical professor, M.D., Kentucky, 1967
Paul M. Taylor, assistant clinical professor, M.D., Louisville, 1959
Michael D. Thomas, assistant clinical professor, M.D., Louisville, 1962
Dennis A. Ulrich, assistant clinical professor, M.D., Southern Illinois, 1977

William L. Underwood, assistant clinical professor, M.D., Vanderbilt, 1964
William H. Wagner, assistant clinical professor, M.D., Kentucky, 1965
Donald L. Wakefield, assistant clinical professor, M.D., Indiana, 1969
Anne M. Wasson, assistant clinical professor, M.D., Buffalo, 1950
Ronald D. Weddle, clinical instructor, M.D., Kentucky, 1973
Gerald H. Wellbrock, adjunct instructor, Ed.D., Xavier, 1967
Max A. Wheeler, assistant clinical professor, M.D., Louisville, 1960
Paul A. Wolf, assistant clinical professor, M.D., Tufts, 1954
William E. Yancey, assistant clinical professor, M.D., Louisville, 1952
William R. Yates, assistant clinical professor, M.D., Louisville, 1961

MEDICAL MICROBIOLOGY AND IMMUNOLOGY
Roger O. Lambson, acting chairman

Charles T. Ambrose, professor, M.D., Johns Hopkins, 1955
Raymond B. Bridges*, associate professor, Ph.D., Vanderbilt, 1969
Norman L. Goodman*, professor, Ph.D., Oklahoma, 1965
Thomas T. Lillich*, professor, Ph.D., North Carolina, 1968
H. Earle Swim, professor, Ph.D., Western Reserve, 1952

*joint appointment

MEDICINE
John S. Thompson, chairman

Fekreya Aly, associate professor, M.S.S.W., Kent School of Social Work, Louisville, 1966
James W. Anderson, professor, M.D., Northwestern, 1961
Richard Baehler, associate clinical professor (part-time), M.D., Marquette, 1969
Michael P. Barron, (part-time) clinical instructor, M.D., Vermont, 1967
N.K. Burki, associate professor, M.D., Ph.D., University of London, 1969
Ralph D. Caldroney, assistant professor, M.D., Medical College of Virginia, 1976
Frank G.Cascio, professor, M.D., Buffalo, 1954
J. Donald Coonrod, professor, M.D., Johns Hopkins, 1963
James K. Cooper, associate professor, M.D., Vanderbilt, 1962
David L. Cowen, professor, M.D., Colorado, 1959
Philip DeSimone, associate professor, M.D., Vermont, 1967
James A. Flueck, assistant professor, M.D., Minnesota, 1967
Robert E. French, associate professor, M.D., Ohio State, 1963
Theodore N. Guiglia, associate professor, M.D., Louisville, 1956
Gordon P. Guthrie, assistant professor, M.D., Columbia, 1970
Shirley Hughes, associate professor, M.S.W., Pennsylvania, 1960
Lane A. Kistler, assistant professor, M.D., New York School of Medicine, 1972
Theodore A. Kotchen, professor, M.D., Western Reserve, 1964
Stephen Kraman, assistant 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, assistant professor, M.D., Virginia, 1970
Paul Mandlestam, professor, M.D., Ph.D., Harvard, 1953
Ewa Marciniak, professor, M.D., Ph.D., Vroclav Medical School, 1956
Lloyd D. Mayer, clinical professor (part-time), M.D., Louisville, 1944
Alberto Mazzoleni, associate professor, M.D., Milan, Italy, 1952
Russell McAllister, associate professor, M.D., Medical College of Virginia, 1967
Dennis McDonagh, assistant professor, M.D., St. Louis, 1969
Ira P. Mersack, associate clinical professor (part-time), M.D., Kentucky, 1966
Robert C. Noble, associate professor, M.D., Duke, 1964
C. Pratap Reddy, assistant professor, M.D., Osmania Medical College, 1968
E. Douglas Rees, professor, M.D., Yale, 1954
Stanley Rehm, assistant professor, M.D., Texas Southwestern, 1972
Sandra L. Riegler, assistant professor, M.D., Cincinnati, 1973
Ronald J. Saykaly, assistant clinical professor (part-time), M.D., California, Los Angeles, 1969
Samuel Scott, associate professor, M.D., Bowman Gray, 1969
Michael S. Serwint, assistant professor, M.D., Chicago, 1975
Robert R. Siegel, associate professor, M.D., Columbia, 1955
John D. Slack, assistant professor, M.D., Indiana, 1973
John S. Thompson, professor, M.D., Chicago, 1953
Fredrick L. Weber, Jr., assistant professor, M.D., Cornell, 1970

Voluntary Faculty

James Bard, associate clinical professor, M.D., Marquette, 1958
Stanley I. Bernstein, assistant clinical professor, M.D., Louisville, 1956
J. Hunter Black, associate clinical professor, M.D., Cornell, 1959
M. Cary Blaydes, clinical professor, M.D., Virginia, 1954
Richard M. Carpenter, associate clinical professor, M.D., Vanderbilt, 1962
Robert Cooper, assistant clinical professor, M.D., Kentucky, 1972
Allen L. Cornish, clinical professor, M.D., Columbia College of Physicians and Surgeons, 1940
John Cronin, assistant clinical professor, M.D., Virginia, 1963
Wendy G. Cropper, clinical instructor, M.D., Kentucky, 1974
Matthew C. Darnell, clinical professor, M.D., Boston School of Medicine, 1943
M. Allen Dawson, assistant clinical professor, M.D., Kentucky, 1964
George S. Dozier, assistant clinical professor, M.D., Louisville, 1950
Stephen G. Edelstein, associate clinical professor, M.D., Harvard, 1961
George R. Ellis, assistant clinical professor, M.D., Michigan, 1954
Claude H. Farley, assistant clinical professor, M.D., Kentucky, 1964
Paula D. Fletcher, clinical instructor, M.D., Kentucky, 1971
Carl H. Fortune, clinical professor emeritus, M.D., Michigan, 1926
George L. Foster, clinical instructor, M.D., Cincinnati, 1961
Richard M. French, associate clinical professor, M.D., Columbia College of Physicians and Surgeons, 1948
C. Richard Gill, associate clinical professor, M.D., George Washington, 1955
Armond T. Gordon, clinical instructor, M.D., Louisville, 1945
J. Frank Greene, clinical instructor, M.D., Louisville, 1944
Joseph Harkness, assistant clinical professor, M.D., California, Irvine, 1966
Bill H. Harris, assistant clinical professor, M.D., Virginia, 1974
Richard F. Hench, assistant clinical professor, M.D., Temple, 1956
Thomas G. Hobbs, associate clinical professor, M.D., Northwestern, 1938
Phillip H. Hoffman, clinical instructor, M.D., St. Louis, 1975
Ardis D. Hoven, clinical instructor, M.D., Kentucky, 1970
Jamie J. Jacobs, associate clinical professor, M.D., Vermont College of Medicine, 1965
David H. Johnston, associate clinical professor, M.D., Duke, 1951
Charles N. Kavanaugh, associate clinical professor, M.D., Harvard, 1949
Dennis Kelly, assistant clinical professor, M.D., Downstate Medical Center (Brooklyn), 1969
Karl C. Kelty, associate clinical professor, M.D., Tennessee, 1943
Nelson Lamkin, Jr., clinical instructor, M.D., Louisville, 1968
John Loventhal, assistant clinical professor, M.D., Northwestern, 1973
Glenn Marsh, assistant clinical professor, M.D., Emory, 1961
William T. Maxson, assistant clinical professor, M.D., Kentucky, 1964
William E. McDaniel, assoicate clinical professor, M.D., Indiana School of Medicine, 1944
Franklin B. Moosnick, clinical professor, M.D., Cincinati, 1940
John E. Myers, associate clinical professor, M.D., Louisville, 1954
James A. Orr, associate clinical professor, M.D., Louisville, 1955
John Perrine, assistant clinical professor, M.D., Vanderbilt, 1960

Barry N. Purdom, assistant clinical professor, M.D., Kentucky, 1968
C. Edward Rankin, clinical professor, M.D., Cincinnati, 1944
L. Raymond Reynolds, clinical instructor, M.D., Kentucky, 1971
J. Douglas Ruff, associate clinical professor, M.D., Medical College of the State of South Carolina, 1946
John C. Sartini, assistant clinical professor, M.D., University of Rochester, 1974
Samuel Scheen, associate clinical professor, M.D., Louisville, 1963
Stephen C. Schindler, assistant clinical professor, M.D., St. Louis, 1961
Ewell Scott, assistant clinical professor, M.D., Western Reserve, 1966
Thornton Scott, clinical professor emeritus, M.D., Cornell, 1934
Lee C. Shine, assistant clinical professor, M.D., Vanderbilt, 1959
Fredrick Sigda, associate clinical professor, M.D., Georgetown, 1956
W. Clifton Smith, assistant clinical instructor, M.D., Washington University, 1969
Earle E. Spencer, Jr., clinical instructor, M.D., Tulane, 1952
Abdolkarim Tahanasab, clinical instructor, M.D., University of Tehran, 1969
Sam Traughber, assistant clinical professor, M.D., Louisville, 1965
Kenneth Tufts, associate clinical professor, M.D., Ohio State College of Medicine, 1956
Donald L. Wakefield, assistant clinical professor, M.D., Indiana University School of Medicine, 1969
Thomas F. Whayne, Jr., clinical professor, M.D., Pennsylvania, 1963
Wilk O. West, associate clinical professor, M.D., Medical College of Virginia, 1955

