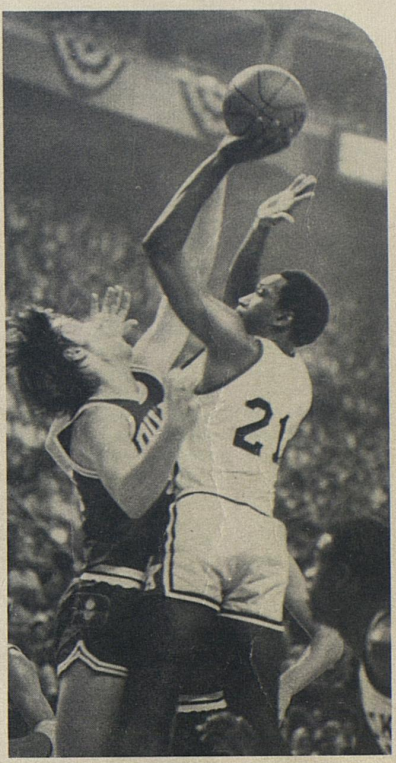
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University of Kentucky Bulletin



1978-79







University of Kentucky Bulletin

1978-79

Official catalog of the University of Kentucky

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SOURCES OF INFORMATION

PUBLICATIONS

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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, Ky. 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, 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

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, is coordinated by Ms. Nancy Ray, Affirmative Action Office, 206 Administration Building. Phone (606) 257-2730.

Efforts to comply with the laws and regulations applicable to qualified handicapped individuals are coordinated by Mr. Vic Gaines, Affirmative Action Office, 206 Administration Annex, as required by Section 504 of the Rehabilitation Act of 1973.

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:

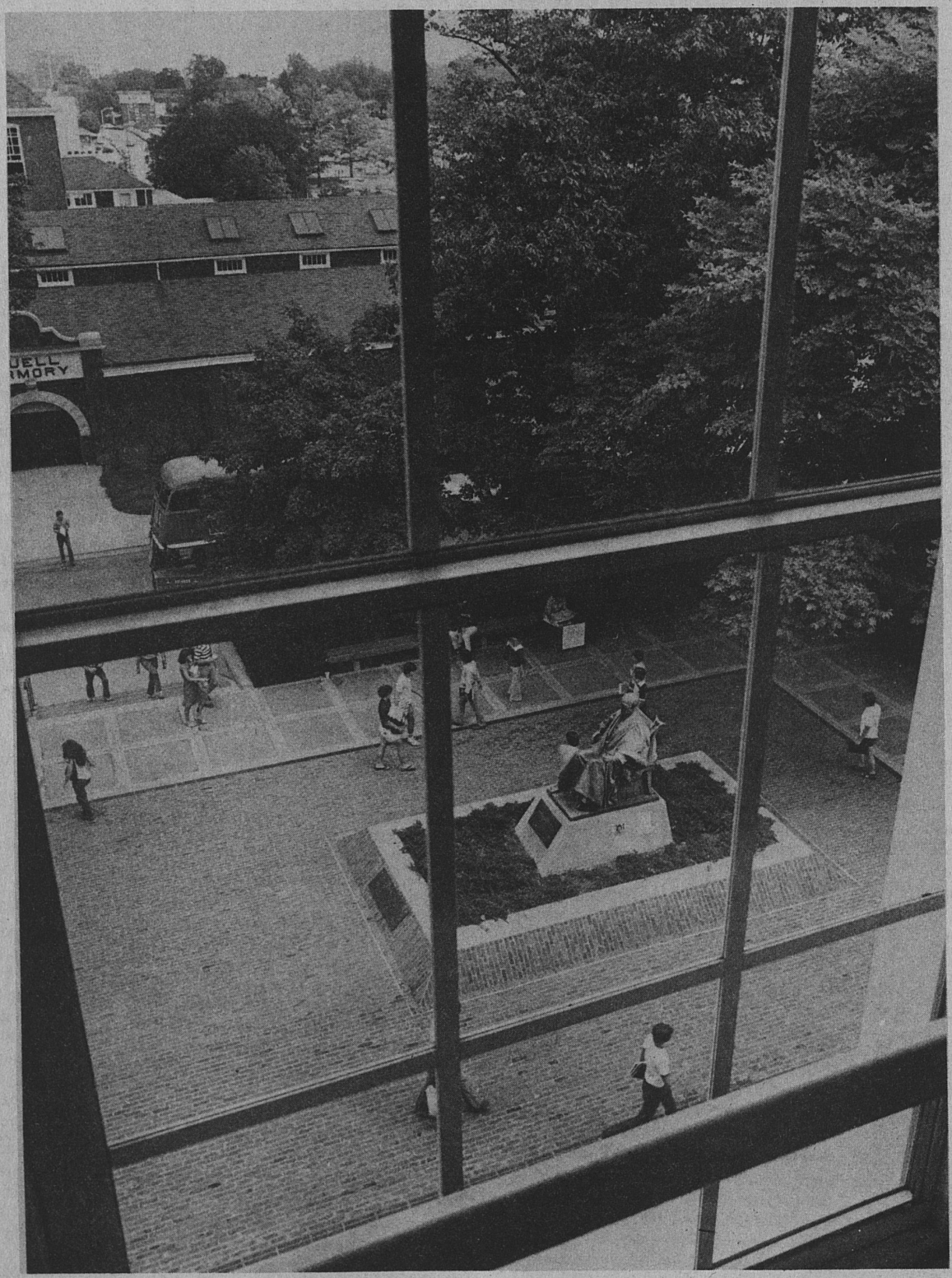
A. to other school officials, including faculty within the educational institution or local educational agency who have legitimate educational interests;
B. to officials of other schools or school systems in which the student intends to enroll, upon condition that the student be notified of the transfer, 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, 257-4623.

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UELL
MORY

CALENDAR

1978 Fall Semester

June 1—Thursday—Deadline for applying for admission or readmission for the 1978 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conference

June 15—Thursday—Deadline for applying for admission or readmission to the Graduate School for the 1978 Fall Semester

July 1—Saturday—Earliest date to submit applications for regular and EDP admission, College of Medicine, for Fall 1979

August 15—Tuesday—Deadline for applications for EDP, College of Medicine, for Fall 1979

August—28—Monday—Registration for new students

August 29—Tuesday—Centralized add-drop for Advance Registered Students

August 30—Wednesday—Class work begins

August 30-September 6—Wednesday through Wednesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $20.00 late fee is assessed students who register late.

September 4—Monday—Labor Day—Academic Holiday

September 6—Wednesday—Last day to enter an organized class for the Fall Semester

September 13—Wednesday—Last day for payment of registration fees in order to avoid cancellation of registration

September 13—Wednesday—Last day for new students to pick up ID cards from Billings and Collections in order to avoid replacement fee

September 22—Friday—Last day for reinstatement of students who failed to pay registration fees

September 28—Thursday—Last day for filing an application for a December degree in College Dean's office

October 3—Tuesday—Last day to change from Pass-Fail to credit or from credit to Pass-Fail

October 3—Tuesday—Last day to drop a course without a grade

October 3—Tuesday—Last day to change from credit to audit or from audit to credit

October 15—Sunday—Deadline for applying for admission or readmission for 1979 Spring Semester for all categories of undergraduate applicants wishing to be included in the Spring Advising Conferences

October 20—Friday—Last day to drop a course

October 20—Friday—Last day to withdraw from the University or reduce course schedule and receive any refund

October 30—Monday—Last day to pay thesis/dissertation fees for a December degree in Billings and Collections office

October 31—Tuesday—Deadline for applying for admission or readmission to The Graduate School for the 1979 Spring Semester

November 6-15—Monday through Wednesday—Advance registration for 1979 Spring Semester

November 15—Wednesday—Deadline for application, College of Medicine, for Fall 1979

November 16—Thursday—1979 Spring Advising Conference for new freshmen

November 17—Friday—1979 Spring Advising Conference for new advanced standing (transfer) students, Community College transfer students, and readmission and non-degree students

November 21—Tuesday—Last day to schedule a final examination in The Graduate School for candidates for a December 1978 degree

November 23-25—Thursday through Saturday—Thanksgiving Holidays—Academic Holidays

December 1—Friday—Deadline for submission of application for admission to the College of Law for Spring Semester 1979

December 13—Wednesday—End of class work

December 15-21—Friday through Thursday—Final Examinations

December 21—Thursday—Last day to submit a thesis/dissertation to The Graduate School for candidates for a December 1978 degree

December 21—Thursday—End of Fall Semester

December 26—Tuesday—Final deadline for submission of grades to the Registrar's Office, 12:00 noon

1979 Spring Semester

January 15—Monday—Registration for new students

January 16—Tuesday—Centralized add-drop for advance registered students

January 17—Wednesday—Class work begins

January 17-23—Wednesday through Tuesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A $20.00 late fee is assessed students who register late.

January 23—Tuesday—Last day to enter an organized class for Spring Semester

January 30—Tuesday—Last day for payment of registration fees in order to avoid cancellation of registration

January 30—Tuesday—Last day for new students to pick up ID cards from Billings and Collections in order to avoid

replacement fee

February 1—Thursday—Deadline for submitting application for admission to College of Dentistry for Fall 1979

February 8—Thursday—Last day for reinstatement of students who failed to pay registration fees

February 15—Thursday—Last day for filing an application for a May degree in College Dean's office

February 20—Tuesday—Last day to change from Pass-Fail to credit or from credit to Pass-Fail

February 20—Tuesday—Last day to change from credit to audit or from audit to credit

February 20—Tuesday—Last day to drop a course without a grade

March 1—Thursday—Deadline for submission of application for admission to the College of Law for Fall Semester 1979

March 9—Friday—Last day to drop a course

March 9—Friday—Last day to withdraw from the University or reduce course schedule and receive any refund

March 15—Thursday—Deadline for applying for Fall admission to College of Nursing

March 19—Monday—Last day to pay thesis/dissertation fees for a May degree in Billings and Collections office

March 19-24—Monday through Saturday—Spring Vacation—Academic Holidays

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

April 1—Sunday—Last day to apply to Graduate Admissions Office for admission and readmission for all 1979 Summer Sessions

April 12—Thursday—1979 Summer Advising Conference for new freshmen

April 13—Friday—1979 Summer Advising Conference for new advanced standing (transfer) students, Community College transfer students, and readmission and non-degree students

April 13—Friday—Last day to schedule a final examination in The Graduate School for candidates for May 1979 degree

April 16-25—Monday through Wednesday—Advance registration for 1979 Fall Semester and both Summer Sessions

April 25—Wednesday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission to all 1979 Summer Sessions

May 4—Friday—Last day to submit dissertation to The Graduate School for doctoral candidates who wish to receive a diploma at Commencement

May 5—Saturday—End of class work

May 7-12—Monday through Saturday—Final Examinations

May 11—Friday—Last day to submit thesis/dissertation to The Graduate School for candidates for a May 1979 degree

May 12—Saturday—End of 1978 Spring Semester

May 12—Saturday—Commencement Day

May 14-August 25—College of Pharmacy 15-Week Summer Term

May 15—Tuesday—Final deadline for submission of grades to the Registrar's Office, 12:00 noon.

June 1—Friday—Deadline for applying for admission or readmission for 1979 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences

June 15—Friday—Last day to apply to the Graduate Admissions Office for admission and readmission to the 1979 Fall Semester

1979 Four-Week Intersession

April 1—Sunday—Deadline for applying for admission or readmission for any summer term for all categories of undergraduate applicants wishng to be included in the April Advising Conferences

April 1—Sunday—Last day to apply to the Graduate Admissions Office for admission and readmission to all 1979 Summer Sessions

April 25—Wednesday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission to all 1979 Summer Sessions

May 14—Monday—Beginning of College of Pharmacy 15-Week Summer Term

May 14—Monday—Registration

May 15—Tuesday—Class work begins

May 18—Friday—Last day to enter an organized class for the Four-Week Intersession

May 23—Wednesday—Last day to drop a course without a grade

May 23—Wednesday—Last day to change from Pass-Fail to credit or from credit to Pass-Fail

May 23—Wednesday—Last day to change from credit to audit or from audit to credit

May 28—Monday—Memorial Day—Academic Holiday

May 29—Tuesday—Last day to drop a course

May 29—Tuesday—Last day to withdraw from the University or reduce course schedule and receive any refund

May 29—Tuesday—Last day to pay registration fees in order to avoid cancellation of registration

June 1—Friday—Deadline for applying for admission or readmission for 1979 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences

June 7—Thursday—Last day for reinstatement of students who failed to pay registration fees

June 12—Tuesday—Final Examinations

June 12—Tuesday—End of Four-Week Intersession

June 15—Friday—Last day to apply to the Graduate Admissions Office for admission and readmission to the 1979 Fall Semester

June 15—Friday—Final deadline for submission of grades to the Registrar's Office, 12:00 noon.

1979 Eight-Week Summer Session

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

April 1—Sunday—Last day to apply to the Graduate Admis-

sions Office for admission and readmission to all 1979 Summer Sessions

April 25—Wednesday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission to all 1979 Summer Sessions

June 1—Friday—Deadline for applying for admission or readmission for 1979 Fall Semester for all categories of undergraduate applicants wishing to be included in the Summer Advising Conferences

June 13—Wednesday—Registration

June 14—Thursday—Class work begins

June 15—Friday—Last day to apply to the Graduate Admissions Office for admission and readmission to the 1979 Fall Semester

June 18—Monday—Last day to enter an organized class for the 1979 Eight-Week Summer Session

June 27—Wednesday—Last day to pay registration fees in order to avoid cancellation of registration

June 28—Thursday—Last day for filing an application for an August degree in College Dean's office

June 29-July 31—Friday through Tuesday—Summer Advising Conference for new freshmen, Community College transfers, advanced standing (transfer) students, auditors, non-degree, and readmission students enrolling in the 1979 Fall Semester

July 2—Monday—Last day to change from Pass-Fail to credit or from credit to Pass-Fail

July 2—Monday—Last day to change from credit to audit or from audit to credit

July 2—Monday—Last day to drop a course without a grade

July 4—Wednesday—Independence Day—Academic Holiday

July 9—Monday—Last day for reinstatement of students who failed to pay registration fees

July 13—Friday—Last day to pay thesis/dissertation fees for an August degree in Billings and Collections office

July 13—Friday—Last day to drop a course

July 13—Friday—Last day to withdraw from the University or reduce course schedule and receive any refund

July 18—Wednesday—Last day to schedule a final examination in The Graduate School for candidates for an August 1979 degree

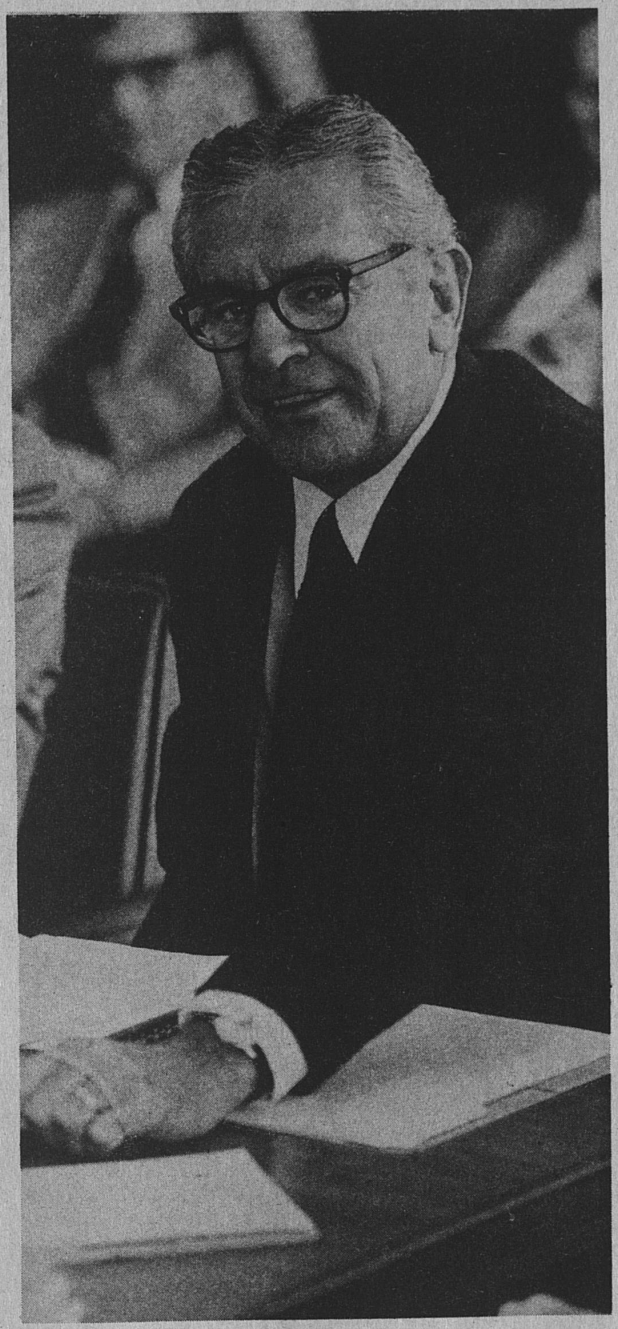
August 9—Thursday—Last day to submit thesis/dissertation to The Graduate School for candidates for an August 1979 degree

August 9—Thursday—Final Examinations

August 9—Thursday—End of Eight-Week Session

August 13—Monday—Final deadline for submission of grades to the Registrar's Office, 12:00 noon