NEUROLOGY
Norman H. Bass, chairman

Norman H. Bass, professor, M.D., Yale, 1962
Robert J. Baumann, associate professor, M.D., Western Reserve, 1965
David B. Clark, professor, M.D., Chicago, 1946
Steven T. DeKosky, assistant professor, M.D., Florida, 1974
Edward J. Kasarskis, Jr., assistant professor, M.D., Wisconsin, 1974
Augusto Cezar Lastimosa, assistant professor, M.D., Far Eastern University, 1972
Mary Leonidakis, associate professor, M.S.S.W., Columbia, 1949
William R. Markesbery, professor, M.D., Kentucky, 1964
William C. Robertson, assistant clinical professor, M.D., Emory, 1967
Daniel R. Tynan, assistant professor, M.D., Upstate Medical Center, New York, 1973
Elizabeth A. Wright, assistant clinical professor, M.D., Kentucky, 1967

*joint appointment

Voluntary Faculty

Leslie W. Blakey, associate clinical professor, M.D., Louisville, 1947
Carl F. Essig, assistant clinical professor, M.D., Western Reserve, 1947
John C. Malek, assistant clinical professor, M.D., Iowa, 1955
Richard L. Roth, assistant clinical professor, M.D., Louisville, 1952; M.S., Michigan, 1956

OBSTETRICS AND GYNECOLOGY
John W. Greene, Jr., chairman

James A. Austin, associate professor, M.D., Bowman Gray-Wake Forest, 1946
Roberta Crosby, instructor, C.N.M., Kentucky, 1968
Elvis S. Donaldson, assistant professor, M.D., Kentucky, 1971
Peggy Falace, assistant clinical professor, M.D., Kentucky, 1972
John W. Greene, Jr., professor, M.D., Pennsylvania, 1952
Michael B. Hanson, assistant professor, M.D., Kentucky, 1974
Kathleen Lynaugh, instructor, C.N.M., Kentucky, 1979
Patricia Miller, instructor, C.N.M., Kentucky, 1977
Robert W. Shier, assistant professor, M.D., Kentucky, 1972
John R. van Nagell, Jr., professor, M.D., Pennsylvania, 1967
Emery A. Wilson, associate professor, M.D., Kentucky, 1968

Voluntary Faculty

James Baker, clinical instructor, M.D., West Virginia, 1968
Stephen M. Bobys, clinical instructor, M.D., Virginia, 1971
Arthur E. Butterfield, clinical professor, M.D., Loma Linda, 1958
Eugene A. Castle, associate clinical professor, M.D., Oklahoma, 1953
G. Nelson Copeland, clinical instructor, M.D., Tennessee, 1960
Phillip S. Crossen, associate clinical professor, M.D., Washington, 1954
W. Lisle Dalton, clinical instructor, M.D., Kentucky, 1975
Donald E. Edger, associate clinical professor, M.D., Cincinnati, 1955
William C. Ellis, assistant clinical instructor, M.D., Cincinnati, 1949
Carl T. Evans, clinical instructor, M.D., Pennsylvania, 1954
James M. Fisher, clinical instructor, M.D., Baylor, 1960
James R. Freedman, clinical instructor, M.D., Louisville, 1945
Michael W. Glover, clinical instructor, M.D., Kentucky, 1972
Laman A. Gray, clinical professor, M.D., Johns Hopkins, 1932
George G. Greene, associate clinical professor, M.D., Louisville, 1938
J. Michael Guiler, clinical instructor, M.D., Kentucky, 1976
W. David Hager, associate clinical professor, M.D., Kentucky, 1976
Lewis P. Hicks, assistant clinical professor, M.D., North Carolina, 1966
James K. Hurlocker, assistant clinical professor, M.D., Tennessee, 1956
Billy J. Jackson, clinical instructor, M.D., Louisvillle, 1962
Van R. Jenkins, clinical professor, M.D., Louisville, 1962
Randall S. Jones, clinical instructor, M.D., Kentucky, 1973
Glenn I. Moore, clinical instructor, M.D., Kentucky, 1969
Preston Nunnelley, associate clinical instructor, Kentucky, 1970
James E. O'Neill, assistant clinical professor, M.D., Kentucky, 1972
Charles L. Preston, clinical instructor, M.D., Cincinnati, 1950
Carolyn F. Purcell, clinical instructor, M.D., Kentucky, 1973
Geraldine W. Spurlin, clinical instructor, M.D., Kentucky, 1968
James B. Stith, clinical instructor, M.D., Louisville, 1944
David S. Swan, assistant clinical professor, M.D., Wayne State, 1962
Charles N. Tarkington, assistant clinical professor, M.D., St. Louis, 1953
Alexander Vigh, clinical instructor, M.D., Maryland, 1972
William H. Wagner, clinical instructor, M.D., Kentucky, 1965
William B. Wheeler, clinical instructor, M.D., Kentucky, 1972
Elwood L. Woolsey, associate clinical professor, M.D., Pennsylvania, 1950

OPHTHALMOLOGY
Donald R. Bergsma, chairman

Donald R. Bergsma, professor, M.D., Columbia, 1965
Georges Birenbaum, clinical instructor (part-time), M.D., Kentucky, 1967
John W. Garden, associate clinical professor (part-time), M.D., North Carolina, 1961
Richard A. Kielar, associate clinical professor (part-time), M.D., Cincinnati, 1962
Bruce H. Koffler, assistant professor, M.D., Georgetown, 1974
Adrienne J. Millett, assistant professor, M.D. Kentucky, 1975
William N. Offutt, associate clinical professor (part-time), M.D., Kentucky, 1968
John H. Saunders, clinical instructor (part-time), M.D., Tulane, 1975
James W. Shafer, associate professor, M.D., Johns Hopkins, 1966
John C. Sparrow, assistant clinical professor (part-time), M.D., Pennsylvania, 1972
James Stambaugh, associate clinical professor (part-time), M.D., Louisville, 1948

Gary R. Wallace, associate clinical professor (part-time), M.D., Kentucky, 1956
William J. Wood, associate clinical professor (part-time), M.D., Kentucky, 1970

Voluntary Faculty

Michael B. Minix, clinical instructor, M.D., Kentucky, 1968
Robert H. Osher, clinical instructor, M.D., Rochester, 1976
James G. Pope, clinical instructor, M.D., Louisville, 1955
William Preston, assistant clinical professor, M.D., Vanderbilt, 1936
Syamala H. K. Reddy, clinical instructor, M.D., Gunter Medical College, 1971
Joseph Saunders, associate clinical professor, M.D., Tulane, 1957
J. Dennis Steen, clinical instructor, M.D., Jefferson Medical College of Pennsylvania, 1965
Claude Trapp, associate clinical professor, M.D., Cornell, 1950
Francis B. Wells, associate clinical professor, M.D., Louisville, 1954

PATHOLOGY
Abner Golden, chairman

Robert A. Blouin, assistant professor, Pharm. D., Kentucky, 1978
James B. Cash, instructor, M.D., Kentucky, 1977
Michael L. Cibull, assistant professor, M.D., Illinois, 1973
David V. Gold, assistant professor, Ph.D., SUNY at Stony Brook, 1977
Abner Golden, professor, M.D., Harvard, 1942
David M. Goldenberg, professor, M.D., Sc.D., Heidelberg, Germany, 1966
Norman Goodman,* professor, Ph.D., Oklahoma, 1965
William F. Hamilton, assistant professor, M.D., Miami, 1975
Robert J. Jacob, assistant professor, Ph.D., Syracuse, 1974
William R. Markesbery,* professor, M.D., Kentucky, 1964
James H. Meyers, assistant professor, M.D., Washington University, St. Louis, 1972
William N. O'Connor, assistant professor, M.D., National, Ireland, 1972
Peter R. Oeltgen, assistant professor, Ph.D., Loyola, 1973
Timothy L. Overman, assistant professor, Ph.D., Cincinnati, 1971
Michael L. Perdue, assistant professor, Ph.D., Mississippi, 1975
William H. Porter, associate professor, Ph.D., Vanderbilt, 1970
Deborah E. Powell, professor, M.D., Tufts, 1965
Ralph D. Powell, professor, M.D., Boston, 1958
F. James Primus, assistant professor, Ph.D., Tulane, 1972
Irene E. Roeckel, clinical professor, M.D., Heidelberg, West Germany, 1948
Thomas L. Roszman, associate professor, Ph.D., Michigan, 1966
Jesse E. Sisken, professor, Ph.D., Columbia, 1957
Irena J. Sniecinski, assistant professor, M.D., Silesian Medical Academy, Poland, 1968
Mohan Sopori, assistant professor, Ph.D., New Delhi, 1968
Marion R. Steiner, assistant professor, Ph.D., Kentucky, 1968
Norbert W. Tietz, professor, Ph.D., Technical University of Stuttgart, Germany, 1950
Ronald J. Whitley, assistant professor, Ph.D., Georgia Institute of Technology, 1975
Kokichi Yoneda, associate professor, M.D., Nara Medical College, Japan, 1968
Stephen G. Zimmer, assistant professor, Ph.D., Colorado, 1973

*joint appointment

PEDIATRICS
Jacqueline A. Noonan, chairperson

Robert A. Beargie,* professor, M.D., Ohio State, 1957
Robert P. Belin,* clinical professor (part-time), M.D., Tufts, 1962
Richard Blum, assistant professor, M.D., Louisville, 1976
David B. Clark,* professor, Ph.D., Chicago, 1940; M.D., Chicago, 1946
Carol M. Cottrill, associate professor, M.D., Cincinnati, 1971
M. Douglas Cunningham, associate professor, M.D., Cincinnati, 1965
Nirmala Desai, associate professor, M.D., Baroda, India, 1966
Peggy B. Falace*, assistant professor, M.D., Kentucky, 1972
Doane Fischer, professor, M.D., Temple, Pennsylvania, 1954
Abe R. Fosson, associate professor, M.D., Vanderbilt, 1964
John D. Geil, assistant professor, M.D., Kentucky, 1976
Kenneth L. Gerson, assistant clinical professor (part-time), M.D., Ohio State, 1958
William W. Green, professor, Ph.D., Case Western Reserve, 1970
Martha F. Greenwood, associate professor, M.D., Kentucky, 1968
Bryan D. Hall, associate professor, M.D., Louisville, 1965
C. Philip Holland, professor, M.D., Louisville, 1954
Nancy H. Holland, professor, M.D., Louisville, 1954
Gregory L. Johnson, assistant professor, M.D., Washington University, 1971
H. Otto Kaak,* assistant clinical professor, M.D., Michigan, 1964
Samuel A. Kocoshis, assistant professor, M.D., Wisconsin, 1973
Margaret W. Leigh, assistant professor, M.D., East Virginia, 1976
C. Charlton Mabry, professor, M.D., Emory, Atlanta, 1954
Grace Maguire,* assistant clinical professor, M.D., Vermont, 1974
Mark Mahler,* assistant professor, M.D., Ohio State, 1976
Edward Maxwell,* assistant professor, M.D., Kentucky, 1971
William Meegan, assistant clinical professor, Ph.D., Kentucky, 1975
Richard J. Mier, assistant professor, M.D., Chicago, 1973
Jacqueline A. Noonan, professor, M.D., Vermont Medical School, 1954
Thomas H. Pauly, clinical instructor (part-time), M.D., Kentucky, 1974
John J. Piecoro,* assistant professor, Ph.D., Kentucky, 1978
Albert C. Selke, Jr.,* professor, M.D., Pennsylvania, 1959
Michael Stelling, assistant professor, M.D., Northwestern, 1972
Horace M. Vandiviere, professor, M.D., North Carolina, 1960
John H. Walsh,* assistant professor, M.D., California, 1969
Linda Walters,* associate professor, M.D., Indiana, 1962
H. David Wilson, associate professor, M.D., St. Louis, 1966
Betty I. Wolf, associate clinical professor (part-time), M.D., Chicago, 1965
Peter Wong, assistant professor, M.D., Institute of Medicine, Rangoon, Burma, 1968
Robert J. Wyatt, assistant professor, M.D., Medical College of Georgia, 1973
Thomas L. Young, assistant clinical professor (part-time), M.D., Louisville, 1976

*joint appointment

Voluntary Faculty

Humildad Anzures, assistant clinical professor, M.D., Philippines, 1957
Richard K. Bachman, assistant clinical professor, M.D., Louisville, 1964
James R. Beshear, assistant clinical professor, M.D., Duke, 1967
Murvel C. Blair, assistant clinical professor, M.D., Louisville, 1943
Christopher Boarman, assistant clinical professor, M.D., Kentucky, 1973
James A. Bottiggi, assistant clinical professor, M.D., Vermont, 1975
James Brennan, assistant clinical professor, M.D., Ohio State, 1975
Ross Brown, assistant clinical professor, M.D., Kentucky, 1972
Timothy Costich, assistant clinical professor, M.D., Kentucky, 1973
Gregory A. Culley, clinical instructor, M.D., Yale, 1965
Guy C. Cunningham, clinical professor, M.D., Louisville, 1946
William D. Hacker, assistant clinical professor, M.D., Kentucky, 1972
Ross Halbleib, clinical instructor, M.D., Kentucky, 1975
Christopher J. Harrison, clinical instructor, M.D., Kentucky, 1971
James A. Hedrick, clinical instructor, M.D., Chicago, 1974
Ira L. Hemmings, clinical instructor, M.D., West Virginia, 1962

Gordon Hollins, clinical instructor, M.D., Vanderbilt, 1959
James E. Jackson, clinical instructor, M.D., Kentucky, 1966
Raymond Jackson, clinical instructor, M.D., Oklahoma, 1973
Patrick L. Jasper, clinical instructor, M.D., Vanderbilt, 1965
Erwin Jones, associate clinical professor, M.D., Vanderbilt, 1959
Martin P. Kaplan, associate clinical professor, M.D., SUNY, 1953
Maurice Kaufmann, clinical professor, M.D., Louisville, 1935
John L. Kiesel, assistant clinical professor, M.D., Kentucky, 1967
Paul G. Kyker, clinical instructor, M.D., Tennessee, 1960
Barnette W. Lewis, assistant clinical professor, M.D., Duke, 1970
Priscilla Lynd, assistant clinical professor, M.D., Kentucky, 1968
Noble T. MacFarlane, Jr., associate clinical professor, M.D., Virginia, 1953
Robert N. McLeod, Jr., associate clinical professor, M.D., Pennsylvani, 1945
Dennis B. Penn, assistant clinical professor, M.D., Louisville, 1955
Barry Ramsey, assistant clinical professor, M.D., Kentucky, 1974
Joan E. Rider, associate clinical professor, M.D., Cornell, 1950
John P. Riley, assistant clinical professor, M.D., Kentucky, 1975
Garner E. Robinson, clinical instructor, M.D. Tennessee, 1961
William F. Schnitzker, assistant clinical professor, M.D., Maryland, 1947
Carl H. Scott, assistant clinical professor, M.D., Louisville, 1950
Jo Anne Sexton, assistant clinical professor, M.D., Louisville, 1957
James G. Straub, assistant clinical professor, M.D., Kentucky, 1971
Charles W. Taylor, assistant clinical professor, M.D., Vanderbilt, 1958
William L. Underwood, assistant clinical professor, M.D., Vanderbilt, 1964
Carmel Wallace, clinical instructor, M.D., Kentucky, 1975
William T. Watkins, clinical instructor, M.D., Vanderbilt, 1960
Warren Webb, clinical instructor, M.D., Kentucky, 1974
John F. Whalley, assistant clinical professor, M.D., Bowman Gray, 1973
Carl L. Wheeler, Jr., associate clinical professor, M.D., Louisville, 1937
James G. Wilhite, clinical instructor, M.D., Tennessee, 1957
James C. Wilkes, clinical instructor, M.D., Kentucky, 1976
Thomas M. Wilson, assistant clinical professor, M.D., Tennessee, 1957
Thomas A. Woodward, clinical instructor, M.D., Vanderbilt, 1967
Marina T. Yarbo, assistant clinical professor, M.D., San Marcos, 1955
Walter F. Yates, assistant clinical professor, M.D., Louisville, 1959

PHARMACOLOGY
William R. Martin, chairman

Louis Diamond,* professor, Ph.D., Maryland, 1967
Donald F. Diedrich, professor, Ph.D., Wisconsin, 1959
John A. Dougherty,* assistant professor, Ph.D., Minnesota, 1973
James W. Flesher, professor, Ph.D., Loyola, 1958
Edgar T. Iwamoto, assistant professor, Ph.D., California, San Francisco, 1973
William R. Martin, professor, M.D., Illinois, 1953
R. G. McAllister,* associate professor, M.D., Virginia, 1967
Ralph E. Miller, associate professor, M.D., Harvard 1961; D.Sc., Harvard, 1970
Michael T. Piascik, assistant professor, Ph.D., Ohio State, 1978
E. Douglas Rees,* professor, M.D., Yale, 1954
Mary Vore, assistant professor, Ph.D., Vanderbilt, 1974
Abraham Wikler,* professor, M.D., Long Island College of Medicine, 1935

*joint appointment

Voluntary Faculty

J. A. Bell, assistant professor, Ph.D., Illinois, 1971
P. E. Gilbert, assistant professor, Ph.D., Kentucky, 1976
Charles W. Gorodetzky, associate professor, M.D., Boston, 1962; Ph.D., Kentucky, 1975
Kee Chang Huang, professor, Ph.D., Columbia, 1953
Thomas G. Scharff, professor, Ph.D., Rochester, 1956
H. E. Shannon, assistant professor, Ph.D., Emory, 1976
D. B. Vaupel, assistant professor, Ph.D., Kentucky, 1974
William J. Waddell, professor, M.D., North Carolina, 1955
S. Y. Yeh, assistant professor, Ph.D., Iowa, 1959

PHYSIOLOGY AND BIOPHYSICS
Donald T. Frazier, chairman

Barbara A. Birge, clinical instructor (part-time), M.S., Kentucky, 1969
Louis L. Boyarsky, professor, Ph.D., Chicago, 1948
Nausherwan K. Burki,* associate professor, M.D., Punjab, 1962; Ph.D., Charing Cross, 1969
Eugene C. Crawford, Jr.,* professor, Ph.D., Duke, 1965
Joseph Engelberg, professor, Ph.D., Pennsylvania, 1958
Donald T. Frazier, professor, Ph.D., Kentucky, 1964
Ward O. Griffen, Jr.,* professor, M.D., Cornell, 1953; Ph.D., Minnesota, 1963
Henry R. Hirsch, professor, Ph.D., Massachusetts Institute of Technology, 1960
H. Douglas Jameson,* associate professor, M.D., Wisconsin, 1958
Lu-Yuan Lee, assistant professor, Ph.D., Mississippi Medical Center, 1975
Sandra J. Legan, assistant professor, Ph.D., Michigan, 1974
Cobern E. Ott, assistant professor, Ph.D., Mississippi, 1971
Bertram Peretz, associate professor, Ph.D., Iowa, 1968
David C. Randall, associate professor, Ph.D., Washington, 1972
Daniel R. Richardson, associate professor, Ph.D., Indiana, 1969
Jesse E. Sisken,* professor, Ph.D., Columbia, 1957
Paul A. Thornton,* professor, Ph.D., Michigan State, 1956
Edward H. Timmons, associate professor, D.V.M., Georgia, 1963; M.M.S., Tulane, 1969
David R. Wekstein, associate professor, Ph.D., Rochester, 1962
Miroslava N. Winer,* professor, Ph.D., Duke, 1957
Fred W. Zechman, Jr., professor, Ph.D., Duke, 1956
James F. Zolman, associate professor, Ph.D., California, Berkeley, 1963