August 25—Saturday—End of College of Pharmacy 15-Week Summer Term



Dr. Otis A. Singletary, president, University of Kentucky

COLLEGE OF LAW

1978 Fall Semester

August 28—Monday—Registration
August 29—Tuesday—Class work begins
September 4—Monday—Labor Day—Academic Holiday
September 6—Wednesday—Last day to enter an organized class for the Fall Semester
September 28—Thursday—Last day to file an application for a December degree
October 3—Tuesday—Last day to drop a course without a grade
October 20—Friday—Last day to withdraw from the University and receive any refund
October 20—Friday—Last day to drop a course
November 6-15—Monday through Wednesday—Advance Registration for the 1979 Spring Semester
November 23-25—Thursday through Saturday—Thanksgiving Holidays—Academic Holidays
December 1—Friday—Deadline for submission of application and receipt of all materials for admission, readmission or transfers into Spring Semester, 1979
December 6—Wednesday—End of class work
December 7-10—Thursday through Sunday—Law Examination Reading Period
December 11-21—Monday through Thursday—Law Final Examination Period
December 21—Thursday—End of Fall Semester

1979 Spring Semester

January 15—Monday—Registration
January 16—Tuesday—Class work begins
January 23—Tuesday—Last day to enter an organized class for the Spring Semester
February 15—Thursday—Last day to file an application for a May degree
February 20—Tuesday—Last day to drop a course without a grade
March 1—Thursday—Deadline for submission of application for admission for Fall Semester, 1979
March 9—Friday—Last day to withdraw from the University and receive any refund
March 9—Friday—Last day to drop a course
March 19-24—Monday through Saturday—Spring Vacation—Academic Holidays
April 16-25—Monday through Wednesday—Advanced Registration for 1979 Summer Session and Fall Semester
April 27—Friday—End of class work
April 28-May 1—Saturday through Tuesday—Law Examination Reading Period
May 2-12—Wednesday through Saturday—Law Final Examination Period
May 12—Saturday—End of Spring Semester
May 12—Saturday—112th Annual Commencement

1979 Summer Session

June 13—Wednesday—Registration
June 14—Thursday—Class work begins
June 18—Monday—Last day to enter an organized class for the Summer Session
June 26—Tuesday—Last day to file an application for an August degree
July 1—Sunday—Deadline for application and submission of all materials for transfer from another law school into Fall Semester, 1979
July 2—Monday—Last day to drop a course without a grade
July 4—Wednesday—Independence Day—Academic Holiday
July 13—Friday—Last day to withdraw from the University and receive any refund
July 13—Friday—Last day to drop a course
August 3—Friday—Law classes end
August 4-6—Saturday through Monday—Law Examination Reading Period
August 7-9—Tuesday through Thursday—Law Final Examination Period
August 9—Thursday—End of Summer Session

COLLEGE OF MEDICINE

1978 Academic Year 1978-79

July 31—Monday—Third- and Fourth-Year Students begin rotations
August 28-30—Monday and Tuesday—First-Year Students—Orientation and Registration
August 28—Monday—Second-Year Students begin classes
August 30—Wednesday—First-Year Students begin classes
September 4—Monday—First- and Second-Year Students—one day—Labor Day Holiday—Academic Holiday
November 23—Thursday—Third- and Fourth-Year Students—one day—Thanksgiving Holiday—Academic Holiday
November 23-25—Thursday through Saturday—First- and Second-Year Students—Thanksgiving Holiday—Academic Holiday
December 18—Monday—Third- and Fourth-Year Students begin Winter Vacation
December 20—Wednesday—First- and Second-Year Students begin Winter Vacation after last exam

1979

January 2—Monday—Third- and Fourth-Year Students return to classes
January 8—Monday—First- and Second-Year Students return to classes
March 19-25—Monday thru Saturday—Spring Vacation for First-Year Students—Academic Holidays
March 26-April 1—Monday thru Saturday—Spring Vacation for Second-Year Students—Academic Holidays
May 4—Friday—End of Academic Year for Fourth-Year Students
May 12—Saturday—End of Academic Year for First- and Second-Year Students

May 12—Saturday—College of Medicine Graduation
July 13—Friday—End of Academic Year for Third-Year Students

COLLEGE OF DENTISTRY

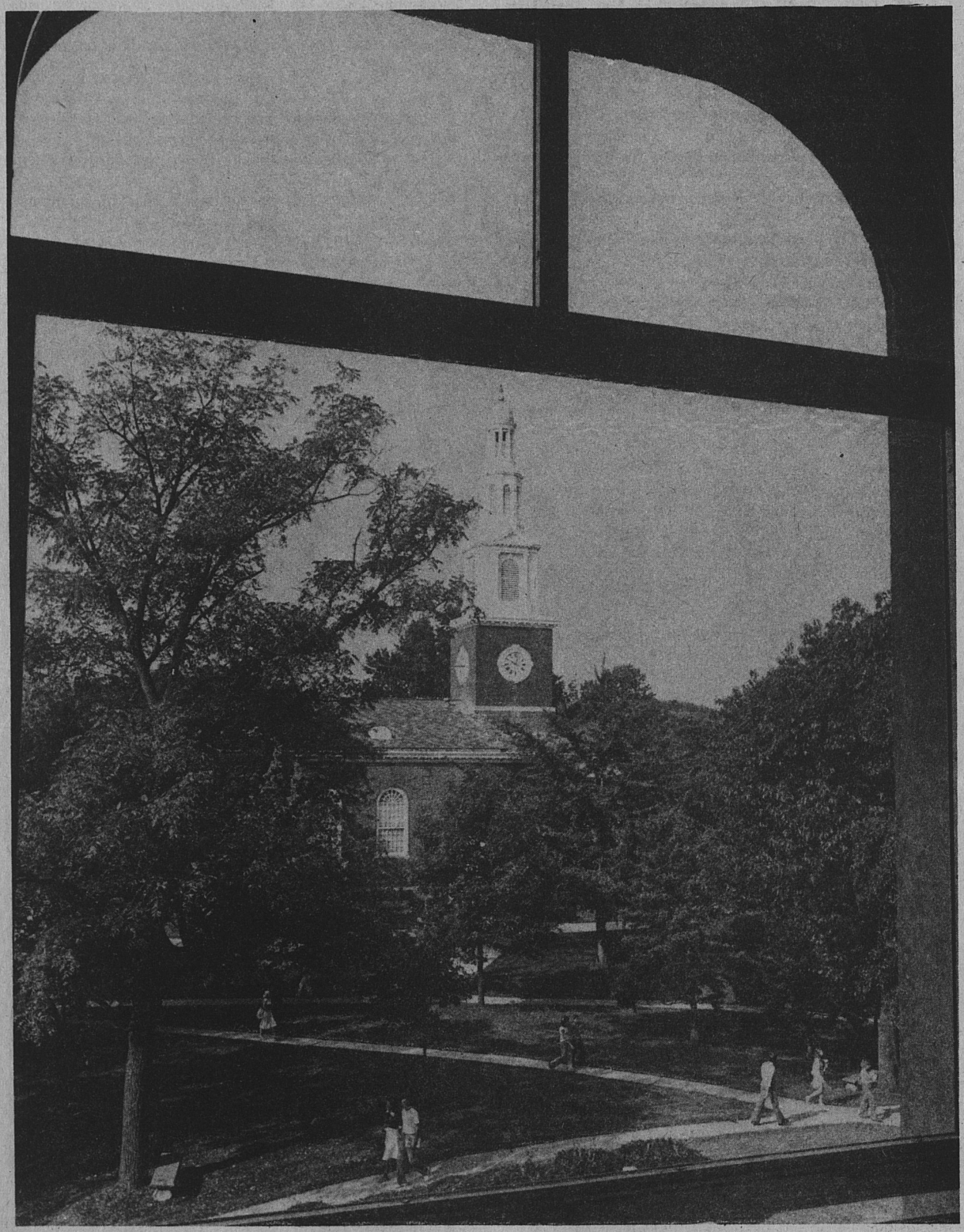
1978 **1978-79 Academic Year**

August 18—Friday—Orientation begins for all Third-Year students
August 23—Wednesday—Orientation begins for all First-Year students
August 24—Thursday—Orientation begins for Second- and Fourth-Year students
August 28—Monday—Classes begin
September 4—Monday—Labor Day Holiday—Academic Holiday
November 23-25—Thursday-Saturday—Thanksgiving Holiday—Academic Holiday
December 20—Wednesday—Winter vacation begins after last class

1979

January 3—Wednesday—All students resume class work
February 23-26—Friday-Monday—No classes
April 9-14—Monday-Saturday—Spring Vacation—Academic Holidays
May 11—Friday—End of Academic Year for graduating students
May 12—Saturday—University Commencement and College of Dentistry Graduation Program
May 25—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 establishd 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 Office of Business Development and Government Service, the Bureau of School Services, the University and Educational Archives, 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 Engineering Experiment Station, the Kentucky Research Foundation, the Child Guidance Service, the Social Research Consultation Service, the University Hospital and related services, the Bureau of Community Service (Sociology), the Computing Center, Conferences and Institutes, the Council on Aging, the Donovan Senior Citizens Fellowship Program, the Kentucky High School Speech League, the Civil Defense Program, the Continuing Education Program, the University Center for the Handicapped, the Center for Learning Resources for Allied Health, the Institute for Planning and Administration, 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-

From an enrollment of 273 students in 1876, the University has grown to a vibrant institution of more than 20,000 students and almost 5000 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 Registrar. These include: The Graduate School, The College of Medicine, The College of Dentistry, The Center for Learning Resources for Allied Health, Evening Class Program on the Lexington Campus, and the Fort Knox Center.

The Dean of Admissions and Registrar's Office, located in the Administration Annex, 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 or beliefs.

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.

Beginning freshman 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
Business and Economics	Home Economics
Communications	Social Professions

*Students must reapply to the Professional Teachers Program at the end of their sophomore year.

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

Allied Health Professions	Engineering
Architecture	Nursing
Law	Pharmacy

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

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.

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 52240.

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 the ACT Student Handbook, 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 and Architecture 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 freshman 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 should obtain an application packet either from their high school office or by writing to the Dean of Admissions and Registrar. This packet contains the application for admission, an instructional brochure on application procedures, and information on University housing, financial aid, health service, and other student services.

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.

Non-graduates 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. We 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. Applicants must be 19 years old.

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.

The individual University colleges have the option of accepting the credit for Community College courses not offered on the Lexington campus.

Applying for Admission. The transfer procedure for community college students is handled by the 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 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, Pharmacy, Architecture, and Nursing, you should be aware that these colleges 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, or Allied Health, you should 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 baccalureate 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 baccalureate degree work here, subject to the conditions normally applicable.

Credit by Examination. Students who have taken non-transferable 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

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

Non-degree 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 non-degree 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 non-degree student are the same as those set for other undergraduate students. Non-degree 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, Non-degree, 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 and Transcript(s), Courses in Progress	June 1	Oct. 15	April 1
COLLEGE OF ALLIED HEALTH PROFESSIONS				
Transfer Students (who have completed 60 hours or more)	UK and Professional Program Applications, Transcripts(s), Test Scores, Courses in Progress	Jan. 1 Feb. 15	Aug. 1* Sept. 15*	
*Medical Technology only				
COLLEGE OF ARCHITECTURE				
Freshmen	ACT, Application Project	Feb. 14 March 10	Oct. 1	Oct. 1
Transfers from non-Architecture programs	Application and Transcripts(s) Project	Feb. 14 March 10	Oct. 1	Oct. 1
Transfers from other Architecture Programs	Application and Transcripts(s) Portfolio	Feb. 14 March 10	Oct. 1	Oct. 1
COLLEGE OF LAW	Law Application LSDAS report	March 1 March 31		
COLLEGE OF NURSING				
	Application Credentials	March 15 April 1	Oct. 15 Nov. 1	
COLLEGE OF PHARMACY				
	Application Transcript(s) other required forms	Feb. 1		



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 1-20 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 $3,200 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.

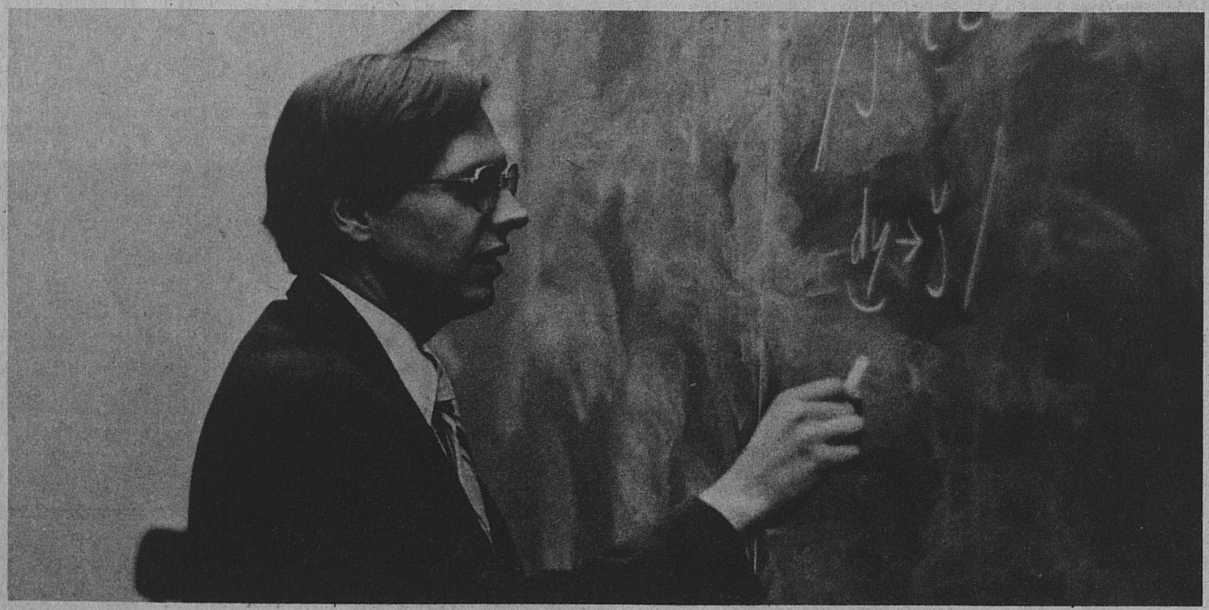
For those students with marginal scores on (TOEFL) Test of English as a Foreign Language (450-500), the English Department offers an intensive eight-week summer program in English as a Foreign Language, designed to improve both oral and writing skills in English. The course is offered only during the 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.

RESIDENCY REQUIREMENTS

Generally, students who graduate from a Kentucky high school, or if emancipated, who have lived in the state as non-students for at least one academic year before enrolling in a state-supported school, are considered residents for fee-payment purposes. If a student's parents or spouse are residents of Kentucky and living in the state, the student is normally considered a resident.

All others will be assessed non-residence fees. If, for some reason, you are unsure of your residence status, it is your responsibility to check with the Assistant Dean of Admissions and Registrar's Office before applying for admission.



FEES

REGISTRATION FEES

School Year 1978 - 1979

Full-time Student:	**Resident**	**Non-resident**
All Undergraduate Colleges		
Semester Fee	$278.00	$ 828.00
Summer—8 wks. only	144.00	414.00
Graduate School		
Semester Fee	313.00	878.00
College of Law		
Semester Fee	353.00	935.50
Summer Term Fee	180.00	470.00
Colleges of Medicine and Dentistry		
Annual Fee	1,206.00	2,556.00

Part-time Student:	**Resident**	**Non-resident**
All Undergraduate Colleges		
Credit Hour Fee	$24.00	$69.00
Graduate School		
Credit Hour Fee	35.00	98.00
College of Law		
Credit Hour Fee	36.00	94.00

HOUSING COSTS

ROOM AND BOARD

All undergraduate residence halls	**Per Year**
10 meals/week (2 meals, 5 days)	$1392
15 meals/week (3 meals, 5 days)	1492
14 meals/week (2 meals, 7 days)	1530
21 meals/week (3 meals, 7 days)	$1646
Eight-Week Summer Term (room only)	
Double room occupancy	$ 180
Single room occupancy	225

MEAL PLANS*

	Per Year
Three meals, seven days per week (except Sunday evening meal)	$ 856
Any two meals, seven days per week (except Sunday evening meal)	740
Any two meals, Monday-Friday	602
Any three meals, Monday-Friday	702

*Full-time students living off campus may also purchase meal plans.

HOUSING ONLY

Single Graduate/Professional Apartments**	**Per Month**
Cooperstown	
efficiency—single occupancy	$125.00
one bedroom—single occupancy	140.00
Commonwealth Village	
efficiency—single occupancy	135.00
one bedroom—single occupancy	150.00
468 Rose Lane—efficiencies —single occupancy	135.00
411 Linden Walk	
one bedroom—single occupancy	150.00
404 Linden Walk—Graduate **and Undergraduate** International Students	
efficiency—single occupancy	135.00
Married and Family Housing**	**Per Month**
(one-year contract)	
Efficiency apartment	$ 125
One-bedroom apartment	140
Two-bedroom apartment	150

**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 plans are optional.

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 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 (Spanish, Aerospace Science and Social Professions), 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

A student who officially withdraws from the University after registration but before the mid-term date must present to the Registrar's Office the withdrawal evidence (withdrawal form and identification card) in order to be refunded one-half of the fees paid for the term. If the withdrawal occurs after the middle of the term or if the withdrawal evidence is not presented by that mid-term date, no refund will be awarded.

A student who changes from full-time status or further reduces his part-time academic load must present this evidence (drop-add slip) to the Registrar's Office prior to the mid-term date to receive a partial refund. If this change occurs after the middle of the term or if the evidence is not presented by that mid-term date, no refund will be awarded.

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.

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 University officers.

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, or certify him for graduation, 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 ($15 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 pre-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. Pre-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 a $50 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 I.D. 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 I.D. 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 I.D. 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.



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 is 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. One fact that seems to be significant is that the numerical size of enrollment is maintained. The senior class in any given year is about the same size as, or larger than, the freshman class of four years earlier.

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. The University also has a number of academic skills development programs which have played significant roles in helping students increase their chances for achieving their goal of a college degree.

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 Financial Aid Form (FAF) to the College Scholarship Service, designating the University of Kentucky to receive the analysis. The FAF must be submitted by March 15 to insure consideration for financial aid. The Financial Aid Form will be available at post-secondary schools and at the Office of Student Financial Aid.

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.