*joint appointment

Voluntary Faculty

Story Musgrave, instructor, M.D., Columbia, 1964, M.S., Kentucky, 1970

PSYCHIATRY
Robert F. Kraus, chairman

Billie S. Ables, professor, Ph.D., Purdue, 1954
Jeffrey Brandsma, associate professor, Ph.D., Pennsylvania, 1971
Gene N. Combs, Jr., assistant clinical professor, M.D., Kentucky, 1972
Mary B. Cowles, assistant clinical professor, M.D., Wisconsin, 1968
Richard G. Davis, assistant professor, Ph.D., Vanderbilt, 1971
John A. Dougherty,* associate professor, Ph.D., Minnesota, 1973
Tom M. Hall, assistant professor, M.D., Kentucky, 1973
William C. Holliday, assistant professor, M.D., Ohio State, 1973
William Heffron, assistant clinical professor, M.D., Kentucky, 1972
H. Otto Kaak,* assistant clinical professor, M.D., Michigan, 1964
Arnold M. Ludwig, E. A. Edwards professor, M.D., Pennsylvania, 1958
Patricia Maffeo, assistant professor, Ph.D., Syracuse, 1974
Catherine A. Martin, assistant professor, M.D., Kentucky, 1976
Maxie C. Maultsby, professor, M.D., Case-Western Reserve, 1957
Daniel Nahum, assistant clinical professor, M.D., Hacettepe, 1971
John R. Neill, associate professor, M.D., Maryland, 1973
James C. Norton, associate professor, Ph.D., Arizona, 1970
Arvil C. Reeb, Jr. associate professor, M.S.W., Louisville, 1967
Myron G. Sandifer, professor, M.D., Harvard, 1947

Hugh A. Storrow, professor, M.D., Southern California, 1950
Lane Veltkamp, associate professor, M.S.W., Michigan State, 1964
Richard Welsh, associate professor, M.S.W., Iowa, 1966
Cornelia B. Wilbur, professor emeritus, M.D., Michigan, 1939

*joint appointment

Voluntary Faculty

Janet M. Boog, clinical instructor, M.D., New York, 1939
Earl W. Christensen, assistant clinical professor, M.D., St. Louis, 1951
Stephen B. Cox, assistant clinical professor, M.D., Kentucky, 1975
Erling W. Eng, assistant clinical professor, Ph.D., Northwestern, 1952
John H. Freer, assistant clinical professor, M.D., Kentucky, 1967
Robert G. Granacher, associate professor, M.D., Kentucky, 1972
Helen L. Hallock, assistant clinical professor, M.D., Louisville, 1947
Jesse Harris, clinical professor, Ph.D., Duke, 1955
Jimmie D. Hawthorne, assistant clinical professor, M.D., Tennessee, 1955
Helen Herring, assistant clinical professor, M.S.W., Washington, 1958
Norman S. Jessop, assistant clinical professor, Ph.D., Illinois, 1971
David C. Kay, associate clinical professor, M.D., Illinois, 1958
Aaron S. Mason, assistant clinical profesor, M.D., Illinois, 1935
Edward N. Maxwell, assistant clinical professor, M.D., Kentucky, 1971
Kenneth B. Moore, assistant clinical professor, M.D., Kansas, 1947
John H. Parks, assistant clinical professor, M.D., Harvard, 1950
Pedro M. Ruiz, assistant clinical professor, M.D., Havana, Cuba, 1943
Douglas D. Ruth, assistant clinical professor, M.D., Kentucky, 1972
Nat H. Sandler, assistant clinical professor, M.D., Tennessee, 1955; M.P.H., North Carolina, 1971
Michael A. Schaffer, assistant clinical professor, M.D., Kentucky, 1972
Charles I. Schwartz, assistant clinical professor, M.D., Louisville, 1939
Mary N. Smith, assistant clinical professor, M.D., New York University, 1945
John G. Way, assistant clinical professor, M.D., North Carolina, 1968
William D. Weitzel, associate clinical professor, M.D., St. Louis, 1968

RADIATION MEDICINE
Yosh Maruyama, chairman

J. Lawrence Beach, associate professor, Ph.D., Wisconsin, 1972
John Calkins, associate professor, Ph.D., Texas, 1963
Hong W. Chin, assistant professor, M.D., Ph.D., Seoul National University, Seoul, Korea, 1962
Ralph Christensen,* assistant professor, Ph.D., California, Berkeley, 1971
Charles Coffey, assistant professor, Ph.D., Purdue, 1975
John J. Coupal,* assistant clinical professor, Ph.D., Purdue, 1969
Peggy Domstad, assistant professor, M.D., Baylor, 1964
Frank Deland, professor, M.D., Louisville, 1952; M.S., Minnesota, 1956
George A. Digenis,* associate professor, Ph.D., Wisconsin, 1964
Jose M. Feola,* assistant clinical professor (part-time), Ph.D., Minnesota, 1974
E. E. Kim, associate professor, M.D., Seoul National University, Korea, 1966
Yosh Maruyama, professor, M.D., California, 1955
Oscar A. Mendiondo, assistant professor, M.D., Buenos Aires University, Argentina, 1969
Joe Sayeg, associate professor, Ph.D., California, Berkeley, 1954
Guy Simmons, associate professor, Ph.D., Cincinnati, 1972
Leonard Wilson, assistant professor, B.S., Eastern Kentucky, 1958
Justine Yoneda, assistant professor, M.D., SUNY, 1975

*joint appointment

SURGERY
Ward O. Griffen, Jr., chairman

John R. Allen, assistant professor, M.D., Kentucky, 1970
James R. Bean, assistant professor, M.D., Tulane, 1973
Robert P. Belin, clinical professor (part-time), M.D., Tufts, 1962
Richard M. Bell, assistant professor, M.D., Kentucky, 1972
Brack A. Bivins, associate professor, Kentucky, 1970
Thomas D. Brower, professor, M.D., Washington University, 1947
D. Kay Clawson, professor, M.D., Harvard, 1952
Marcus L. Dillon, professor, M.D., Duke, 1947
Robert C. Flanigan, assistant professor, M.D., Case Western Reserve, 1972
Ward O. Griffen, Jr., professor, M.D., Cornell, 1953; Ph.D., Minnesota, 1963
Patrick F. Hagihara, associate professor, M.D., Albany, 1960
Gordon L. Hyde, associate professor, M.D., Michigan, 1957
Daniel E. Kenady, assistant professor, M.D., Georgetown, 1972
Bruce A. Lucas, associate professor, M.D., Duke, 1965
Edward A. Luce, associate professor, M.D., Kentucky, 1965
Sally S. Mattingly, assistant professor, M.D., Vanderbilt, 1972
William T. Mattingly, assistant professor, M.D., Vanderbilt, 1973
J. William McRoberts, professor, M.D., Cornell, 1959
Paul J. Nicholls, assistant professor, M.D., Georgia, 1971
Andrew R. Pulito, assistant professor, M.D., Columbia, 1969
Madhira D. Ram, professor, M.D., Andhra University 1957; Ph.D., Case Western Reserve, 1975
Charles R. Sachatello, professor, M.D., Yale, 1961
Donald E. Slagel, associate professor, M.D., Wisconsin, 1961
David B. Stevens, associate professor, M.D., Northwestern, 1955 (Orthopedics)
Phillip Tibbs, assistant professor, M.D., Kentucky, 1973
Edward P. Todd, professor, M.D., Baylor, 1969; Ph.D., Baylor, 1969
John W. Walsh, assistant professor, M.D., California, Los Angeles, 1966
A. Byron Young, associate professor, M.D., Kentucky, 1965
John Zeok, assistant professor, M.D., Jefferson Medical College, Philadelphia, 1967

Voluntary Faculty

John M. Allen, clinical instructor, M.D., Louisville, 1954
Ralph J. Angelucci, associate clinical professor, M.D., Vanderbilt, 1945 (Neurosurgery)
Raleigh R. Archer, clinical instructor, M.D., Kentucky, 1965 (Plastic)
Philip K. Blevins, assistant clinical professor, M.D., Kentucky, 1967
N. L. Bosworth, clinical professor, M.D., Virginia, 1933
Walter R. Brewer, assistant clinical professor, M.D., Wayne State, 1963 (Urology)
Marion G. Brown, assistant clinical professor, M.D., Vanderbilt, 1939 (Orthopedics)
T. R. Bryant, Jr., associate clinical professor, M.D., Harvard, 1943
Charles W. Caldwell, clinical instructor, M.D., Harvard, 1935
Harvey Chenault, associate clinical professor, M.D., Louisville, 1939 (Neurosurgery)
Thomas F. Coats, clinical instructor, M.D., Columbia, 1960 (Plastic)
John R. Cole, associate clinical professor, M.D., Yale, 1954 (Urology)
Arnold B. Combs, associate clinical professor, M.D., Michigan, 1932
Sidney P. Cooper, assistant clinical professor, M.D., Cincinnati, 1930
Wilford L. Cooper, associate clinical professor, M.D., Minnesota, 1944
Richard R. Crutcher, clinical professor, M.D., Vanderbilt, 1937
Kearney B. Daniel, assistant clinical professor, M.D., Louisville, 1956
Michael E. Daugherty, assistant clinical professor, M.D., Kentucky, 1966
Melvin L. Dean, assistant clinical professor, M.D., Louisville, 1940
Howard E. Dorton, clinical professor, M.D., Illinois, 1938
William L. Dowden, assistant clinical professor, M.D., Kentucky, 1970
O. T. Evans, associate clinical professor, M.D., Louisville, 1934