Returning University Students And Transfers

Returning University students and transfers must:

1. Secure a "University of Kentucky Application for Student Financial Aid" after February 1.
2. Return the completed application to the Office of Student Financial Aid no later than April 15.
3. Submit the Financial Aid Form to the College Scholarship Service, designating the University of Kentucky to receive the analysis no later than April 15. (The FAF 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 through the Office of Student Services, University Medical Center, prior to the beginning of each fall semester.

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 your 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 could not enter or remain in college without them.

The maximum amount of the grant is $1500 or one-half of the student's determined need, whichever is the least. The University must provide the remaining one-half or an amount equal to the grant through its other programs.

Basic Educational Opportunity Grants

The Basic Educational Opportunity Grant Program provides grants to eligible students attending approved post-secondary institutions. Basic Grants currently range in value from $200 to $1400 and are based on the financial circumstances of the family.

To apply for a Basic Grant, students may now use the FAF. Students using the FAF will have the advantage of having to complete only one form for Basic Grants, State Grants, and Institutional Aid. The "Basic Grant Educational Opportunity 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 and currently ranges in value from $200 to $300.

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 Financial Aid Form (FAF) to College Scholarship Service. (Since students applying for financial aid at the University of Kentucky also submit the Financial Aid Form, the filing of a single financial statement (the FAF) 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 4 to 5 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 $5000 for undergraduates and an aggregate of $10,000 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 three percent per year, but does not begin to accrue until the beginning of the 10th month after the borrower ceases to be a half-time student. The first payment is ordinarily scheduled to become due at the end of the first year a borrower is out of school. For this program, "half-time" means half a normal load.

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 in one academic year. 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, and interest thereafter is charged at the rate of three percent per annum. 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 Defense and Health Professions Student Loan Programs. A full-time nursing student at the University may borrow up to $1500 in one academic year and an aggregate of $5000. The borrower must sign a note. Repayment of the loan begins nine months after the borrower ceases full-time student 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.

Related to the Nursing Loans are the Nursing Scholarships for students in the College of Nursing or Associate Degree Programs. An award cannot exceed $2500 a year and the recipient must have exceptional financial need.

Federally Insured Loan Program

The State of Kentucky participates in the Federally Insured Loan Program through an agreement with the Department of Health, Education, and Welfare. Through this program, a student is eligible to borrow up to $2500 a year. Repayment of the loan begins not earlier than nine months nor later than one year after the date of graduation or withdrawal from school. Repayment schedules will normally be arranged for five to 10 years, although the student will be required to pay a minimum of $360 per year. The current interest rate is seven percent simple interest. A fee of one-fourth of one percent of the amount of the loan for the term of the in-school note is paid in advance.

Application materials are available through participating banks and 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 Federally Insured Program or has a State Guaranteed Loan Program which is similar.

KHEAA Loans

The Kentucky Higher Education Assistance Authority (KHEAA) Student Loan Program offers Federally Insured Loans to Kentucky residents attending post-secondary institutions within the Commonwealth of Kentucky. To be eligible for a KHEAA Student Loan, the borrower must be a legal resident of Kentucky, enrolled in or accepted for enrollment in an eligible Kentucky institution, and must qualify for federal interest benefits under the Federally Insured Loan Program. Undergraduate students may obtain loans up to $1000 a year while graduate and professional students may obtain loans up to $2000 a year. Medical and Dental students may obtain loans up to $3500 a year. The minimum loan for which applications are accepted is $400.

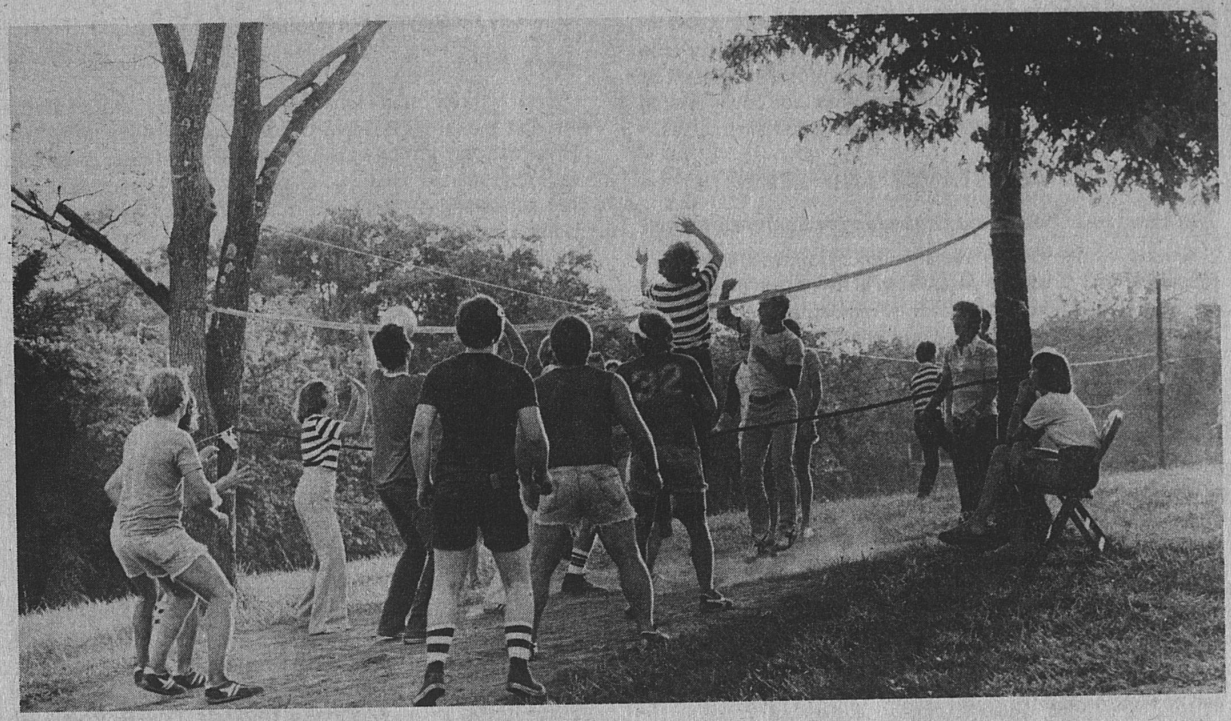
To apply for a KHEAA Loan, a student must complete a Federally Insured Loan Application and a KHEAA Loan Questionnaire and submit both forms to the Kentucky Higher Education Assistance Authority.

Part-Time Employment

The third part of the University's program of financial aid to students is a Student Part-Time Employment Service. This service is designed to provide financial assistance to help meet the costs of education; to develop proper skills and attitudes toward work; and to provide work situations which supplement and enrich the student's academic efforts.

In order for the University to be of maximum service to a student who must supplement other resources in order to meet the cost of education, he or she must: give first priority to maintaining a satisfactory academic standing; set aside in his or her class schedule definite time blocks of from two to four hours per day for work. Preferably offer a skill and previous work experience; and at all times assume a mature attitude toward part-time work responsibilities.

Students seeking part-time employment should contact the Office of Student Financial Aid, Student Part-Time Employment Service, well in advance of the time a job is needed. In this office they will be interviewed and will file an application for employment. A student must keep in contact with this of-



fice until placed. The student worker should report promptly any unsatisfactory work relationships, and is welcome to discuss his work program with the Student Part-Time Employment Office at any time.

The College Work-study Program

The Economic Opportunity Act of 1964, as amended by the Higher Education Act of 1976, provides funds to create part-time work opportunities for students from low-income families. In doing so, the University has attempted to provide meaningful work experience for students. Many jobs are related to the student's area of study. Such opportunities include faculty aides, research assistants, laboratory assistants, clerical and secretarial, bookstore assistants, administrative office assistants, food service workers, building and grounds workers, and others. The number of hours a student may work is also determined by the student's need for financial assistance. Hourly rates range from $2.30 to $3.50 per hour.

Veterans Benefits

Benefits for Veterans and Eligible Dependents

Federal and State benefit programs for veterans and eligible dependents are coordinated through the Office of Veterans Affairs.

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 the Office of Veterans Affairs, 206 Administration Annex, on the day of pre-registration or advising conference attendance. 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 veteran 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 *Vet Alert*, a brochure which supplements this bulletin and lists complete details of policies which specifically affect the recipients of veterans benefits. *Vet Alert* is available through the office of Veterans Affairs, 206 Administration Annex. Except when stated otherwise in *Vet Alert*, veterans are expected to comply with standard University policies.

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 the Office of Veterans Affairs, 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 for 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

Named in honor of the late Herman L. Donovan, University President 1941-1956, this Fellowship is for people 65 years of age and older. It provides that they may enter the University and attend any regular course without the payment of fees. Work may be taken for credit; some have earned baccalaureate and graduate degrees. Others register as auditors and attend classes for the sheer joy of learning. The program is available at the main campus in Lexington and at all community colleges in the University system.

Donovan Fellows participate in the many intellectual, social and cultural programs which characterize the University. They, together with retired University teachers and staff, have their own organization—The Donovem Club. This club publishes *The Pillars*, a monthly newsletter, holds regular parties, arranges for travel-study seminars and symposiums on "Great Issues of Our Times," and investigates special problems of older adults with a view to devising appropriate procedures for solving them.

Inquiries about the Donovan Fellowship should be addressed to the Council on Aging, 345 Columbia Avenue, University of Kentucky, Lexington, Kentucky 40506.

Special Awards

Undergraduate Research And Creativity Program

The 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 our students to better academic efforts. Undergraduate students submit papers or projects in five disciplines (Social Sciences, Physical Sciences, Biological Sciences, Humanities, and Creative Work in Fine Arts) and the program culminates in an awards banquet, at which time the President of the University presents specially designed plaques to students whose work is judged to be the best in each of the above categories.

The awards are: *First place*—the specially designed plaque and $100; *Second place*—a certificate, a book and subscription to a scholarly magazine or journal in the appropriate field; *Third place*—a certificate and subscription to a scholarly magazine or journal in the appropriate field.

Each full-time undergraduate is invited to participate in this program.

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, textbooks 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 two to four years.

Length of scholarship, application deadline, where to apply:

1. Four years; December 31; 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 22, 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, textbooks, and a non-taxable 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 the 15th of December 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

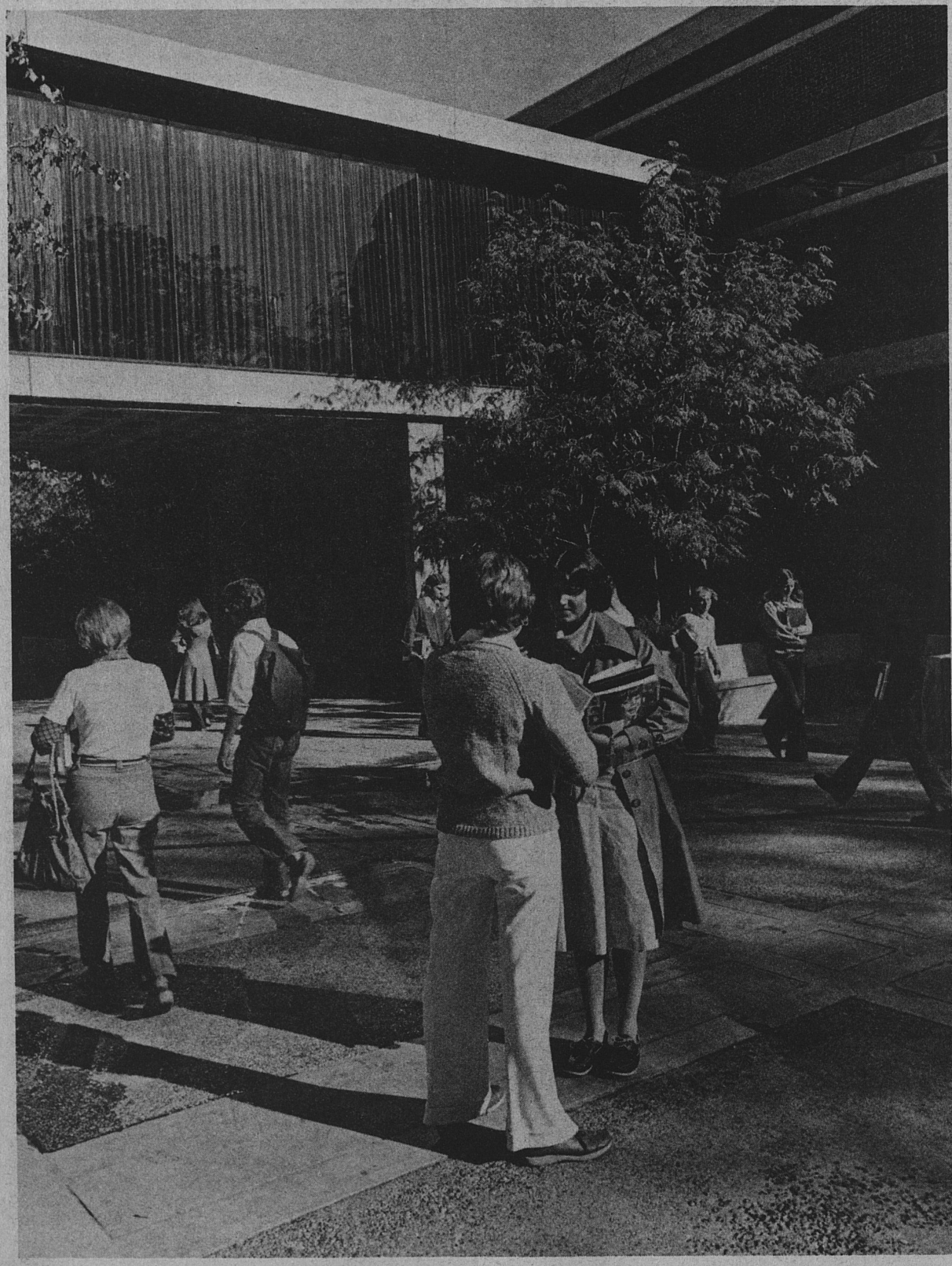
basis for two or three years at sophomore and junior levels. Initial selection is made on campus by a board composed of Air Force ROTC officers. Final selection is made by a central selection board at the Air Force ROTC headquarters. Applicants for two- or three-year scholarships should contact the Professor of Aerospace Studies early in their freshman year on campus.

Two-Year Program: Qualified students attending the University of Kentucky or transfer students from another institution 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.





LIBRARIES

The University of Kentucky library system has a collection of more than 1.5 million volumes and receives more than 24,000 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 14 branch libraries, serving the areas of agriculture, architecture, art, biological sciences, business and economics, chemistry and physics, education, engineering, geology, law, mathematics, medicine, music and pharmacy.

The University of Kentucky is a regional depository for federal government publications. Many 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.

One of the largest microform collections in the country is housed and serviced in the Newspaper/Microtext Department of the King Library. Also located in this department is a comprehensive collection of Kentucky newspapers.

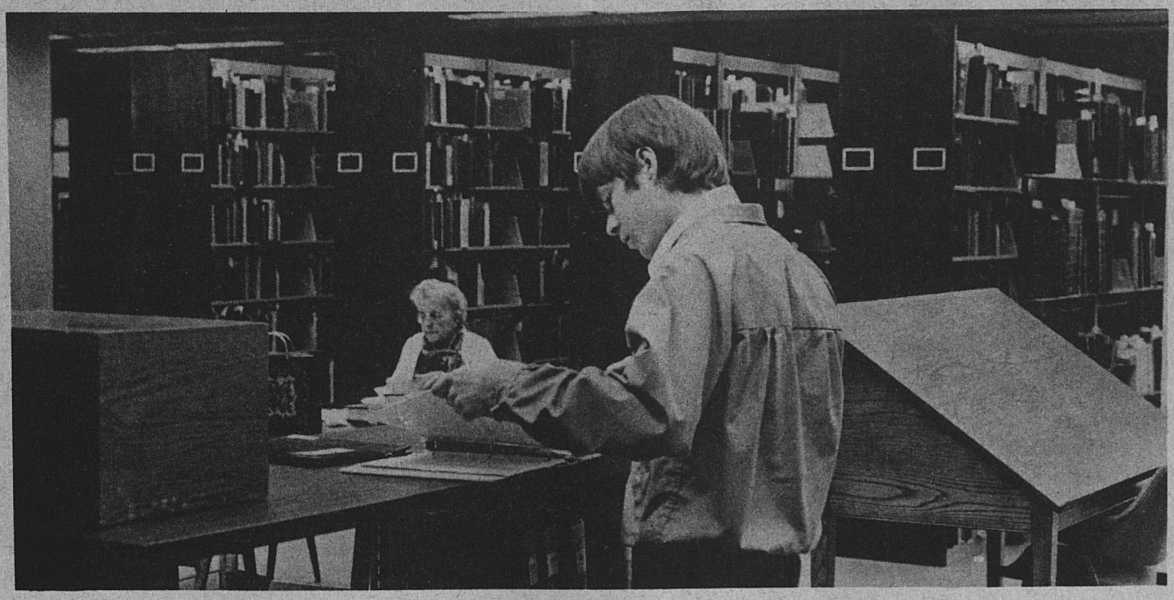
Manuscripts, rare books, and a large collection of 20th century American political manuscripts are located in the Special Collections Department of King Library. Although emphasis is placed on Kentucky and Ohio Valley history, this department has also acquired the Cortot collection of musicology and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

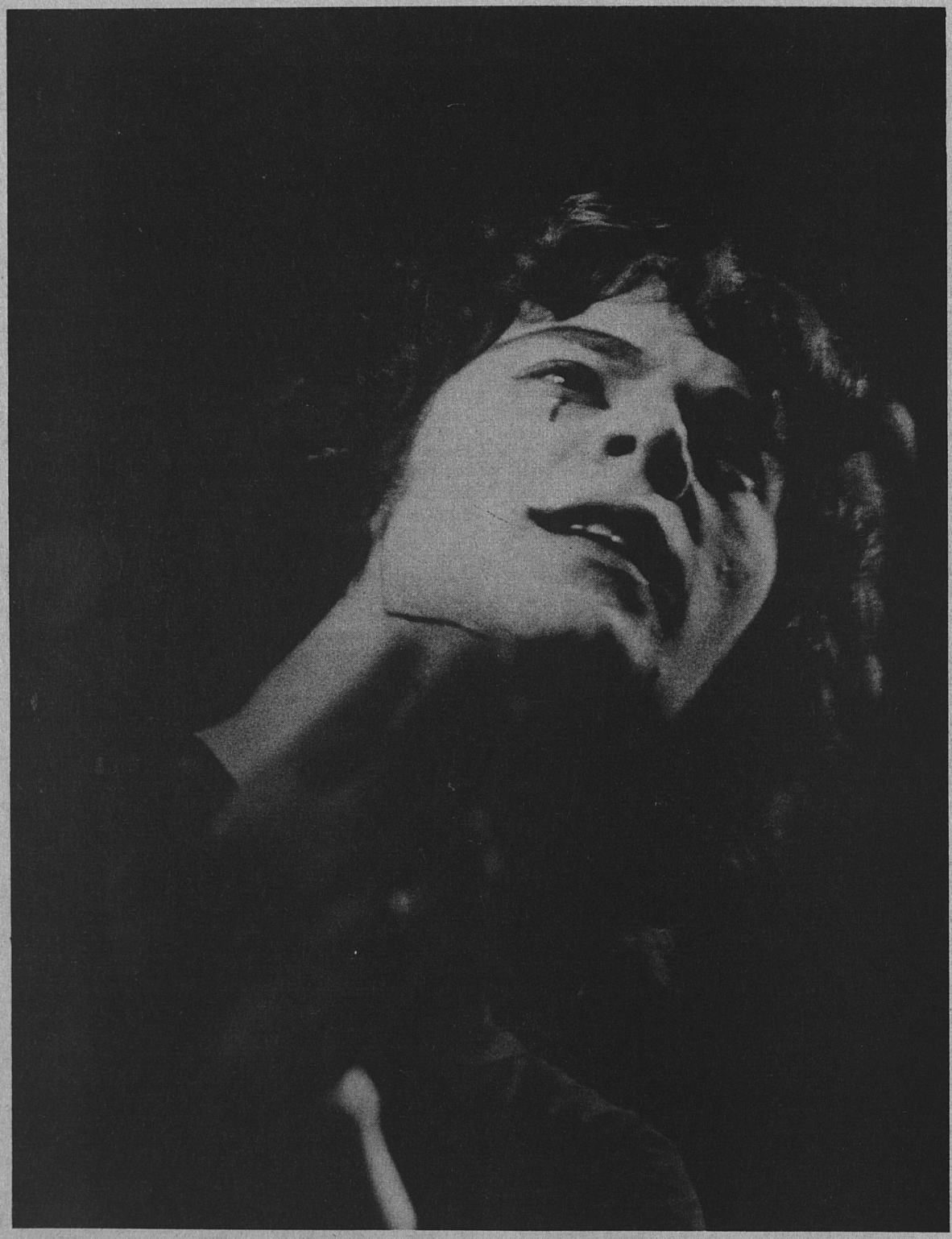
In addition to the traditional library services such as reference, circulation, reserve book room, and inter-library loan, the system also offers programs designed to make the collection more accessible to the user. The Reference Department, through its instructional services program, offers not only introductory orientation to the library for beginning students, but prepares in-depth presentations to classes of advanced students. This department also publishes a library guide and a series of brochures on the use of various library tools. The AIDS Center provides information about a variety of academic programs, services and activities available on campus.

The library system is a member of the Center of Research Libraries in Chicago. The Center's collection consists of infrequently used research material which may be made available to faculty and graduate students through the Inter-library Loan Department of the King Library.

The system is also a member of the Southeastern Library Network (SOLINET), a computer-based system of shared cataloging. The University holds membership in the Association of Research Libraries.

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 Arts 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 co-sponsored annually by the Kentucky High School Speech League and by the Department of Theatre Arts.

Further inquiries may be addressed to the Department of Theatre Arts of the College.

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. Further 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 I.D. 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 I.D. cards.

The Lexington Philharmonic Orchestra

Composed of talented instrumentalists from throughout the central Kentucky area, the Lexington Philharmonic Orchestra performs one of each pair of concerts in Memorial Hall 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 I.D. cards.

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.

The new Fine Arts building, currently under construction, will contain a fine museum.

Anthropology Museum

Since its establishment in 1936, the primary purposes of the Museum of Anthropology has 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, "Culture 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 Indonesian Material Culture.

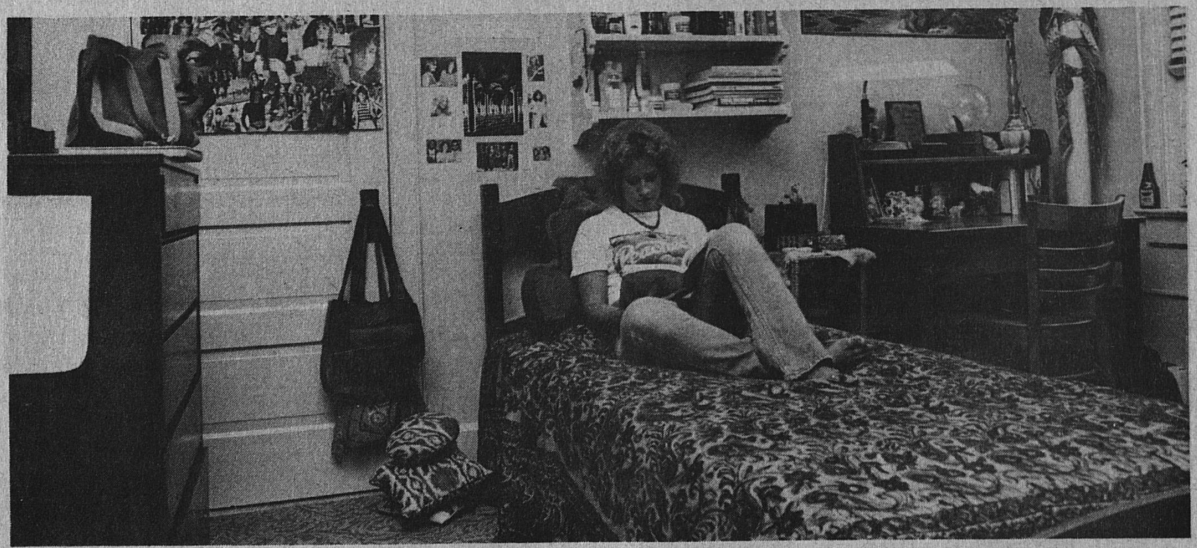
The collections are used for research by faculty members, graduate and undergraduate students and they are consulted by scholars from other institutions and countries.

The Museum of Anthropology is open to the public, free of charge from 8 a.m.-5 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.


PERISHABLE



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. Applicants are urged to apply as early as possible, even prior to acceptance for admission to the university.*

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 room. Usually students who apply for housing early (before Christmas) can be reasonably sure that housing will be available when they enter the following fall, except for transfer students.

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 three available plans:

1. 20 Meals—B, L, D, Monday-Saturday; B, L, Sunday
2. 14 Meals—Any two meals—7 Days
3. 10 Meals—Any two meals—Monday-Friday

Room and board are not provided during the stated recesses of the University. Your housing application must indicate which meal plan you prefer.

If you live in the residence halls, you may eat all your meals in either Donovan Hall Cafeteria, Blazer Hall Cafeteria, or the Blanding-Kirwan dining facility. No Sunday evening meals are included in room and board, but meals are served Sunday evenings, on a cash basis, in the K-Lair grill, the Student Center Cafeteria, and in nearby off-campus restaurants.

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 only be necessary to submit the receipt in order to receive the meal ticket—thus avoiding the long payment lines. Contracts for board only are available to students who live off campus.

Single Undergraduate Residence Halls

(Double Rooms)

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

Jewell Hall accommodates only freshman women. It is the smallest of the units, housing 109 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 137 upperclassmen.

Holmes Hall, a modern, four-story building housing 301 freshman men, provides double rooms, containing a sink, closets, desks, etc. A vending area, laundry room, and library are located on the ground floor.

Keeneland Hall accommodates 307 upperclasswomen in its rooms arranged as suites—double rooms, connected by a full bath. The building contains a formal reception room, library, a small grill, 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, constructed in 1956, with a capacity of 339 students. This residence 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, another unit for freshman men, was completed in 1960. It has a capacity of 575 students—two assigned to each room. Constructed in the shape of a square with a large open court in the center, 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 comprises 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.

Single Graduate Student Residence Halls

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, assigned two to a unit for the year. Students requesting single occupancy will be charged double rates. Two additional buildings on the southwest corner of campus, Commonwealth 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. Graduate students desiring a meal plan must indicate, on the application, the particular plan desired.

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 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 during the same week (preferably 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.

An effort is made to select a suitable roommate, according to similar interests and backgrounds, for those students not designating a roommate choice. Assignments to rooms are made by June 1. 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 that 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 on the preceding pages under "Fees".

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, 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, 1978 for the fall applicant, or December 1, 1979 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, 1978 for the fall semester, or after December 1, 1979 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.

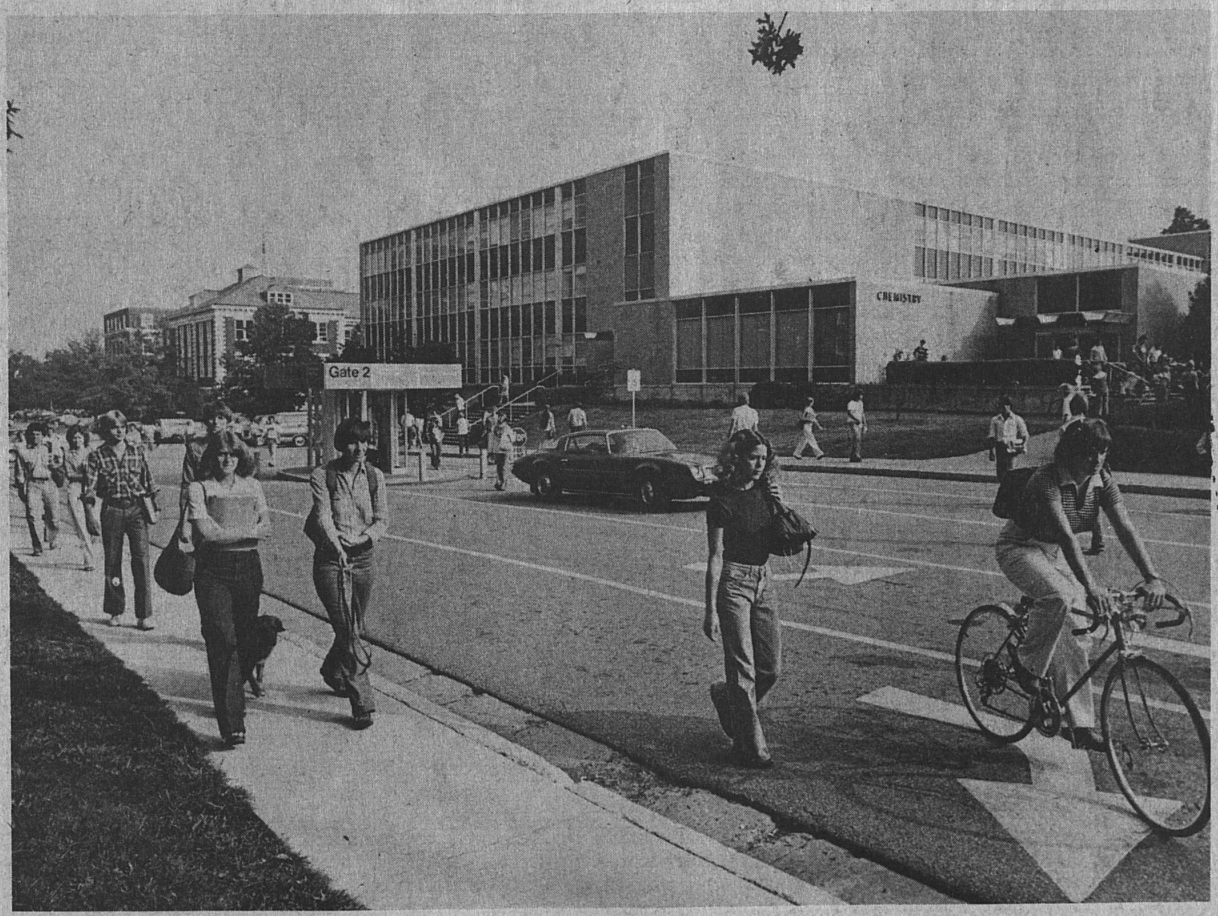
Students are urged to submit the housing application at the time they apply for admission to the University in order to establish an early consideration date.

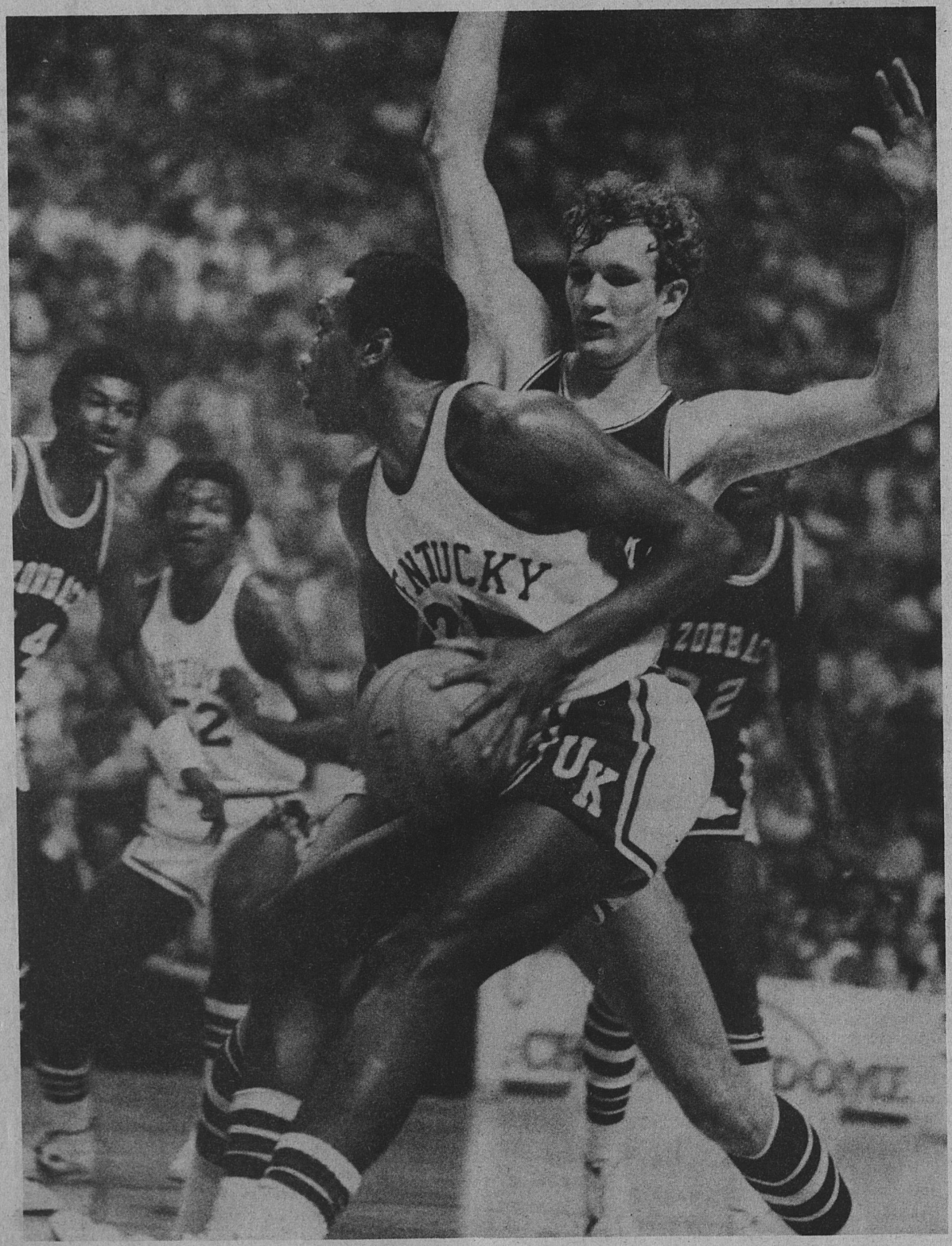
STUDENT PARKING

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. Due to limitations of available parking spaces, juniors, seniors, graduate and professional students are given first priority for permits. Freshman and sophomore students are asked to park in the Commonwealth Stadium lots free of charge and ride the Shuttle bus at no charge to and from the campus. Freshman and sophomore students with special needs will be considered in first priority in so far as space is available.

Upperclass students who reside on campus are given parking permits for specific areas. Upperclass commuting students may also purchase permits for specified parking 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.




UK

STUDENT SERVICES AND ACTIVITIES

The important experiences of a college education occur in all dimensions of your life as a student. 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 you in expanding your 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 reside 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.

Formation of Student Organizations

Student organizations are an outgrowth of student interest and are developed to meet a variety of your 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.

University Discipline

University of Kentucky students are citizens of two communities—the academic community and the city of Lexington. As a student you 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, 1977, 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 24 national fraternities and 15 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.

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. Interfraternity Council and Panhellenic Association have an office in Room 138, Alumni Gym.

Residence Hall Programs

The residence halls provide experience in government, social planning and group living. Trained personnel and selected student advisers are concerned with your educational and personal development. With this guidance available, you are enabled to develop social skills in an atmosphere conducive to your academic pursuits. The residence halls encourage your participation both within

residence halls and in the total campus community. The head residents, receptionists, and resident advisers who staff each undergraduate living unit help develop hall government and plan programs of interest for hall residents.