Harold T. Faulconer, assistant clinical professor, M.D., Louisville, 1958
John B. Floyd, clinical instructor, M.D., Louisville, 1931; M.S., Tulane, 1947
Richard D. Floyd, associate clinical professor, M.D., Yale, 1952
R. Thomas Fossett, clinical instructor, M.D., Kentucky, 1966 (Orthopedics)
Carl M. Friesen, assistant clinical professor, M.D., Kansas, 1944 (Orthopedics)
Randolph M. Gilliam, associate clinical professor, M.D., Louisville, 1944 (Urology)
Robert P. Goodman, clinical instructor, M.D., Vanderbilt, 1963 (Orthopedics)
Allen E. Grimes, Jr., clinical instructor, M.D., Northwestern, 1962
George M. Gumbert, Jr., clinical instructor, M.D., Louisville, 1953 (Orthopedics)
Arthur A. Hellesbusch, associate clinical professor, M.D., Kentucky, 1964
A. Joe Hiller, assistant clinical professor, M.D., Louisville, 1963
James B. Holloway, Jr., associate clinical professor, M.D., Yale, 1945
David A. Hull, clinical professor, M.D., Tennessee, 1947
James D. Hull, III, assistant clinical professor, M.D., Chicago, 1964
Christopher Jackson, clinical instructor, M.D., Louisville, 1959
Frank M. Jenkins, clinical instructor, M.D., Arkansas, 1959 (Otolaryngology)
Coleman C. Johnston, clinical professor emeritus, M.D., Virginia, 1933
Peter H. Jones, assistant clinical professor, M.D., London, England, 1953 (Neurosurgery)
Robert C. Lam, assistant clinical professor, M.D., Peiping Union Medical Center, China, 1944
John R. Lewis, clinical professor, M.D., Emory, 1941
Graydon A. Long, clinical instructor, M.D., Michigan, 1950
S. W. Lykins, clinical instructor, M.D., Louisville, 1950
William K. Massie, associate clinical professor, M.D., Harvard, 1937 (Orthopedics)
Porter Mayo, associate clinical professor, M.D., Louisville, 1946; M.S., Michigan, 1950
E. Truman Mays, clinical professor, M.D., Louisville, 1958
Edward M. McGee, clinical instructor, M.D., North Carolina, 1966
William R. Meeker, associate clinical professor, M.D., Alabama, 1957
T. R. Miller, clinical instructor, M.D., Tennessee, 1943; M.S., Tennessee, 1950 (Orthopedics)
Charles S. Mooney, clinical instructor, M.D., Jefferson, 1964
Andrew M. Moore, clinical professor, M.D., Washington, 1943 (Plastic)
Louis M. Muldrow, Jr., clinical professor, M.D., Vanderbilt, 1960 (Plastic)
Charles H. Nicholson, assistant clinical professor, M.D., Vanderbilt, 1955
Edwin J. Nighbert, clinical instructor, M.D., Kentucky, 1966
Eugene Q. Parr, clinical instructor, M.D., Louisville, 1952 (Orthopedics)
Jagdish Patil, assistant clinical professor, M.D., Bombay, India, 1960
Kenneth S. Phillips, assistant clinical professor, M.D., Louisville, 1954 (Orthopedics)
Herman R. Playforth, assistant clinical professor, M.D., Johns Hopkins, 1963
Warren H. Proudfoot, associate clinical professor, M.D., Harvard, 1950
Edward H. Ray, Jr., associate clinical professor, M.D., Tulane, 1953 (Urology)
Harold L. Reams, clinical instructor, M.D., Vanderbilt, 1962 (Otolaryngology) (Urology)
William L. Riker, clinical professor, M.D., Harvard, 1939
Melvin Rosenblatt, assistant clinical professor, M.D., Wayne State, 1968
James E. Ross, clinical instructor, M.D., Louisville, 1954
D. M. Royalty, assistant clinical professor, M.D., Louisville, 1942
James E. Russell, clinical instructor, M.D., Vanderbilt, 1962 (Orthopedics)
Richard H. Segnitz, associate clinical professor, M.D., Harvard, 1946
Patrick J. Serey, clinical instructor, M.D., Kentucky, 1964 (Orthopedics)
Frank K. Sewell, Jr., clinical instructor, M.D., Duke, 1963
G. Russell Shearer, assistant clinical professor, M.D., Kentucky, 1973
Raymond M. Slabaugh, Jr., associate clinical professor, M.D., Ohio State, 1939 (Urology)
Giles L. Stephens, assistant clinical professor, M.D., Louisville, 1952
Ben C. Stigall, clinical instructor, M.D., Louisville, 1948, (Otolaryngology)
John M. Stoeckinger, assistant clinical professor, M.D., Louisville, 1962
William T. Swartz, assistant clinical professor, M.D., Northwestern, 1944
David P. Thomas, clinical instructor, M.D., Cincinnati, 1965 (Orthopedics)
Kearns R. Thompson, Jr., assistant clinical professor, M.D., Duke, 1942 (Orthopedics)
Russell L. Travis, assistant clinical professor, M.D., Louisville, 1962 (Neurosurgery)
William W. Walton, clinical instructor, M.D., Virginia, 1970
William G. Wheeler, clinical instructor, M.D., Vanderbilt, 1960 (Orthopedics)
George Zaracostos, clinical instructor, M.D., Salonica, Greece, 1958 (Otolaryngology)

COLLEGE OF NURSING

Marion E. McKenna, dean

Nancy S. Adkins, instructor, M.S.N., Kentucky, 1976
Ruth Assell, associate professor, M.S., Colorado, 1966
Alma W. Baker, associate professor, Ph.D., Michigan, 1976
Elizabeth Bear, associate professor, M.S.N., Wayne State, 1958
Jan Bellack, associate professor, M.N., Florida, 1971
Irma Bolte, associate professor, M.S.N., Catholic University, 1957
Kathleen Cooper, assistant professor, M.S.N., Medical College, Georgia, 1977
Marian E. Dorsey, instructor, M.S.N., North Carolina, 1979
Marjorie A. Dutton, instructor, M.S.N., Kentucky, 1978
Toni Duvall, instructor, M.S.N., Kentucky, 1979
Juanita Fleming, professor, Ph.D., Catholic University, 1969
Carolyn Fore, instructor, M.S.N., Kentucky, 1979
Claudine Gartner, associate professor, M.S.N.Ed., St. Louis, 1954
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
Jean Hayter, professor, Ed.D., Columbia, 1961
Beth Hicks, associate professor, M.S., Maryland, 1961
Marilyn-Lu Jacobsen, assistant research professor, Ph.D., Texas A&M, 1977
Alyce Jessop, associate professor, M.S.N., Nebraska, 1971
Gwendolen Lee, associate professor, M.S.N., Colorado, 1965; Ed.D., Tennessee, Memphis, 1973
Shirley Lewis, assistant professor, M.S.N., Kentucky, 1976
Dorothy Luther, associate professor, M.A., Columbia, 1957
Jo Ann Maurer, assistant professor, M.S.N., Kentucky, 1976
Marion E. McKenna, professor, Ed.D., Florida, 1970
Nancy C. Mitchell, instructor, M.S.N., Alabama, 1979
Carol M. Mural, instructor, M.S.N., Virginia, 1979
Marilyn Musacchio, associate professor, M.S.N., Kentucky, 1972
Mary Alice Pratt, associate professor, M.Ed., Columbia, 1970
Carol Riker, assistant professor, M.S.N., Kentucky, 1974
Kay Robinson, associate professor, M.S.N., Kentucky, 1975
Kathryn Sallee, associate professor, M.N., Emory, 1971

Linda K. Salyer, instructor, M.S.N., Kentucky, 1973
Julie Sebastian, assistant professor, M.S.N., Kentucky, 1977
Sharon L. Sheahan, associate professor, M.S.N., Kentucky, 1974
Sherry Warden, assistant professor, M.S.N., Kentucky, 1977
Louise Zegeer, associate professor, M.S.N., Western Reserve, 1959

Voluntary Faculty

Margaret Asriel, clinical instructor, B.S., Kentucky, 1974
Agnes Black, assistant clinical professor, M.S.N., Catholic University, 1959
Annette Castle, clinical instructor, M.S.N., Kentucky, 1972
Phyllis Combs, clinical instructor, M.N., Emory, 1969
Arvilla Ann Culler, clinical instructor, M.S.N., St. Louis, 1963
Dorothy Dalton, clinical instructor, nurse-midwifery, M.S.N., Catholic University, 1964; C.N.M., Mississippi, 1972
Lydia A. DeSantis, associate clinical professor, Ph.D., Washington, 1979
Suzanne Dozier, assistant clinical professor, M.A.Ed., Kentucky, 1956
Mary E. Hazzard, associate clinical professor, Ph.D., New York, 1970
Melva Jo Hendrix, clinical professor, D.N.Sc., Boston, 1971
Irene Hudleson, associate clinical professor, Ed.D., Virginia, 1974
Nancy Hynson, clinical instructor, M.S.N., Kentucky, 1971
Barbara Lavery, assistant clinical professor, M.S.N., Kentucky, 1977; nurse mid-wifery cert., Great Britain, 1966; U.S., 1972
Sally Martin, clinical instructor, M.S.N., Kentucky, 1973
Jean McKinley, clinical instructor, M.S.N., Catholic University, 1966
Jill Moller, clinical instructor, M.S.N., Kentucky, 1980
Deirdre Poe, clinical instructor, M.S., Pace, 1976
Anne M. Richter, clinical instructor, M.P.H., C.N.M., Johns Hopkins, 1974
Eunice Robinson, clinical instructor, B.S.N.Ed., Texas, 1954
Paula J. Smith, clinical instructor, M.P.H., Illinois, 1979
Evelyn Tarkington, associate clinical professor, M.A., New York, 1950
Anne W. Wasson, assistant clinical professor, M.D., University of Buffalo, 1950
Carol E. Wilson, clinical instructor, M.A., New York, 1978