HUMAN RELATIONS CENTER

The Human Relations Center 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, Continuing Education for Women, Student Volunteer Programs, and the Bureau for the Blind Recording Unit.

Director's Office

Programming made available through the Director's Office includes Freshman Weekend, Appalachian Seminars, Explore Kentucky trips, and the NEXUS telephone information service. 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, Episcopal, Christian Student Fellowship, Christian Science, Hillel Foundation, Intervarsity Christian Fellowship, Lutheran, Mormon, 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 Director of Volunteer Programs 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.

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.

The office is located in the Alumni Gym.

Bureau for the Blind

This office provides assistance to blind and visually impaired students attending the University of Kentucky. The primary service provided is the reproduction of printed text books and material onto cassette tapes. The recording program is comprised 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 at the Human Relations Center in the Alumni Gym.

Continuing Education for Women

Recognizing the special needs of mature women returning to school, the office of Continuing Education for Women has recently been expanded. Approximately 1500 women, 25 years or older, are now completing their undergraduate and graduate degree programs. This office serves as a center for programming or distributing information necessary to satisfy the special needs of these women. A University-Community Women's Resource Room is also available for informal and intellectual interaction.

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 non-academic counseling. Supplemental academic support is provided through individual tutorial arrangements on a limited basis. The Summer College Preparatory Program, an orientation and work-study program for eligible high school graduates planning to attend college, is being coordinated by the Office of Minority Affairs.

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.

Minority students, either currently enrolled or those seeking future admission to the University, should register with the Secretary to the Office of Minority Affairs or contact the Director of Minority Student Affairs for further information.

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. You 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. Non-competitive 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. In fact, it is often referred to as "the living room" of the University family. 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 room, cafeteria and grill, card room, check cashing facility, cloak room, game room, information desk, lost and found office, offices and meeting rooms, patio, theatre, travel map, and TV lounges.

STUDENT PARTICIPATION

You 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 students' 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 Arts 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. You are urged to take part in activities ranging from those of your living unit 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.

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, field hockey, 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; provides grants to the University of Kentucky—academic scholarships; radio, television and films and the University of Kentucky Marching Band.

PROFESSIONAL SERVICES

Health Services

The University has a comprehensive health care program for all Lexington campus students, both full-time and part-time. The University Health Services is an outpatient clinic for UK students, staffed with professionals who are chosen for their ability to deal sympathetically with the special medical, surgical, and emotional health problems of young adults. The 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 a chronic disease "registry" for the evaluation and continuing treatment of students with long-term health problems; tuberculosis control programs; communicable disease control programs; allergy clinics; gynecology clinics for women students.

There is a **Surgical Clinic** in the Health Service where students who have surgical problems and injuries are cared for.

The goal of the **Mental Health Service** is to assist students with personal and emotional problems which may interfere with their capacity to function in their work, in their ability to enjoy play or relate to other people.

Students who need specialty services beyond those available in the Health Service are referred to consultants in the Medical Center. If students need to be hospitalized, they will be admitted to the University Hospital.

Students are urged to make appointments when at all possible, but there is a walk-in clinic for the care of acute illnesses that need immediate attention. Many students develop a good relationship with a particular physician whom they continue to see throughout their stay at the University and this is encouraged. Health Service records are strictly confidential and can be released only with the student's signed authorization.

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. 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. The fee is $15 per semester. 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.

The health fee benefits do not include those health services that are covered by traditional insurance policies: hospitalization, accident care and surgical services. It is essential that students or their parents have insurance to cover these expenses. Many insurance policies stop coverage for dependents when they reach age 19 or marry. 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 at a reasonable rate. Special Note: Because low cost health care plans are made available to UK students, the University, including the University Hospital, assumes no responsibility for the cost of health services that are provided to students who do not take advantage of these plans.

Information concerning payment of the health fee and enrollment procedures for the insurance plan will be sent to all registered students before the beginning of each semester, or it can be obtained by calling or writing the Student Health Service.

A history-only Health Report Form, mailed to each entering student, provides a record of his 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 in remedial reading and learning skill acquisition is offered by the Center on a non-credit 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 has been 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 Services 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, deter-

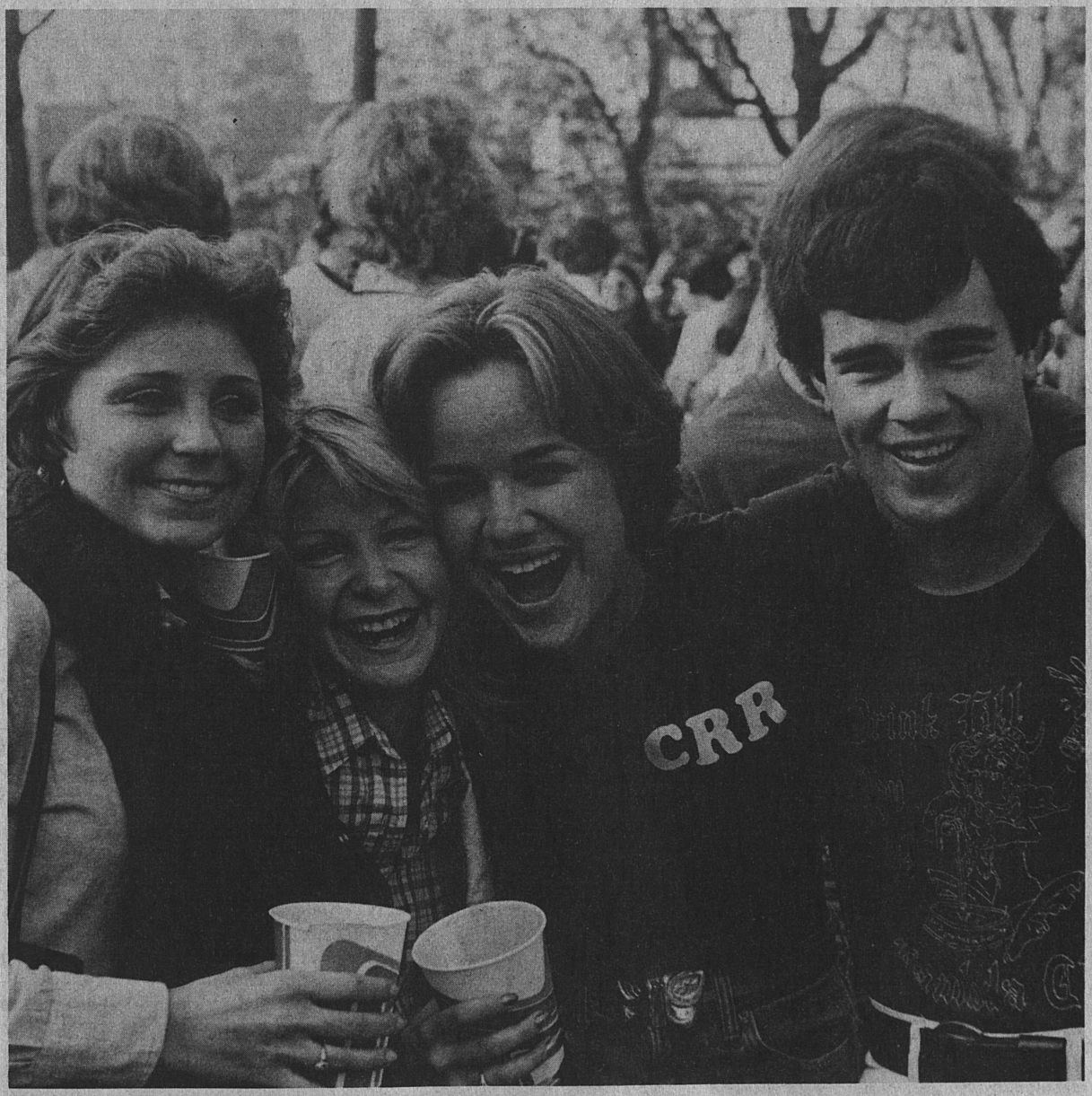
mine their values and make decisions, as well as seminars on resume writing and interviewing techniques are also available.

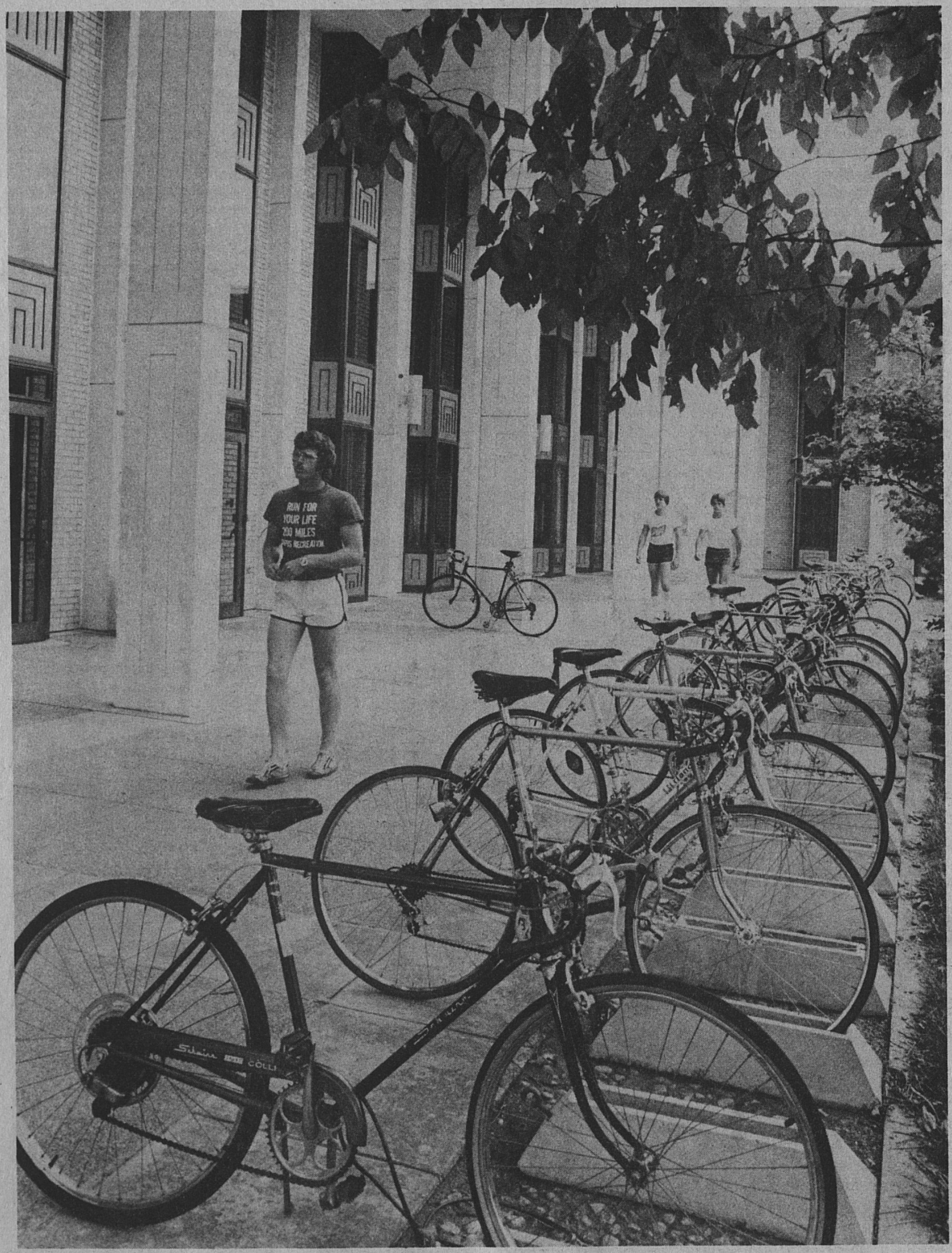
Through the Placement Service, all students and alumni seeking employment have an opportunity to schedule on-campus interviews with representatives of business, industries, government agencies, school systems, colleges, and other employers.

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.




RUN FOR
YOUR LIFE
200 MILES

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 the University, there are several means for qualified students 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 Entrance Examination 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 examination referred to the Admissions Office of the University of Kentucky.

Academic departments have indicated the following current policy for students who score a 3 or better on the Advanced Placement Examination. Departments marked with an asterisk (*) encourage you to submit examinations 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*

Art History—Students who score a 3 or better will receive three hours' credit for Art History 230 thus satisfying the Art portion of Area V of the General Studies area.

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

Chemistry*

English—Students who earn a score of 3 on the English AP examination will receive a grade of A in ENG 101 and may complete the Freshman Composition requirement by taking ENG 102 or ENG 105. Students who earn a score of 4 or 5 will receive a grade of A in ENG 105. Their Freshman Composition requirement is thus satisfied.

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

Foreign Languages—Area IV waived.

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

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 6 hours of credit at the 200 level, thus completing their University Area IV requirement, and 3 hours of credit and the appropriate grade points for the University course. (The 3 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 6 hours of credit at the 200 level, thus completing their University Area IV requirements, 3 hours of credit at the 300 level, and 3 hours of credit and the appropriate grade points for the University course. (The 6 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.)

Mathematics—Students who score 4 or 5 on the Calculus AB examination or 3 on the Calculus BC examination will be given four hours' credit for MA 113. The Mathematics Department will grant eight hours' credit in MA 113 and 114 for scores of 4 or 5 on the Calculus BC examination. In both instances, the Area 1 requirement is satisfied.

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.

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. CEEB 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 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 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 Entrance Examination 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.

ACC 201, 202 Introductory Accounting	6 hrs
BA 330 Introductory Marketing	3 hrs
BA 341 Introductory Business Law	3 hrs
BA 335 Introduction to Business Management	3 hrs
BIO 103 Biology—scaled score of 50 to 59	3 hrs
BIO 103, 104 Biology—scaled score of 60 or above	6 hrs
CHE 110, 112, 115 General College Chemistry —scaled score above 60 (grade A)	9 hrs
ECO 260 Macroeconomics	3 hrs
ECO 261 Microeconomics	3 hrs
FR 201 Elementary French—scaled score 50-69	3 hrs
FR 201, 202—scaled score of 70 or above	6 hrs
HIS 104-105 Western Civilization—scaled score above 48	6 hrs
HIS 108-109 American History —scaled score of 48-49 (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 hrs
MA 109 College Algebra-Trigonometry —scaled score of 49	3 hrs
MA 113 Introductory Calculus	4 hrs
PS 151 American Government —scaled score of 50-59 (no grade) —scaled score of 60-64 (grade B) —scaled score of 65 or above (grade A)	3 hrs
PSY 210 General Psychology—scaled score of 51	3 hrs
SOC 101 Introductory Sociology—scaled score of 51 —(written essay required)	3 hrs
SPI 102 Spanish Levels 1 and 2 —scaled score of 50-54 (no grade) —scaled score of 55-59 (grade B) —scaled score of 60 or above (grade A)	3 hrs
SPI 201 Spanish*—scaled score 50-55 (no grade) —scaled score 56-64 (grade B) —scaled score 65 or above (grade A)	3 hrs
SPI 202**—scaled score 55-60 (no grade) —scaled score 61-64 (grade B) —scaled score 65 or above (grade A)	3 hrs
STA 291 Statistics—scaled score of 49	3 hrs

*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:

1. Publishing throughout the year Newsletters in which grant possibilities and other international activities are announced.
2. Advising students on opportunities for study/work/travel abroad.
3. Maintaining a Reading Room with current information on various countries and study abroad programs.
4. Selling the International Student Identity Card (available to *full-time* students; $2.50, photo, and proof of full-time status required).
5. Sponsoring annually a Study/Work/Travel Abroad Fair.
6. Publicizing charter flight opportunities.
7. Coordinating specific programs for study abroad, such as the UK Summer Residence Center in Europe and the UK Summer Program in Monterrey, Mexico.

For further information about OIP, its services and activities, contact Dr. Willis Griffin, Director, at 257-1654, or Helen Stevens, Assistant Director, at 258-8908. OIP is located in Rooms 102-104 and 115-118 Bradley Hall.

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 provide more opportunity 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 catalog.

EXPERIENTIAL EDUCATION

Experiential learning 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 the Smithsonian Institute in Washington, 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, although most participants wait until their junior or senior years.

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. For entering freshmen whose ACT scores indicate weaknesses in their preparation for college, the Developmental Studies Program is available. 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.

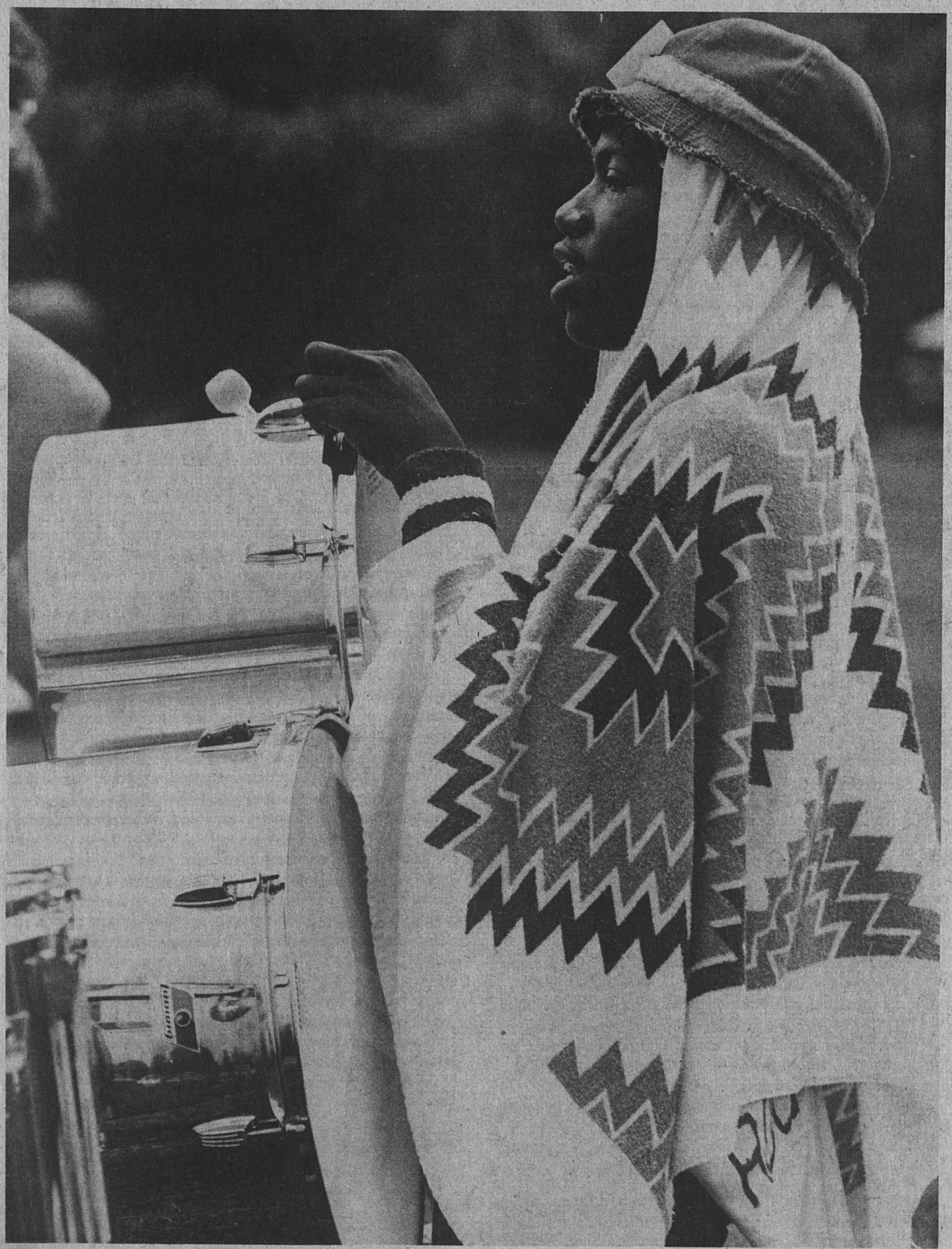
Students who enroll in the program carry the minimum full time academic load of 12 hours and attend a reading and study skills course. The basic courses in freshman composition, mathematics and speech are offered with tutoring. Study skills are specifically related to other freshman courses. The individualized classroom instruction, reading and writing labs, and special 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 advisors 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



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 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 maximum 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 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 Law and Medicine) 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 passing 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 passing—shall not be given if the student is failing at the time of his withdrawal and 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 10 class days of a semester or the summer session. Effective spring semester, 1978, no grade will be recorded for a student who officially withdraws or is dropped from a class during the first quarter of a semester or summer session. Students who withdraw after these dates or who are dropped from class shall be given a grade of **W** or **E** 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 third 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 third 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, financial inability to continue at the University, or call to military service.

The petition should be recommended by the student's adviser and instructor and must be approved by the dean of the student's college. The instructor must assign an appropriate grade or a grade of **P** or **W** may be assigned by the University Appeals Board.

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 constitutes 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 partici-

pate 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.

Other than 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.

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

College of Architecture. The College of Architecture has recently adopted the grading system used by the College of Law. The only difference is that there is NO A+ grade 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 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
A	4.0	B	3.0	C	2.0	D	1.0
A-	3.7	B-	2.7	C-	1.7	D-	0.7
		E	0				

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.

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.

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. All new full-time students, other than those entering The Graduate School, are required to take the University classification tests and such physical examinations as the University may require. An individual academic unit may require, in addition to the freshmen 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 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 the course is of such a nature that credit by examination is inappropriate.

Application for a special examination must be made in writing. Undergraduates will 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.

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.

The following undergraduate students are placed on scholastic probation by the dean of his college:

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

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

Removal from probation

The following undergraduate students may be removed from probation by the dean of his college:

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

A student on scholastic probation who has earned 90 semester hours (senior standing), and who 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.

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.

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.

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.

A student who is ineligible to enter or re-enter a baccalaureate degree program may be reinstated only for the purpose of enrolling in a terminal associate degree program and shall be declared a "non-degree student" when he presents evidence that he is capable of performing at the level required to complete the program. In no event will credit be given or transferred for baccalaureate courses taken during such period if the student is later reinstated in the University for the purpose of enrolling in a baccalaureate program.

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 Colleges

PHARMACY. Definition: Pharmacy standing is the overall grade-point average for all professional and non-professional 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, 1976.

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) pre-major or pre-professional, (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 of the University and either English 102, or English 105 or English 203. If they elect English 102 or English 105, they must take it the second semester of their freshman year. (2) Students who have a standard score of 22 and above on the English section of the ACT may bypass English 101 and satisfactorily complete either English 102 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 have the following options: (a) satisfactorily completing the other course or (b) satisfactorily completing English 203. Full-time students who qualify for the one-semester option may enroll in English composition either semester of their freshman year.

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.

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. None of the 30 credits referred to in this paragraph may be earned through correspondence courses.

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 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 (excepting correspondence study) 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

A student may be eligible for a second bachelor's or a second master's degree when he has completed the requirements of the second curriculum. The work for the second degree shall consist of not less than two semesters of residence and two semesters of credit earned after completing requirements for the first degree. The two bachelor's or two master's degrees will not be granted at the same time.

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 Entrance Examination 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 catalog. 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 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, ART, AND MUSIC
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 opportunity in the basic disciplines. The courses in each area are:

Area I. MATHEMATICS-PHILOSOPHY introduces the student to tools or 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 three options:

A.	MA 113	Calculus I	4 hrs
B.	MA 122	Finite Mathematics and its Application	3 hrs
	MA 123	Elementary Calculus and its Application	3 hrs
C.	MA 131	Pre-Calculus Mathematics for the Life Sciences	3 hrs
	MA 132	Basic Calculus for the Life Sciences	3 hrs
D.	Students choosing this option may *not* satisfy Area V with Option B		
	PHI 120	Introductory Logic	3 hrs
plus one of the following:			
	PHI 100	Introduction to Philosophy	3 hrs
	PHI 130	Introductory Ethics	3 hrs

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 nine sequences:

A.	AST 191	Descriptive Astronomy	3 hrs
	AST 192	Descriptive Astronomy	3 hrs
B.	CHE 106	Elementary General Chemistry I	4 hrs
	CHE 108	Elementary General Chemistry II	3 hrs
C.	CHE 110	General College Chemistry I	3 hrs
	CHE 112	General College Chemistry II	3 hrs
D.	GLY 140	General Physical Geology	4 hrs
	GLY 144	Introduction to the Earth	3 hrs
plus one of the following:			
	GLY 142	General Historical Geology	4 hrs
	GLY 146	Earth History	3 hrs
	GLY 210	Earth Resources	3 hrs
	GLY 225	Field Studies in Geology	3 hrs
	GLY 227	Elementary Field Work in Regional Geology	6 hrs
	GLY 242	Environmental Geology	3 hrs
	GLY 360	The Mineral World	3 hrs
E.	PHY 151	Introduction to Physics	3 hrs
	PHY 152	Introduction to Physics	3 hrs
F.	One course each from the following two groups:		
	1) PHY 151	Introduction to Physics	3 hrs
	PHY 201 or 211	General Elem. Physics	4 or 5 hrs
	PHY 231	General University Physics	3 hrs
	2) PHY 152	Introduction to Physics	3 hrs
	PHY 203 or 213	General Elem. Physics	4 or 5 hrs
	PHY 232	General University Physics	3 hrs
G.	PHY 100	Basic Concepts in Classical and Contemporary Physics	3 hrs
plus one of the following:			
	PHY 130	Physics of Energy	3 hrs

PHY 140 Acoustics of Music Instruments 3 hrs
PHY 151 or 152 Introduction to Physics 3 hrs
PHY 201 or 211 General Elem. Physics 4 or 5 hrs
PHY 231 General University Physics 3 hrs

H. PHY 130 Physics of Energy 3 hrs

plus one of the following:

PHY 140 Acoustics of Music Instruments 3 hrs
PHY 151 or 152 Introduction to Physics 3 hrs
PHY 201 or 211 General Elem. Physics 4 or 5 hrs
PHY 231 General University Physics 3 hrs

I. PHY 140 Acoustics of Music Instruments 3 hrs

plus one of the following:

PHY 151 or 152 Introduction to Physics 3 hrs
PHY 201 or 211 General Elem. Physics 4 or 5 hrs
PHY 231 General University Physics 3 hrs

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:

A. BIO 100 Biology 3 hrs
BIO 101 Biology 3 hrs

B. BIO 200 General Biology I 3 hrs
BIO 201 General Biology I (Lab) 2 hrs
BIO 202 General Biology II 3 hrs
BIO 203 General Biology II (Lab) 2 hrs

Two of the following courses:

C. A and S 102 Human Ecology 3 hrs
BIO 100 Biology 3 hrs
BIO 103 Principles of Biology 3 hrs
BIO 104 Principles of Animal Biology 3 hrs
BIO 106 Principles of Microbiology 3 hrs
BIO 108 Principles of Microbiology 3 hrs
BIO 110 Introduction to Human Biology and Health 3 hrs

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.

Under the University General Studies program students may satisfy any 5 of 8 Areas for graduation. Students who choose Area IV (Languages) as one of the 5 Areas, must satisfy the four-semester sequence in one language by passing the fourth semester or by demonstrating equivalent competence by examination.

Aside from the above University requirement, various colleges of the University have their own requirements. Some require a knowledge of languages for graduation; others do not. Among those requiring knowledge of languages is the College of Arts and Sciences. Students in this College who wish to count Area IV as one of the 5 Areas needed for graduation, must satisfy the four-semester sequence, as above stipulated. On the other hand, students who choose 5 Areas outside Area IV in fulfillment of graduation requirements of the University, may satisfy the language requirement of the College in several ways:

1. by satisfactorily completing four years of language in high school;
2. by adding to his high school language study the college units necessary to satisfy a four-semester sequence of one language;
3. by adding to three years of one language taken in high school two semesters of another language taken in college; or
4. by adding to two years of one language taken in high school three semesters of another language taken in college; or
5. by adding to one year of language taken in high school two semesters of the same language continued in college and two more semesters of another language taken in college.

Area V. HUMANITIES: LITERATURE, ART, AND MUSIC 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:

A. ENG 221 Survey of English Literature 3 hrs
ENG 222 Survey of English Literature 3 hrs
ENG 261 Survey of Western World Literature: from the Greeks through the Renaissance 3 hrs
ENG 262 Survey of Western World Literature: from 1660 to the Present 3 hrs
CLA 261 Literary Masterpieces of Greece and Rome 3 hrs
FR 261 Survey of French Literature in Translation 3 hrs
SO 260 Classics of Near Eastern Literature 3 hrs
SO 261 Survey of Russian Literature from its Beginning through the 19th Century (in English) 3 hrs
SPI 261 A Survey of Spanish Literature in Translation from the Middle Ages to the Present 3 hrs
GER 261 A Survey of German Literature in Translation 3 hrs
SPI 263 Masterpieces of Italian Literature in Translation 3 hrs

plus one of the following:

A-H 100 Introduction to Art History 3 hrs
A-H 210 Ancient Art 3 hrs
A-H 220 Medieval Art 3 hrs
A-H 230 Renaissance Art 3 hrs
A-H 240 Modern Art 3 hrs
MUS 200 Introduction to Music 3 hrs
MUS 300 History of Jazz 3 hrs
TA 121 Introduction to Theatre: Principles and Practice 3 hrs

B. Choose two of the following courses (students choosing this option may *not* satisfy Area I with Option C.):
PHI 100 Introduction to Philosophy 3 hrs

PHI 130 Introductory Ethics 3 hrs
PHI 260 History of Western Philosophy I 3 hrs
PHI 270 History of Western Philosophy II 3 hrs

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:

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

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:

ANT 120 Human Ancestry 3 hrs
ANT 121 Introduction to Cultural Anthropology 3 hrs
ECO 160 Contemporary Economic Issues 3 hrs
ECO 260 Principles of Economics 3 hrs
ECO 261 Principles of Economics (Prereq: ECO 260) 3 hrs
GEO 152 Regional Geography of the World 3 hrs
GEO 252 Elements of Human Geography 3 hrs
PS 151 American Government 3 hrs
PS 201 Introduction to Political Behavior 3 hrs
PS 249 Introduction to Comparative Politics 3 hrs
PS 265 World Politics 3 hrs
PS 280 State Government 3 hrs
PSY 100 Introduction to Psychology 4 hrs
SOC 101 Introductory Sociology 3 hrs
GEN 102 Agricultural Social Science 2 hrs
SOC 152 Modern Social Problems (Prereq: SOC 101 or consent of instructor) 3 hrs
SOC 220 The Community (Prereq: SOC 101 or consent of instructor 3 hrs

In order to substitute an upper division course in the same department for a course listed in the General Studies Component, obtain the approval of the dean of the college and the chairman of the department offering the course.

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 except Forestry.

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. The eight-week summer

camp at the University Robinson Forest provides practical training. It is required of all forestry students. In addition—

1. Complete five General Studies areas. Students completing courses in the pre-professional 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 pre-professional and General Studies requirements 6 hrs
2. Complete the University requirement in English composition 3-6 hrs
3. Complete the pre-professional requirements
   a. MA 113 4 hrs
   b. CHE 106, 108 and 115 or CHE 110, 112, and 115 9-10 hrs
   c. BIO 106 and 107 and BIO 351 7 hrs
   d. ECO 260 and 261 6 hrs

   Total University, and Pre-Professional requirements 35-39 hrs

Specialty Support

AGR 366 Fundamentals of Soil Science	3 hrs
AGR 367 Laboratory in Soil Science	2 hrs
CE 100 Plane Surveying	3 hrs
ENG 203 Writing for Business and Industry	3 hrs
ENT 402 Forest Entomology	3 hrs
PHY 151 Introduction to Physics	3 hrs
PPA 410 Forest Pathology	3 hrs
SPI 181 Basic Public Speaking	3 hrs
STA 370 Introduction to Statistics	4 hrs
	Total 27 hrs

Professional Component (Forestry Courses)

FOR 219 Dendrology	3 hrs
FOR 300 Forest Measurements	4 hrs
FOR 305 Harvesting Timber Crops	3 hrs
FOR 310 Forest Photogrammetry	2 hrs
FOR 340 Forest Ecology	
FOR 350 Silviculture	
FOR 400 Wood Identification and Properties	3 hrs
FOR 412 Forest Economics	
FOR 420 Wood Products	
FOR 425 Timber Management	
FOR 430 Forest Wildlife and Range Management	3 hrs
FOR 440 Forest Resources for Recreation	3 hrs
FOR 445 Forest Fire: Control and Use	2 hrs
FOR 455 Forest Policy and Administration	3 hrs
FOR 460 Forest Watershed Management	3 hrs

Forestry Summer Camp

(Includes the following five courses. Requirements for 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 300, FOR 340, and FOR 350.)

FOR 375 Taxonomy of Forest Vegetation	1 hr
FOR 376 Silvicultural Practices	2 hrs
FOR 377 Forest Surveying	1 hr
FOR 378 Forest Mensuration	2 hrs
FOR 379 Harvest and Utilization of Wood	2 hrs
Electives*	24 to 20 hrs
Total Credits Required	140 hrs

*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 profession concerned with the design and planning of exterior spaces. Its practice involves integrating the man-made and natural environments within the concept of social science, natural science and aesthetics for optimum human use and enjoyment. Within the guidelines of a professional degree program, students' exploration of the various aspects of Landscape Architecture allows individual self-discovery and educational growth.

Students are expected to demonstrate competencies in core curriculum courses as well as being able to broaden the conceptual base of traditional concepts of Landscape Architecture. The latter requires a willingness to explore new methodologies as well as establishing alliances with other disciplines for the purpose of solving environmental problems. The program strives to instill within the students a sense of professional responsibility which recognizes the Landscape Architect's role in serving society with responsibility to the total environment.

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). The four-year program consists of a pre-professional year beginning at the sophomore level, followed by two years of professional training. The program is designed to meet the necessary requirement for licensing of landscape architects in Kentucky.

University Requirements

English Composition and General Studies as stated in the current University rules.

Pre-Professional Requirements

CE 100 Plane Surveying	3 hrs
BIO 106 Principles of Plant Biology*	3 hrs
GLY 144 Introduction to the Earth*	3 hrs
GLY 242 Environmental Geology*	3 hrs
ECO 260 Principles of Economics*	3 hrs
ARC 201/202 Basic Architecture I and II	12 hrs

*May be used to satisfy General Studies requirements.

College Requirements

GEN 102 Agricultural Social Science	4 hrs
GEN 104 Agricultural Plant Science	4 hrs

Professional Component

LA 108 Introduction to Landscape Architecture	0 hrs
LA 205 History of Landscape Architecture	3 hrs

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

Specialty Support

BIO 451	Introductory Ecology	4 hrs
AEC 445	Introduction to Natural Resource and Environmental Economics	3 hrs
ARC 840	Urban Forms	3 hrs
AGR 366	Fundamentals of Soil Science	3 hrs

Students are encouraged to choose electives in the areas of Sociology, Behavioral Sciences, Geography, Architecture, Art and Recreation and Parks, as they relate to the student's interest and professional goals. 8-15 hrs

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).

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.

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

*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

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

1. passing English 101 and either 102, 105, or 203;
2. an ACT standard score in English of 22 or above and a grade of B or better in English 102 or 105;
3. an ACT standard score in English of 25 or above and a grade of B or better on special examination.

Pre-professional Requirements

Mathematics

Option 1. MA 113 Calculus
Option 2. MA 122 and 123 Fundamental Concepts of Mathematics I and II
Option 3. MA 131 and 132 Calculus for the Life Sciences

Chemistry*

Option 1
CHE 106 and 108 Elementary General Chemistry I and II
CHE 115 General Chemistry Laboratory

Option 2
CHE 110 General College Chemistry I
CHE 112 General College Chemistry 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 Principles of 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 and Plant Pathology you are advised to take Option 1 in Biology.