COLLEGE OF PHARMACY

Joseph V. Swintosky, dean

Robert J. Abell,* instructor, B.S., Kentucky, 1974
Ann Amerson, associate professor, Pharm.D., Kentucky, 1971
James T. Arnold,* instructor, B.S., Kentucky, 1958
Brack A. Bivens,** assistant professor, M.D., Kentucky, 1970
Robert A. Blouin, assistant professor, Pharm.D., Kentucky, 1978
Joseph B. Bogardus, assistant professor, Ph.D., Kansas, 1973
William G. Byrd, assistant professor, Pharm.D., Kentucky, 1979
Thomas R. Clarkson,* instructor, B.S., Kentucky, 1950
Ronald David Cobb, assistant professor, Pharm.D., Kentucky, 1973
Patrick P. DeLuca, professor, Ph.D., Temple, 1962
Louis Diamond,** professor, Ph.D., Maryland, 1967
George A. Digenis, professor, Ph.D., Wisconsin, 1964
Richard M. Doughty, associate professor, M.S., Pittsburgh, 1953
Thomas S. Foster,** associate professor, Pharm.D., Kentucky, 1973
Dwaine K. Green,* instructor, B.S., Kentucky, 1971
Robert B. Griffith, professor, Ph.D., California, Berkeley, 1953
Howard Hopkins, emeritus professor, Ph.D., Nebraska, 1959
Anwar Hussain, professor, Ph.D., Wisconsin, 1965
Clifford E. Hynniman, associate professor, M.S., Maryland, 1967
Pankaja K. Kadaba,* assistant professor, Ph.D., India, 1954
David J. Kaplan, assistant research professor, Ph.D., New York, 1979
Milton J. Kornet, associate professor, Ph.D., Illinois, 1962
Harry B. Kostenbauder, professor, Ph.D., Wisconsin, 1956
Lisa A. Lawson, assistant professor, Pharm.D., Kentucky, 1980
Charles T. Lesshafft, Jr., professor, Ph.D., Purdue, 1955
David Love, associate professor, M.S., Virginia, 1972
William C. Lubawy, associate professor, Ph.D., Ohio State, 1972
Mark M. Luckens, associate professor emeritus, Ph.D., Connecticut, 1963
William D. Marshall,* instructor, B.S., Kentucky, 1974
Patrick J. McNamara, assistant professor, Ph.D., New York, 1979
Michael M. Montagne, assistant professor, Ph.D., Minnesota, 1980
Jack Olson, assistant professor, Ph.D., California, 1977
Ricky C. Pahl,* assistant professor, Pharm. D., Kentucky, 1973
Chester L. Parker,* assistant professor, Pharm.D., Kentucky, 1978
Paul F. Parker, professor, M.S., Michigan, 1951
Mary M. Piascik,* assistant professor, Ph.D., Ohio, 1978
John J. Piecoro, associate professor, Pharm.D., Kentucky, 1978
James E. Pierce, assistant professor, Pharm.D., Minnesota, 1977
Gopalkrishnan Potti, assistant research professor, Ph.D., New York, 1974
Robert P. Rapp, associate professor, Pharm.D., Kentucky, 1970
Ken Record, assistant professor, Pharm.D., Kentucky, 1978
Gary L. Ringham, assistant professor, Ph.D., Utah, 1971
John Scarborough,** professor, Ph.D., Illinois, 1967
George Schneller, visiting professor, Ph.D., New York, 1946
James W. Sieg, assistant professor, Ph.D., Wisconsin, 1977
Earl P. Slone, dean emeritus and professor emeritus, M.S., Columbia, 1951
Harry A. Smith, professor, Ph.D., Purdue, 1959
Condit F. Steil,* assistant professor, Pharm.D., Kentucky, 1973
Robert Straus,** professor, Ph.D., Yale, 1947
Joseph V. Swintosky, professor, Ph.D., Wisconsin, 1948
Herbert N. Terry,* assistant professor, B.S., Ohio, 1951
James E. Truelove, assistant professor, Ph.D., Kentucky, 1978
Donald D. Vogt, associate professor, Ph.D., Texas, 1969
Robert A. Yokel, assistant professor, Ph.D., Minnesota, 1973

*part-time
**joint appointment

Voluntary Faculty

Steven Richard Adams, clinical instructor, B.S., Indiana, 1972
John B. Anneken, clinical instructor, B.S., Cincinnati, 1953
James P. Arnold, clinical instructor, B.S., Kentucky, 1959
Emil W. Baker, assistant clinical professor, B.S., Kentucky, 1963
Patsy Cummins Barnett, clinical instructor, Pharm.D., Kentucky, 1972
Gregory J. Bausch, clinical instructor, B.S., Kentucky, 1976
Carl E. Beck, clinical instructor, M.S., Maryland, 1952
Michael D. Boyd, clinical instructor, B.S., Kentucky, 1977
James Boylan, associate adjunct professor, Ph.D., Purdue, 1963
Melissa S. Brewer, clinical instructor, B.S., Kentucky, 1975
Keith Ray Brown, clinical instructor, B.S., Kentucky, 1976
Charles L. Bryant, clinical instructor, B.S., Kentucky, 1966
Wayne Bryant, clinical instructor, B.S., Kentucky, 1972
Jerry A. Budde, clinical instructor, B.S., Kentucky, 1959
Michael A. Burleson, clinical instructor, B.S., Kentucky, 1974
Billy P. Burton, clinical instructor, B.S., Kentucky, 1964
Kendell Butler, clinical instructor, B.S., Kentucky, 1970
Ronald E. Calhoun, clinical instructor, B.S., Kentucky, 1964
Charles D. Cavanah, clinical instructor, B.S., Kentucky, 1972
William E. Clark, clinical instructor, B.S., Kentucky, 1976
Janet W. Cline, clinical instructor, B.S., West Virginia, 1976
Edward J. Cone, assistant adjunct professor, Ph.D., Alabama, 1971
Bernard L. Coomes, clinical instructor, B.S., Kentucky, 1967
Mitchell O. Cooper, clinical instructor, B.S., Kentucky, 1956
John J. Coupal, assistant adjunct professor, Ph.D., Indiana, 1969
Ted A. Cummings, clinical instructor, B.S., Kentucky, 1977
William Curry, assistant clinical professor, B.S., Michigan, 1934
Ralph G. Deitemeyer, assistant clinical professor, B.S., Kentucky, 1965
Billie J. Earwood, clinical instructor, B.S., Kentucky, 1953
Albert G. Easley, clinical instructor, B.S., Kentucky, 1977