Economics

ECO 260 Principles of Economics
ECO 261 Principles of Economics

Sociology

SOC 101 Introductory Sociology
SOC 152 Introduction to Sociological Analysis or
SOC 220 The Community

College Requirements*

GEN 102 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 Agricultural Marketing
- AEC 302 Farm Management

Group 2. Agronomy
- AGR 206 Principles of Field Crop Production
- AGR 366 Fundamentals of Soil Science

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

Group 4. Entomology and Forestry
- ENT 100 General Entomology
- FOR 100 Elements of Forestry

Group 5. Horticulture
- HOR 203 Recreational Horticulture
- HOR 200 Principles of Horticultural Production

AGRICULTURAL ECONOMICS

The study of agricultural economics involves the application of economic theory to the following problem areas: (1) the production and marketing 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 development. The instructional program provides the theoretical base necessary for analyzing economic problems within these areas.

Degree Requirements

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

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

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

Departmental Major

The student must complete at least 24 hours within the department. Students will select one of the following program options:

A. Agribusiness Management

Required:	9 hrs
AEC 301 Principles of Agricultural Marketing	3 hrs
AEC 322 Agribusiness Management	3 hrs
Plus one of the following:	
AEC 302 Farm Management Decision Making	3 hrs
AEC 303 Economics of Agricultural Production	3 hrs
AEC 441 Agricultural Financial Management	3 hrs
AEC 445 Introduction to Resource and Environmental Economics	3 hrs
AEC 535 Economic Development of Rural Regions of the U.S.	3 hrs
Suggested Electives	
Courses below are a representative sample:	15 hrs
AEC 309 International Agriculture, World Food Needs and U.S. Trade in Agricultural Products	3 hrs
AEC 311-316 Agricultural Commodity Marketing Modules	1 hr each
AEC 321 Agricultural Futures Markets	2 hrs
AEC 323 Linear Programming with Agricultural Applications	3 hrs
AEC 399 Experiential Learning	1-3 hrs
AEC 501 Agricultural Market Organization and Performance	3 hrs
AEC 522 Cooperatives in Agribusiness	3 hrs
AEC 531 Agricultural Price Analysis	3 hrs
AEC 532 Agricultural Policy	3 hrs
AEC 533 Agribusiness Logistics Management	3 hrs

B. Farm Management

Required:	9 hrs
AEC 301 Principles of Agricultural Marketing	3 hrs
AEC 302 Farm Management Decision Making	3 hrs
AEC 303 Economics of Agricultural Production	3 hrs
Suggested Electives	
Courses below are a representative sample:	15 hrs
AEC 323 Linear Programming with Agricultural Applications	3 hrs
AEC 408 Farm Records and Business Analysis	3 hrs
AEC 411-416 Management Modules	1 hr each
AEC 441 Agricultural Financial Management	3 hrs
AEC 502 Advanced Farm Management	3 hrs

C. Agricultural Financial and Credit Management

Required:	16 hrs
AEC 301 Principles of Agricultural Marketing	3 hrs
AEC 302 Farm Management Decision Making	3 hrs
AEC 303 Economics of Agricultural Production	3 hrs
AEC 322 Agribusiness Management	3 hrs
AEC 341 Agricultural Credit Institutions	1 hr
AEC 441 Agricultural Financial Management	3 hrs
Suggested Major Electives	
Courses below are a representative sample:	8 hrs
AEC 309 International Agriculture and World Food Needs	3 hrs
AEC 321 Agricultural Futures Marketing	2 hrs
AEC 322 Agribusiness Management	3 hrs
AEC 323 Linear Programming with Agricultural Applications	3 hrs

AEC 408 Farm Records and Business Analysis 3 hrs
AEC 414 Farm Estate Planning 1 hr
AEC 415 Farm Income Tax Management 1 hr
AEC 423 Advanced Linear Programming Applications 1 hr
AEC 441 Agricultural Financial Management 3 hrs
AEC 501 Agricultural Market Organization and Performance 3 hrs
AEC 502 Advanced Farm Management 3 hrs
AEC 531 Agricultural Price Analysis 3 hrs
AEC 534 Rural Real Estate Appraisal 3 hrs

D. Natural Resource and Environmental Economics

Required: 9 hrs
AEC 301 Principles of Agricultural Marketing 3 hrs
AEC 303 Economics of Agricultural Production 3 hrs
AEC 445 Introduction to Resource and Environmental Economics 3 hrs

Suggested Elective
Courses below are a representative sample: 15 hrs
AEC 302 Farm Management Decision Making 3 hrs
AEC 309 International Agriculture and World Food Needs 3 hrs
AEC 480 Special Problems 1-3 hrs
AEC 531 Agricultural Policy 3 hrs
AEC 534 Rural Real Estate Appraisal 3 hrs
AEC 535 Economic Development of Rural Regions 3 hrs
AEC 545 Natural Resource and Environmental Economics 3 hrs

E. Rural Economic Development

Required: 12 hrs
Three hours from:
AEC 309 International Agriculture and World Food Needs 3 hrs
AEC 535 Economic Development of Rural Regions of the U.S. 3 hrs
Six hours from:
AEC 301 Principles of Agricultural Marketing 3 hrs
AEC 302 Farm Management Decision Making 3 hrs
AEC 303 Economics of Agricultural Production 3 hrs

Suggested Electives
Courses below are a representative sample: 12 hrs
AEC 323 Linear Programming with Agricultural Application 3 hrs
AEC 445 Introduction to Resource and Environmental Economics 3 hrs
AEC 480 Special Problems 1-3 hrs
AEC 531 Agricultural Price Analysis 3 hrs
AEC 532 Agricultural Policy 3 hrs
AEC 454 Natural Resource and Environmental Economics 3 hrs

Specialty Support

A minimum of 21 hours is required. Courses will be selected outside agricultural economics which complement the student's major.

A. Agribusiness Management

Required: 11 hrs
CS 221 Computer Science for Agricultural Economics Majors 2 hrs
ACC 201-202 Principles of Accounting 6 hrs

Plus one of the following:
STA 291 Statistical Methods 3 hrs
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3 hrs
STA 370 Introduction to Statistics 3 hrs

Suggested Specialty Support Electives: 10 hrs
BA 330 Marketing Management 3 hrs
BA 332 Behavioral Systems in Marketing 3 hrs
BA 335 Business Management 3 hrs
BA 336 Industrial Relations 3 hrs
BA 341 Business Law I 3 hrs
BA 345 Corporation Finance 3 hrs
BA 351 Introduction to Business Data Processing 3 hrs
BA 435 Analysis of Organization Behavior 3 hrs
ECO 463 Analysis of Business Conditions 3 hrs
ECO 487 Intermediate Macroeconomic Theory 3 hrs
ECO 488 Intermediate Microeconomic Theory 3 hrs
PSY 100 Introduction to Psychology 4 hrs
PSY 502 Introduction to Industrial Psychology 3 hrs
CS 150 Introduction to Algorithmic Process 3 hrs

B. Farm Management

Required: 5 hrs
CS 221 Computer Science for Agricultural Economics Majors 2 hrs

Plus one of the following:
STA 291 Statistical Methods 3 hrs
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3 hrs
STA 370 Introduction to Statistics 3 hrs

Suggested Specialty Support Electives: 16 hrs
AGR 206 Principles of Field Crop Production 3 hrs
AGR 366 Fundamentals of Soil Science 3 hrs
ASC 382 Principles of Animal Nutrition 3 hrs
ASC 406 Beef Cattle Science 3 hrs
ASC 408 Swine Science 3 hrs
AEN 430 Farm Water Management 3 hrs
BA 341 Business Law 3 hrs
ECO 487-488 Intermediate Economic Theory 6 hrs

C. Agricultural Financial and Credit Management

Required: 11 hrs
CS 221 Computer Science for Agricultural Economics Majors 2 hrs
ACC 201/202 Principles of Accounting 6 hrs

Plus one of the following:
STA 291 Statistical Methods 3 hrs
STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3 hrs
STA 370 Introduction to Statistics 3 hrs

Suggested Specialty Support Electives: 10 hrs
BA 335 Business Management 3 hrs
BA 341 Business Law 3 hrs
BA 345 Corporation Finance 3 hrs
BA 351 Introduction to Business Data Processing 3 hrs
CS 150 Introduction to Algorithmetic Process 3 hrs
PS 280 State Government 3 hrs

PS 578 Public Personnel Administration 3 hrs
SP 325 Business and Industrial Communication 3 hrs

D. Natural Resource and Environmental Economics

Required: 8 hrs
- CS 221 Computer Science for Agricultural Economics Majors 2 hrs
- ECO 488 Intermediate Microeconomic Theory 3 hrs

Plus one of the following:
- STA 291 Statistical Methods 3 hrs
- STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3 hrs
- STA 370 Introduction to Statistics 3 hrs

Specialty Support Electives: 14 hrs

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.

E. Rural Development

Required: 11 hrs
- CS 221 Computer Science for Agricultural Economics Majors 2 hrs
- ECO 487 Intermediate Macroeconomic Theory 3 hrs
- ECO 488 Intermediate Microeconomic Theory 3 hrs

Plus one of the following:
- STA 291 Statistical Methods 3 hrs
- STA 292/293/294 Descriptive Statistics; Probability; Sampling and Inference 3 hrs
- STA 370 Introduction to Statistics 3 hrs

Suggested Electives:

Specialty supporting courses are especially suggested from the following departments: Economics, Business Administration, Sociology, Anthropology, Statistics, Computer Science, Political Science, Mathematics, and Philosophy.

Examples are:
- ECO 390 Economic and Business Statistics 3 hrs
- ECO 471 International Economics 3 hrs
- ECO 483 Regional Economics 3 hrs
- ECO 487 Intermediate Macroeconomic Theory 3 hrs
- ECO 488 Intermediate Microeconomic Theory 3 hrs
- SOC 493 Social Determinants of Economic Behavior 3 hrs
- MA 114 Calculus II 4 hrs
- CS 150 Introduction to Algorithmic Process 3 hrs
- PS 540 Rural Local Government 3 hrs

Electives (20-29 hours)

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 mechanics, 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. A grade-point average of 2.25 is required to enter student teaching. A total of 120 credit hours and at least a 2.0 grade point standing is required for a Bachelor of Science degree.

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 mechanics, and agricultural economics (including farm management). They must also have three hours of literature, health and/or physical education, and complete the 18-credit hour agricultural education block (professional courses and student teaching).

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 General Studies requirements and the College requirements listed earlier, each student completes the following:

Pre-Professional Requirements
- BIO 104 Animal Biology 3 hrs
- BIO 106 Principles of Plant Biology 3 hrs

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

Departmental Major (24 hours)

Six hours must be taken in animal science, agricultural mechanics, soils, and plant science (agronomy, plant pathology, and horticulture). All courses are subject to the approval of the adviser.

Specialty Support (21 hours)

The following courses must be taken:
- EDV 210 Introduction to Vocational Education
- AEC 310 Farm Management plus three additional hours of agricultural economics
- Nine additional hours of agriculture
- Three hours of health and/or PE

Electives (27 hours)

Must include the Agricultural Education block listed below, unless student elects to take student teaching after graduation.
- EDV 370 Student Teaching Vocational Agriculture
- EDV 580 Materials and Methods for Teaching Vocational Agriculture
- EDV 581 Adult Education in Agriculture
- EDV 583 Experience Programs in Vocational Agriculture
- One three hour course in literature
- Six hours of unspecified electives

NOTE: A literature course may be taken as part of the University requirements (General Studies Area V—Humanities) thereby allowing nine hours of electives rather than six.

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 General Studies requirements and the College requirements listed earlier, each student completes the following:

Pre-Professional Requirements

BIO 104 Animal Biology and*	3 hrs
BIO 106 Principles of Plant Biology or equivalent*	3 hrs
CHE 106/108 Elementary General Chemistry I and II and*	7 hrs
CHE 115 General Chemistry Laboratory or equivalent	3 hrs
ECO 261 Principles of Economics*	3 hrs
MA 109 College Algebra and	3 hrs
MA 112 Trigonometry or equivalent, or ACT of 25 in Mathematics	2 hrs

*May also be used to satisfy general studies areas.

Departmental Requirements

The student must take a minimum of six credits 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 credits 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 study of plant science and soil science. It deals with the science of producing food for human consumption, feed for livestock, oil and fiber crops for industrial purposes, and turfgrass for recreational purposes and home sites. Agronomy is also concerned with managing the soils that contribute to the production of these important plants.

Degree Requirements

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

Pre-Professional Requirements (12-13 hours)

BIO 103 Principles of Biology and*	3 hrs
BIO 106 Principles of Plant Biology or*	3 hrs
BIO 200/202 General Biology I and II and*	6 hrs
BIO 201/203 General Biology Laboratory I and II or equivalent*	4 hrs
CHE 106/108 Elementary General Chemistry I and II and*	7 hrs
CHE 115 General Chemistry Laboratory or equivalent	3 hrs
MA 109 College Algebra and	3 hrs
MA 112 Trigonometry or equivalent, or ACT of 25 in mathematics	2 hrs

*May also be used to satisfy general studies areas.

Departmental Major (24 hours)

AGR 206 Principles of Field Crop Production	3 hrs
AGR 366 Fundamentals of Soil Science	3 hrs

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)

These courses must be taken from outside the Agronomy Department. Selection of courses is done by the student and his adviser and should be based on student interests and needs. Courses should be selected from agricultural economics, agricultural engineering, animal sciences, cooperative extension, entomology, forestry, horticulture, plant pathology, sociology, and veterinary science. Also acceptable are accounting, botany, chemistry, economics, geology, mathematics, physics and statistics courses.

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 of Food Science Option within the Animal Sciences Department. The Production Option emphasizes various agencies of livestock production; whereas, 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 General Studies requirements and the College requirements listed earlier, each student completes the following:

Pre-Professional Requirements (23-29 hours)

1.	MA 113 Calculus or*	4 hrs
	MA 122 Finite Mathematics and its Application*	3 hrs
	MA 123 Elementary Calculus and its Applications*	3 hrs
2.	CHE 106/108 Elementary General Chemistry or*	7 hrs
	CHE 110/112 General College Chemistry I and II*	6 hrs
3.	CHE 115 General Chemistry Laboratory	3 hrs
4a.	BIO 104 Animal Biology*	3 hrs
	BIO 106 Plant Biology*	3 hrs
	BIO 108 Microbiology*	3 hrs
	plus one laboratory:	
	BIO 105 Animal Biology Laboratory	1 hr
	BIO 107 Plant Biology Laboratory	1 hr
	BIO 109 Introductory Microbiology Lab	1 hr
	or	
b.	BIO 200/202 General Biology I and II*	6 hrs
	BIO 201/203 General Biology Laboratory I and II	4 hrs
5.	COM 101 Introduction to Communication or	
	ENG 203 Writing for Business and Industry	3 hrs

*May also be used to satisfy general studies areas.

Departmental Major (24 or 26 hours)

A minimum of 26 hours of departmental courses are required in the area of Animal Production; whereas, a minimum of 24 hours of departmental courses are required in the area of Food Science.

Required courses in the two areas are as follows:

Animal Production

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

Plus six hours of the following production (science) courses: ASC 404 Sheep Science, ASC 406 Beef Science, ASC 408 Swine Science, ASC 410 Horse Science, ASC 420 Dairy Cattle Science, ASC 442 Poultry Science.

Food Science*

ASC 378 Animal Nutrition
ASC 304 Meats and Meat Processing or
ASC 306 Selection, Evaluation and Use of Animal Food Products or
ASC 536 Food Processing
ASC 335 Chemical Analysis of Food Products
ASC 470 Animal Science Seminar
ASC 530 Food Microbiology

*The Food Sciences area 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, CHE 236 or CHE 230 Organic Chemistry

Selected from following with adviser's approval:

BCH 401 Fundamentals of Biochemistry
CHE 226 Analytical Chemistry
CHE 232 Organic Chemistry
CHE 231, 233 Organic Chemistry Lab
CHE 550, 552 Physiological Chemistry
PHY 211, 213 General Elementary Physics
STA 370 or STA 291 or STA 292, 293, 294 Statistics
BIO 240 Comparative Anatomy

Courses at 200 level or above from the following departments:

Agricultural Economics
Agricultural Engineering
Agronomy
Entomology
Veterinary Science

B. Food Science

Required: CHE 230 and CHE 232 Organic Chemistry; STA 370 or STA 291 or STA 292, 293, 294 Statistics

Selected from the following with adviser's approval:

AEC 301 Principles of Agricultural Marketing
AEC 311 Livestock Marketing
BCH 401 Fundamentals of Biochemistry
CHE 226 Analytical Chemistry
CHE 231, 232 Organic Chemistry Lab
CHE 550, 552 Physiological Chemistry
NFS 311 Nutritional Biochemistry
NFS 546 Institution Organization and Management
PHY 211, 213 General Elementary Physics

Electives

Elective courses should be selected with adviser's approval to satisfy the minimum requirement of 120 hours of total credits.