Kenneth J. Easley, clinical instructor, B.S., Kentucky, 1949
Jean G. Elkins, clinical instructor, B.S., Kentucky, 1956
Donald R. Fields, clinical instructor, B.S., Kentucky, 1968
John H. Fitch, Jr., assistant clinical professor, B.S., Kentucky, 1955
Clarence Alan Francis, clinical instructor, B.S., Kentucky, 1975
Randy M. Gaither, clinical instructor, B.S., Kentucky, 1974
Arthur H. Goldberg, associate adjunct professor, Ph.D., New York, 1965
Joseph I. Greenwell, III, clinical instructor, B.S., Kentucky, 1967
George Grider, associate clinical professor, B.S., Kentucky, 1940
Charles J. Gross, clinical instructor, B.S., Kentucky, 1969
Walter Dale Guyer, Jr., clinical instructor, B.S., Indiana, 1963
Vernon B. Hager, assistant clinical professor, B.S., Kentucky, 1934
Dean L. Henderson, clinical instructor, B.S., Kentucky, 1963
Gail H. Hill, clinical instructor, B.S., South Carolina, 1972
David Holdaway, clinical instructor, B.S., Kentucky, 1957
Norman C. Horn, clinical instructor, B.S., Kentucky, 1953
James W. Hume, clinical instructor, B.S., Kentucky, 1956
Gerard M. Hyland, clinical instructor, B.S., Cincinnati, 1967
Woody S. Irwin, clinical instructor, B.S., Kentucky, 1974
Arthur G. Jacob, clinical instructor, B.S., Kentucky, 1958
John M. James, clinical instructor, B.S., Kentucky, 1953
Connie Jones, clinical instructor, B.S., Kentucky, 1972
Gary T. Jones, clinical instructor, B.S., Kentucky, 1971
Paul D. Keller, III, clinical instructor, B.S., Kentucky, 1965
Robert L. Kelley, clinical instructor, B.S., Kentucky, 1969
William N. Kelly, assistant clinical professor, Pharm.D., Michigan, 1972
Arnold Kemper, assistant clinical professor, B.S., Kentucky, 1962
Robert L. Kimbrell, clinical instructor, B.S., Kentucky, 1952
Ronald J. Klutey, clinical instructor, B.S., Kentucky, 1961
Carter Wilson Koger, clinical instructor, B.S., Kentucky, 1951
Dan R. Kovar, clinical instructor, B.S., Pennsylvania, 1959
Richard Lacefield, clinical instructor, B.S., Kentucky, 1968
Seymour D. Levine, adjunct professor, Ph.D., Wisconsin, 1963
Joe R. Lewis, clinical instructor, B.S., Mercer, 1972
Donald E. Lippert, assistant clinical professor, B.S., Kentucky, 1957
Kay Byrum Lloyd, clinical instructor, B.S., Kentucky, 1970
Jimmie W. Lockhart, clinical instructor, B.S., Kentucky, 1962
John D. Lowe, III, clinical instructor, B.S., Kentucky, 1948
Pony W. Lykins, clinical instructor, B.S., Kentucky, 1962
Glen C. Marcum, clinical instructor, B.S., Kentucky, 1972
Arnold Marcus, adjunct professor, Ph.D., Wisconsin, 1954
Wesley K. Marion, clinical instructor, B.S., Kentucky, 1971
Guy Martin, Jr., clinical instructor, B.S., Kentucky, 1949
Sheldon M. McCreary, clinical instructor, B.S., Kentucky, 1971
Paul W. McLaughlin, clinical instructor, B.S., Kentucky, 1976
William McMakin, clinical instructor, B.S., Kentucky, 1961
Richard Meena, clinical instructor, B.S., Kentucky, 1951
Douglas E. Miller, assistant clinical professor, Pharm.D., Kentucky, 1972
Michael R. Mills, clinical instructor, B.S., Kentucky, 1975
William R. Mink, clinical instructor, B.S., Tennessee, 1964
Arthur R. Mlodozeniec, associate adjunct professor, Ph.D., Wisconsin, 1964
Michael Montgomery, clinical instructor, B.S., Kentucky, 1972
Paula A. Moore, clinical instructor, B.S., Kentucky, 1977
Richard E. Murray, clinical instructor, B.S., Cincinnati, 1959
Darrel O. Nerstad, assistant clinical professor, B.S., Minnesota, 1969; M.B.A., California, 1979
John F. Newman, clinical instructor, B.S., Kentucky, 1972
John Arthur Nieman, Jr., clinical instructor, B.S., Kentucky, 1957
Joe W. O'Neal, clinical instructor, B.S., Tennessee, 1967
Robert E. Pace, clinical instructor, B.S., Kentucky, 1975
Martin D. Parker, clinical instructor, Ph.D., Kentucky, 1972
Thomas L. Payne, clinical instructor, B.S., Kentucky, 1972
Joel R. Pendergraft, clinical instructor, B.S., Iowa, 1967
Robert C. Perkins, clinical instructor, B.S., Kentucky, 1974
David C. Peyton, clinical instructor, B.S., Kentucky, 1970
David A. Phelps, clinical instructor, B.S., Kentucky, 1975
Alvin Brenton Porter, clinical instructor, B.S., Purdue, 1962
Larry F. Powell, clinical instructor, B.S., Ohio Northern, 1971
Michael F. Rochelle, clinical instructor, B.S., Oklahoma, 1968
Georgia A. Rogers, clinical instructor, B.S., Kentucky, 1976
Richard Rolfsen, clinical instructor, B.S., Cincinnati, 1952
John D. Ross, clinical instructor, B.S., Kentucky, 1975
Harry J. Russell, assistant clinical professor, B.S., Kentucky, 1951
David T. Sallengs, clinical instructor, B.S., Kentucky, 1969
Robert E. L. Sandlin, clinical instructor, B.S., Kentucky, 1954
Robert S. Sates, clinical instructor, B.S., Kentucky, 1974
Edward L. Schatzman, clinical instructor, B.S., Kentucky, 1956
Don Schraffenberger, clinical instructor, B.S., Kentucky, 1958
William Shely, clinical instructor, B.S., Kentucky, 1977
Harry C. Shirkey, adjunct professor, D.Sc., Massachusetts, 1976
Stephen M. Sleight, associate clinical professor, M.S.N., Dakota, 1960
Danny L. Slusher, clinical instructor, B.S., West Virginia, 1970
Larry Spears, clinical instructor, B.S., Kentucky, 1959
William L. Spoo, Jr., clinical instructor, B.S., Kentucky, 1953
Rhonda B. Steil, clinical instructor, B.S., Kentucky, 1974
Michael L. Stephens, clinical instructor, B.S., Kentucky, 1967
Janet C. Stewart, clinical instructor, B.S., Kentucky, 1972
Jack Stone, clinical instructor, B.S., Tennessee, 1968
Laura M. Stone, clinical instructor, B.S., Kentucky, 1965
Philip Stone, clinical instructor, B.S., Kentucky, 1964
Larry B. Stovall, clinical instructor, B.S., Sanford, 1971
Warren Grady Stumbo, assistant clinical professor, M.D., Kentucky, 1971
Ronald L. Sutton, clinical instructor, B.S., Kentucky, 1968
Robert G. Swift, Jr., clinical instructor, B.S., Tennessee, 1973
Joe D. Taylor, clinical instructor, B.S., Kentucky, 1957
Mary Ann Thompson, clinical instructor, B.S., Kentucky, 1976
Roy Tilbury, associate adjunct professor, Ph.D., Canada, 1963
James E. Tingstad, adjunct professor, Ph.D., Wisconsin, 1957
Phillip S. Vowels, clinical instructor, B.S., Alabama, 1977
Bruce W. Wallace, clinical instructor, B.S., Kentucky, 1975
Victor Wallace, clinical instructor, B.S., Kentucky, 1950
William K. Wheeler, assistant clinical professor, B.S., Kentucky, 1950
Ronald E. Whitmore, clinical instructor, B.S., Kentucky, 1970
Gary Wientjes, clinical instructor, B.S., Kentucky, 1973
Dale E. Withers, clinical instructor, B.S., Kentucky, 1973
Thomas H. Wortham, clinical instructor, B.S., Kentucky, 1966

COLLEGE OF SOCIAL WORK

S. Zafar Hasan, dean

John R. Ballantine, assistant professor, M.S.W., Tulane, 1966
Joanne I. Bell, associate professor, M.S.W., Pennsylvania, 1954
Richard K. Brautigam, associate professor, Ph.D., Wisconsin, 1971
Lauretta F. Byars, instructor, M.S.W., Kentucky, 1972
Ronda S. Connaway, professor, D.S.W., Washington University, 1964
Martha E. Gentry, associate professor, Ph.D., Washington, 1974
S. Zafar Hasan, professor, D.S.W., Columbia, 1958
Chester A. Holmquist, associate professor, M.S., Ohio State, 1947
Paul K. H. Kim, associate professor, D.S.W., Tulane, 1972
Elizabeth A. Kirlin, associate professor, Ed.D., Kentucky, 1974
John W. Landon, associate professor, Ph.D., Ball State, 1972
Gwen E. Mead, associate professor, M.S., Columbia, 1968
Dorothy A. Miller, professor, M.S.S.W., Minnesota, 1947
Maryrhea M. Morelock, associate professor, M.S.S.W., Louisville, 1964
Nathan R. Sullivan, instructor, M.S.W., Kentucky, 1972
Ann Hall Taylor,* assistant professor, M.S.S.W., Louisville, 1964
Kennard W. Wellons, associate professor, D.S.W., California, Berkeley, 1973
Harold E. Wetzel, professor emeritus, M.A., Ohio State, 1937

Vernon R. Wiehe, associate professor, Ph.D., Washington University, 1972
Constance P. Wilson, professor, M.S.S.S., Boston, 1950
Ernest F. Witte, professor and dean emeritus, Ph.D., Chicago, 1932

*Part-time faculty

HONORS PROGRAM

Raymond F. Betts, director

James C. Albisetti, assistant professor, Ph.D., Yale, 1976
Raymond F. Betts, professor, Ph.D., Columbia, 1958; D. d'U., Grenoble, France, 1955
Paul Ciholas, assistant professor, Ph.D., Strasbourg, France, 1963
James E. Force, assistant professor, Ph.D., Washington University, 1977
John L. Greenway, associate professor, Ph.D., Wisconsin, 1969
Mary S. Jones, assistant professor, Ph.D., Delaware, 1980
Robert J. Rabel, assistant professor, Ph.D., Michigan, 1973
Anna K. Reed, assistant professor, Ph.D., Kentucky, 1973
Jonel C. Sallee, assistant professor, Ph.D., Kentucky, 1977
Jane G. Vance, associate professor, Ph.D., North Carolina, 1975

UNIVERSITY OF KENTUCKY LIBRARIES

Paul A. Willis, director

Charles Atcher, librarian II, B.A., Kentucky, 1957
Nancy Baker, librarian III, A.M.L.S., Michigan, 1973; M.A., SUNY, Binghamton, 1978
Ellen Baxter, librarian I, M.L.S., Kentucky, 1966
James Birchfield, librarian IV, M.A., Florida, 1969; Ph.D., Florida, 1976; M.S.L.S., Florida, 1977
Terry Birdwhistell, librarian III, M.A., Kentucky, 1974
Ruth Brown, librarian I, M.S.L.S., Kentucky, 1960
John Bryant, librarian II, M.S.L.S., Kentucky, 1965
Ann Campbell, librarian IV, M.L.S., Kentucky, 1970
Elizabeth Clotfelter, librarian I, M.A., Kentucky, 1953; M.S.L.S., Kentucky, 1957
William Cooper, Jr., librarian II, M.A.T., Indiana, 1957
Marie Copeland, librarian II, B.A., Kentucky, 1965
Michael Courtney, librarian IV, M.L.S., Kentucky, 1975
Adelle Dailey, librarian II, M.S.L.S., Kentucky, 1967
Philip Dare, librarian IV, M.A., Kentucky, 1969; Ph.D., Kentucky, 1975
Mary Davis, librarian III, M.A., Wisconsin-Madison, 1968; Ph.D., Wisconsin-Madison, 1972; M.S.L.S., Simmons, 1974
Evelyn Evans, librarian I, B.A., Miami, 1938
David Farrell, librarian III, M.S.L.S., North Carolina, 1974
Catherine Frank, librarian IV, M.S.L.S., Southern California, 1974
Barbara Galik, librarian III, M.S.L.S., Illinois, 1977
Norma Gibson, librarian III, B.A., Kentucky, 1954
Harry Gilbert, librarian III, M.A., Miami, 1960; M.A.L.S., Denver, 1963
Alexander Gilchrist, librarian II, M.S.L.S., Kentucky, 1969
Larry Greenwood, librarian II, M.L.S., Kansas, 1969
Bradley Grissom, librarian III, M.S.L.S., Kentucky, 1976
Vivian Hall, librarian III
Faith Harders, librarian II, M.A., Chicago, 1970; M.A.L.S., Chicago, 1974
Rebekah Harleston, librarian II, M.A., Southern Methodist, 1941; M.A.L.S., Peabody, 1958
Kathryn Holden, librarian IV, M.A., Pennsylvania, 1975; M.S.L.S., Kentucky, 1977
Elizabeth Howard, librarian II, M.A., Kentucky, 1960; M.S.L.S., Kentucky, 1966
William James, librarian II, J.D., Howard, 1972; M.S.L.S., Atlanta, 1973
Cheryl Jones, librarian II, M.S.L.S., Kentucky, 1971
Tari Keller, librarian III, M.Ed., Miami, 1975; M.L.S., Indiana, 1977
Frances Kelley, librarian II, B.A., Kentucky, 1963
Gail Kennedy, librarian II, M.S.L.S., Kentucky, 1974
Michael Lach, Jr., librarian III, M.S.L.S., Simmons, 1973
Vivian MacQuown, librarian II, M.S.L.S., Kentucky, 1964
William Marshall, Jr., librarian II, M.A., Kent, 1972; M.L.S., Kent, 1973
Claire McCann, librarian I, M.S.L.S., Kentucky, 1963
Agnes McDowell, librarian II, M.S.L.S., Kentucky, 1959
Mildred Moore, librarian III, B.S.L.S., Peabody, 1947
Gerald Munoff, librarian IV, M.S.L.S., Kentucky, 1978
Maureen O'Brien, librarian IV, M.S.L.S., Simmons, 1979
Janice Orf, librarian IV, M.S.L.S., Illinois, 1975
Janis Pivarnik, librarian III, M.L.S., Indiana, 1972
Antoinette Powell, librarian II, M.A.L.S., Kentucky, 1973
Russell Powell, librarian II, M.L.S., Pittsburgh, 1966
Ann Ricker, librarian IV, M.S.J., Northwestern, 1976; M.S.L.S., Illinois, 1979
Judy Sackett, librarian II, M.A.L.S., Denver, 1969
Alan Schaplowsky, librarian IV, M.S.L.S., Kentucky, 1979
Ebba Sexton, librarian IV, M.S.L.S., Kentucky, 1978
Emilie Smith, librarian I, M.S.L.S., Illinois, 1953
Paul Thompson, librarian III, M.A., Michigan, 1958; M.A.L.S., Michigan, 1964
Terry Warth, librarian III, B.A., Kentucky, 1944
Geraldine Webb, librarian III, M.S.L.S., Kentucky, 1976
Mary Welch, librarian III, M.S.L.S., Kentucky, 1970
Jane White, librarian I, M.S.L.S., Kentucky, 1965
Paul Willis, librarian I, M.L.S., Maryland, 1966; J.D., Kentucky, 1969
Judith Wiza, librarian IV, M.L.S., Wisconsin-Madison, 1977; M.A., Wisconsin-Madison, 1978

ADMINISTRATION

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James P. Alcorn, Director of Placement Service
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Frank J. Cascio, Director, University Health Service
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Cliff Hagan, Director of Athletics
James Ingle, Director, Student Financial Aid
Frank H. Harris, Director of the Student Center
Terry B. Mobley, Director of Development
Harriett A. Rose, Director, University Counseling and Testing Center
David C. Schmauss, Executive Director, University Hospital
Paul G. Sears, Faculty Associate to the President
Martin B. Solomon, Director of Computing Center
John Stephenson, Director, Appalachian Center
Bernard L. Vonderheide, Director, University Information Services
Paul A. Willis, Director of Libraries

THE COLLEGES

Charles E. Barnhart, Dean of the College of Agriculture, Director of the Cooperative Extension Service, and Director of the Agricultural Experiment Station
Joseph Hamburg, Dean of the College of Allied Health Professions
Anthony Eardley, Dean of the College of Architecture
Michael A. Baer, Dean of the College of Arts and Sciences
Richard W. Furst, Dean of the College of Business and Economics
Herbert N. Drennon, Acting Dean of the College of Communications
Merrill W. Packer, Dean of the College of Dentistry
George Denemark, Dean of the College of Education
Roger Eichhorn, Dean of the College of Engineering
Richard C. Domek, Jr., Acting Dean of the College of Fine Arts
Wimberly C. Royster, Dean of The Graduate School and Director of Research
Marjorie Stewart, Dean of the College of Home Economics
Thomas P. Lewis, Dean of the College of Law
Timothy Sineath, Dean of the College of Library Science
D. Kay Clawson, Dean of the College of Medicine
Marion McKenna, Dean of the College of Nursing
Joseph V. Swintosky, Dean of the College of Pharmacy
S. Zafar Hasan, Dean of the College of Social Work

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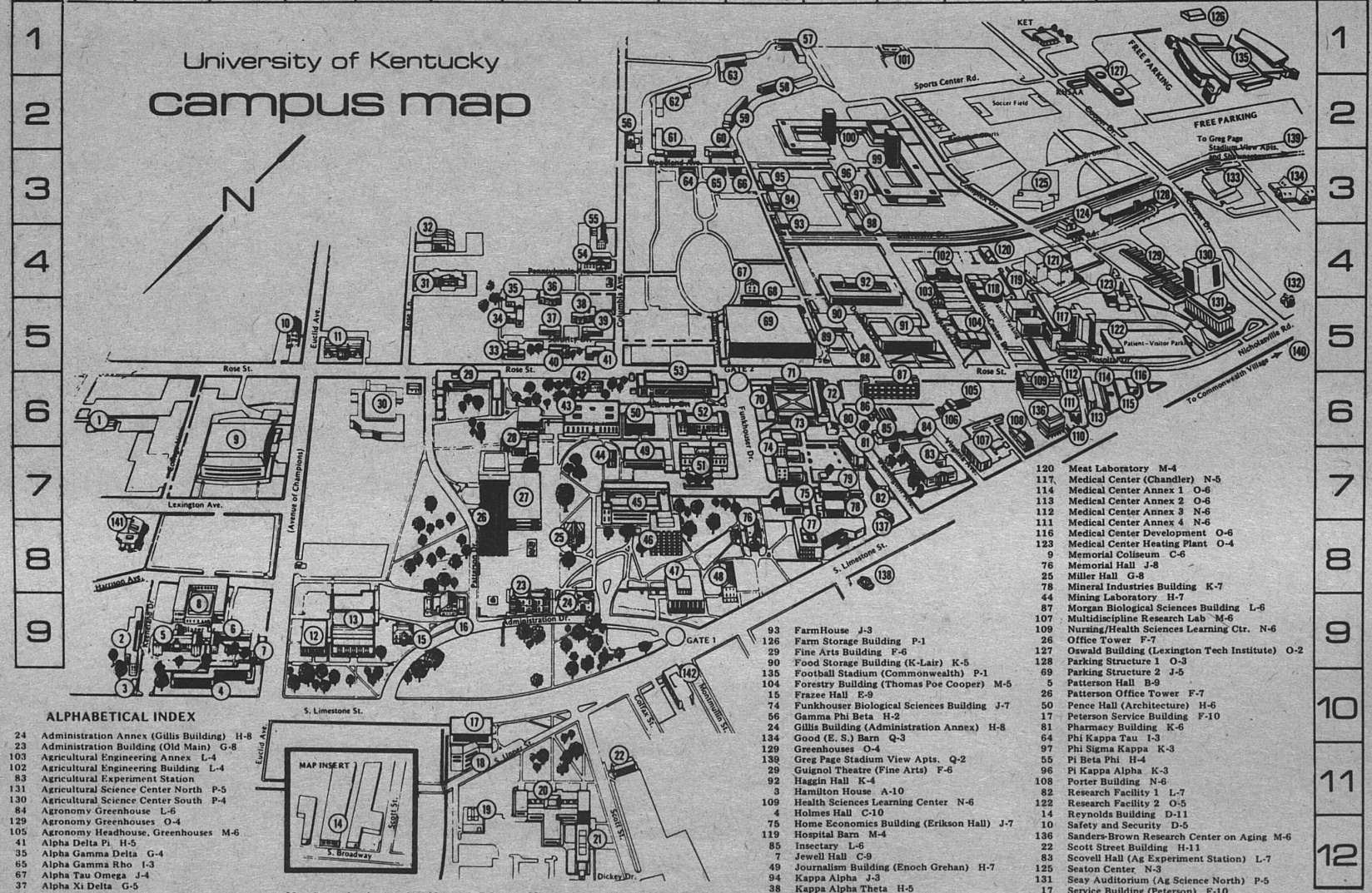

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