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 General Studies requirements and the College requirements listed earlier, each student completes the following:

Pre-Professional Requirements

BIO 200/202 General Biology I and II	6 hrs
BIO 201/203 General Biology Lab I and II or equivalent and	4 hrs
CHE 106/108 Elementary General Chemistry	7 hrs
CHE 115 General Chemistry Laboratory or equivalent	3 hrs

Departmental Major (24 hours)

Required:

ENT 100 General Entomology	3 hrs
ENT 562 External Morphology of Insects	4 hrs
ENT 564 Insect Taxonomy	4 hrs

Select remaining credits from:

ENT 395 Independent Work	2-3 hrs
ENT 402 Forest Entomology	3 hrs
ENT 400 Economic Entomology	3 hrs
ENT 530 Insect Pest Management	3 hrs
ENT 561 Medical Entomology	4 hrs
ENT 563 Parasitology	4 hrs
BIO 570 Invertebrate Zoology	4 hrs

Specialty Support (21 hours)

Select from following courses:

AEC 302 Farm Management Decision Making	3 hrs
AGR 206 Principles of Field Crop Production	3 hrs
AGR 366 Fundamentals of Soil Science	3 hrs
AGR 404 Weed Science	3 hrs
ASC 380 Feeds and Feeding	3 hrs
BIO 451 Introductory Ecology	4 hrs
BIO 530 Plant Physiology	3 hrs
CHE 230/231 Organic Chemistry	6 hrs
CHE 232/233 Organic Chemistry Laboratory	2-6 hrs
ECO 260 Principles of Economics	3 hrs
FOR 265 Dendrology	3 hrs
HOR 200 Principles of Horticultural Production	3 hrs
HOR 327 Ornamental Plants I	4 hrs
MA 114 Calculus	4 hrs
BIO 276 Principles of Bacteriology	4 hrs
PPA 575 Plant Pathology	3 hrs
STA 370 Introduction to Statistics	4 hrs
BIO 508 Evolution	3 hrs
BIO 555 Vertebrate Zoology	4 hrs

Electives (10-25 hours)

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, olericulture, 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.

Degree Requirements

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

Pre-Professional Requirements

A botany-oriented biology course
MA 109 Pre-Calculus Mathematics or its equivalent
CHE 106 and CHE 108 or equivalent

Departmental Major (24 hours)

HOR 200 Principles of Horticultural Production
HOR 350 Plant Propagation;

Four of the following five courses are required for all Horticulture majors:

HOR 327 Ornamental Plants I
HOR 335 Greenhouse Management
HOR 330 Annual and Perennial Flowers
HOR 402 Pomology: Deciduous Fruits I
HOR 510 Vegetable Crops

Each student may choose one of the following areas of concentration: fruit crops, vegetable crops, floriculture, or nursery management. Courses from other departments will be accepted for students pursuing an interdisciplinary degree.

Specialty Support (21 hours)

AGR 366, Fundamentals of Soil Science, and PPA 575, Plant Pathology and a course in entomology are required for all horticulture majors. Other courses may be chosen from entomology, agronomy, plant pathology, biology, economics, chemistry and other areas which serve to reinforce the student's selected topic of study. The student must have each selection approved by the adviser.

Electives (3-29 hours)

These courses are chosen at the discretion of the student to further personal interests and/or professional development.

INDIVIDUALIZED PROGRAMS

This program has been developed to assist students with academic goals that cross several disciplines (agricultural environmental quality, parks grounds management, etc.).

A Committee for Individualized Programs in Agriculture has been appointed. This committee has the responsibility of reviewing the proposed program of each student following this plan. They are authorized to approve or reject the proposal on the basis of a set of criteria which they are to develop.

Procedure for entering the individualized program:

1. 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 would, with the assistance of an adviser, de-

velop the plan which they propose to follow.

3. This plan will 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 would be 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 interdisciplinary training which will assist the pest management graduate to evaluate and diagnose field 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 pest management of field 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 General Studies requirements and the College requirements listed earlier, each student completes the following:

Pre-Professional 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 MA 123 Elementary Calculus (6 hrs); **or** MA 113 Calculus (4 hrs)

CHE 106/108 Elementary General Chemistry (7 hrs) and CHE 115 General Chemistry Laboratory (3 hrs); **or** CHE 110/112 General College Chemistry (6 hrs) and CHE 115 General Chemistry Laboratory (3 hrs)

BIO 104 Animal Biology BIO 106 Plant Biology, BIO 108 Microbiology (9 hrs) and one laboratory chosen from BIO 105, 107, 109 (1 hr); **or** BIO 200/202 General Biology (6 hrs) and BIO 201/203 General Biology Laboratory (4 hrs)

SP 181 Basic Public Speaking (3 hrs); **or** ENG 203 Writing for Business and Industry (3 hrs)

Interdisciplinary Major Requirements (24 hours)

ENT 100 General Entomology	3 hrs
ENT 400 Economic Entomology	3 hrs
ENT 530 Insect Pest Management	3 hrs
AGR 206 Principles of Field Crop Production	3 hrs
AGR 404 Weed Science	3 hrs
PPA 541 Plant Pathology	3 hrs
PPA 545 Epidemiology, Control of Plant Diseases	3 hrs
AGR, ENT, or PPA 401 Agri-Chemicals in Pest Management	3 hrs

Summer Internship

AGR 399 Field Based Education in Pest Management	3-5 hrs

Specialty Support Outside of Major (21 hours)

The following courses are required:

CHE 236 Organic Chemistry (4 hrs); **or** CHE 230/232 Organic Chemistry (6 hrs)	
CHE 231/233 Organic Chemistry Lab	2-4 hrs
STA 370 Introduction to Statistics	4 hrs

Select from the following with adviser's consent:

AEC 302 Farm Management Decision Making	3 hrs
AEC 322 Agribusiness Management	3 hrs
AEC 445 Introduction to Resource and Environmental Economics	3 hrs
AGR 360 Genetics	3 hrs
AGR 366 Fundamentals of Soil Science	3 hrs
AGR 502 Ecology of Economic Plants	3 hrs
AGR 554 Advanced Crop Science	3 hrs
AGR 560 Soil Plant Relationships	3 hrs
BIO 451 Introductory Ecology	4 hrs
BIO 530 Plant Physiology	3 hrs
ENT 402 Forest Entomology	3 hrs
ENT 532 Medical Entomology	3 hrs
FOR 100 Elements of Forestry	3 hrs
HOR 200 Principles of Horticultural Production	3 hrs
HOR 327 Ornamental Plants	3 hrs
PPA 558 Nematode Diseases of Plants	3 hrs
VS 351 Principles of Animal Hygiene and Disease Control	3 hrs

Electives:

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

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 General Studies requirements and the College requirements listed earlier, each student completes the following:

Pre-Professional Requirements

BIO 106/107 Plant Biology and lab or BIO 200/202 General Biology I and II	4-6 hrs
CHE 110/112 General College Chemistry I and II	6 hrs
PHY 201/203 General Elementary Physics	8 hrs
MA 113 Calculus	4 hrs
AGR 366 Fundamentals of Soil Science	3 hrs
ENT 100 Agricultural Entomology	3 hrs

Departmental Major

The departmental major may include courses outside the department for a total of 24 credits. Choose from:

PPA 410 Forest Pathology	3 hrs
PPA 575 Plant Pathology	3 hrs
PPA 543 Diseases of Plants	3 hrs
PPA 545 Epidemiology and Control of Plant Diseases	3 hrs
PPA 558 Nematode Diseases of Plants	3 hrs
BIO 530 Plant Physiology	3 hrs
BIO 573 Mycology	4 hrs
AGR 360 Genetics	3 hrs
AGR 361 Genetics Laboratory	1 hr
AGR 366 Fundamentals of Soil Science	3 hrs
AGR 367 Laboratory in Soil Science	2 hrs
ENT 100 Agricultural Entomology	3 hrs
STA 370 Introduction to Statistics	4 hrs

Specialty Support (21 hours)

Any combination of:

CHE 230/232 Organic Chemistry CHE 231/233 Organic Chemistry Laboratory	2-4 hrs
AGR 360 Genetics	3 hrs
AGR 361 Genetics Laboratory	1 hr
AGR 366 Fundamentals of Soil Science	3 hrs
AGR 367 Laboratory in Soil Science	2 hrs
BIO 476 General Bacteriology	4 hrs
STA 370 Introduction to Statistics	4 hrs
ENT 100 Agricultural Entomology	3 hrs

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

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

Pre-Professional Requirements

SOC 101 Introductory Sociology or*	3 hrs
GEN 102 Agricultural Social Science*	4 hrs
SOC 102 Introduction to Sociological Analysis	3 hrs

*May be used to satisfy one of the general studies areas.

Departmental Major

The student must complete 24 credit hours within the department.

Required:

SOC 201 Social Interaction (or)	3 hrs
SOC 220 The Community	3 hrs
SOC 365 History of Sociology	3 hrs
SOC 551 Principles of Sociology	3 hrs

Select remaining credits from:

SOC 409 The Family	3 hrs
SOC 413 Community Analysis	3 hrs
SOC 441 Group Organization and Leadership	3 hrs
SOC 501 Population Analysis	3 hrs
SOC 515 Diffusion of Technology in Modern Society	3 hrs
SOC 517 Rural Sociology	3 hrs
SOC 534 The Southern Appalachians: A Sociological Interpretation or any 400 or 500 level Sociology course	3 hrs

Specialty Support

Students must take 21 credit hours of nonfreshman courses.

Choose from the following departments:

Agricultural Economics, Anthropology, Economics, Geography, History, Philosophy, Political Science, Psychology

Choose no more than six credit hours from the following:

Communications, Computer Science, Education, Family Life (Home Economics), Journalism, Social Work, Statistics, Telecommunications, Extension Education

Electives

Electives should be chosen in consultation with the student's adviser and may be used to obtain a double major either inside or outside the college.

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 26 students are chosen from Kentucky to enter the Auburn Veterinary School. There

is also a plan whereby one legal Kentucky resident may be accepted by the Tuskegee Institute School of Veterinary Medicine each year. In addition, Kentucky has a contract with the state of Ohio whereby up to six Kentucky residents may enter The Ohio State University College of Veterinary Medicine each year. Under all of the above programs the students selected are exempt from the out-of-state tuition that would normally apply to a Kentucky resident. Selection is on a competitive basis with the final selection being made by a committee composed of faculty members from each of the respective 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 they are not accepted for admission to veterinary school they will still be able to obtain a Bachelor of Science degree in four years.

A minimum of 80 semester hours with a grade-point average of 2.5 (on a four-point basis) are required prior to consideration for admission to Auburn. Due to the high level of competition, a student needs a 3.0 academic standing on all college work to be competitive for admission. The student must have completed all of the required courses or acceptable substitutes. Ohio State University requires three years of college work, including the pre-professional requirements, plus a grade-point average of 3.0. A grade of D in a required course will not be accepted by either school. All course work must be completed by June 15 of the year of application. The following curriculum is designed for both Auburn and Ohio State and may be completed in three years. Ohio State requires each applicant to take the Veterinary Aptitude Test (VAT) and make a specified score. *The student should work closely with his or her pre-veterinary adviser in making certain that all required courses are completed for consideration for acceptance.* There are some specific alternatives to the following courses, depending on a student's background:

	Hours
ENG 101 English Composition	3 hrs
ENG 102 English Composition	3 hrs
CHE 110 General Chemistry (Lecture)*	3 hrs
CHE 112 General Chemistry (Lecture)	3 hrs
CHE 115 General Chemistry (Laboratory)	3 hrs
MA 113 Calculus**	4 hrs
GEN 106 Agricultural Animal Science***	4 hrs
PS 151 American Government	3 hrs
HIS 104 History of Europe or U.S. or HIS 108	3 hrs
HIS 105 History of Europe or U.S. or HIS 109	3 hrs
CLA 131 Medical Terminology†	3 hrs
ASC 360 Genetics	4 hrs
ASC 378 Fundamentals of Animal Nutrition	3 hrs
ASC 380 Feeds and Feeding	3 hrs
PHY 211 General Elementary Physics	5 hrs
PHY 213 General Elementary Physics	5 hrs
CHE 230 Organic Chemistry	3 hrs
CHE 231 Laboratory for CHE 230	2 hrs
CHE 232 Organic Chemistry	3 hrs
CHE 233 Laboratory for CHE 232	2 hrs
BIO 200 Biology	3 hrs
BIO 201 Laboratory for BIO 200	2 hrs
BIO 202 Biology	3 hrs
BIO 203 Laboratory for BIO 202	2 hrs
BIO 108 Principles of Microbiology	3 hrs
BIO 109 Micro Lab	2 hrs
Electives Humanities and Social Studies††	9 hrs
	Total 89 hrs

*An alternate course of CHE 106, 108 and 115 may be followed by some students, depending on high school background and ACT scores. Consult adviser.

**College Algebra, MA 109, may be required, based on ACT scores and high school background.

***GEN 106 is not a required course in the pre-vet curriculum but is highly recommended. It is required for a Bachelor of Science degree from the College of Agriculture.

† Six college semester hours of Latin or modern foreign language may be substituted on approval of adviser.

†† Students must complete a minimum of nine hours of liberal education studies selected from the general studies area of Humanities (Area V), and Social Sciences (Area VII). No less than one course must be taken in both Areas V and VII. For Ohio State, Biochemistry is required and additional courses in Advanced Biology are recommended. Consult Adviser.

Further inquiries may be directed to:

M. Ward Crowe, D.V.M.
Department of Veterinary Science
University of Kentucky
Lexington, Kentucky 40506.

ALLIED HEALTH PROFESSIONS

ALLIED HEALTH PROFESSIONS

Joseph Hamburg, M.D. is the Dean of the College of Allied Health Professions. Nicholas J. Pisacano, M.D. is Associate Dean.

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. The College was established in 1966 in recognition of the need to provide educational experiences for students interested in this rapidly developing group of health professions.

Because the supply of physicians and dentists will never properly provide the work force necessary to meet societal needs, the allied health professions are being called upon to assume greatly expanded and increasingly complex health care duties and responsibilities. The College of Allied Health Professions strives continuously to review 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. Certificate programs are presently available in two disciplines: Clinical Associate (Physician Assistant) and Renal Dialysis Technology. Four curricula are at the baccalaureate level: Community Health, Medical Technology, Physical Therapy and the Allied Health Teacher Preparation Program lead to the Bachelor of Health Science degree.

ADMISSIONS PROCEDURES

Baccalaureate Programs

All baccalaureate programs in the College of Allied Health Professions are comprised of two sub-programs. A **Pre-professional Program** is composed of courses prerequisite to professional program content as well as University General Studies requirements and the English requirement. 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 minimum 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. Space considerations preclude acceptance of all interested persons who apply, despite their satisfactory performance at this or another academic institution. All students should maintain contact with their faculty advisers who will keep them apprised of their chances of acceptance.

Notice to Non-Residents of Kentucky

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 Kentucky residents to benefit from the educational facilities provided. Applications from non-residents are discouraged because their applications can be considered only when space remains after consideration of qualified Kentucky residents. Past experience indicates that program capacities will only rarely permit admission of non-resident students. 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 forseeable future.

Requirements for the first two years (Pre-professional 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 within the college 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 program.

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

Office of Admissions
Administration Annex
University of Kentucky
Lexington, Kentucky 40506

Students who **are** currently enrolled at the University of Kentucky or who will be enrolled a **semester prior** to the date of anticipated entrance to 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
Medical Center Annex 2, Room 226
University of Kentucky
Lexington, Kentucky 40506

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 as follows:

January 1—University of Kentucky application and Professional Program application*

February 1—Official transcripts, schedule of course work both planned and in progress, test scores and recommendations. (Desired by February 1. These materials are **required** by February 15.**)

Corresponding dates for Medical Technology Spring applications:

*August 1
**September 15

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
Room 304, Patterson Office Tower
University of Kentucky
Lexington, Kentucky 40506

Certificate Programs

Admission procedures for the Clinical Associate Program and the Renal Dialysis Technology 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 descriptions which follow.

BACCALAUREATE PROGRAMS

Graduation Requirements

To graduate with a Bachelor of Health Sciences degree from the College of Allied Health Professions, a student must complete a minimum of 120 semester hours, including required courses in both the Pre-Professional 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.

University Requirements

All students must satisfy the University's English Composition and General Studies requirements.

ALLIED HEALTH TEACHER PREPARATION AND EDUCATIONAL ADMINISTRATION PROGRAM

The Department of Allied Health Education and Research offers a baccalaureate program in teacher preparation for allied health professions, 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 field.

Admission to Professional Program

Admission procedures for the programs in the Department of Allied Health Education and Research vary somewhat from the procedure for the departmental professional programs. Requirements for acceptance into the Allied Health Teacher 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.

Application materials or additional information may be obtained from:

Center for Learning Resources
Two + Two Program
Medical Center Annex 3
University of Kentucky
Lexington, Kentucky 40506

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 approved for this program by the University of Kentucky Senate.

Departmental Requirements

I.	Associate Degree transfer of credit	up to 67 semester hours
II.	Area Requirements	up to 30 semester hours
III.	College of Allied Health Requirements	
	A. Upper Division Core	7 semester hours
	AHE 855 Allied Health Colloquium	2 hrs
	AHE 856 Allied Health Colloquium	2 hrs
	AHE 841 Health Care System Clerkship	3 hrs
	B. Discipline Support Area	12 semester hours

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

IV. Educator Option

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

22 semester hours

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. 15 semester hours

Departmental Areas III and IV 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 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 as required. A minimum of 30 semester hours of prerequisite courses is required prior to admission. These must include courses listed as *Pre-Professional Requirements.*

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.

Pre-Professional Requirements

2 semester of biological science
2 semesters of social or behavioral science
CH 210 Introduction to Community Health Ecology

Professional Program Curriculum

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

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

Specific Requirements for Community Health majors are:

CH 320 Community Health Education Methodology	3 hrs
CH 321 Seminar in Community Health Education	3 hrs
CH 420 Current Issues in Community Health Education	3 hrs
CH 500 Public Health Sanitation	3 hrs
CH 501 Public Health Administration	3 hrs
HPR 330 School Health Education	3 hrs
HPR 430 Methods in Teaching Health Education	3 hrs
PS 201 Introduction to Political Behavior**	3 hrs
CH 511 Independent Study in Community Health	1-6 hrs
COM 101 Introduction to Communications or	3 hrs
COM 551 Communication Process	3 hrs
BSC 221 Behavioral Factors in Health and Disease or	3 hrs
BSC 527 Society and Health	3 hrs

*An eight-week field work experience is required for all majors prior to graduation.

**May be used in fulfilling area VIII requirements.

DENTAL HYGIENE

The Department of Dental Hygiene in the College of Allied Health Professions no longer offers a four-year curriculum in Dental Hygiene. The Department of Dental Hygiene is currently developing post certificate, post associate degree, and post baccalaureate degree advanced education programming for dental auxiliaries. Information regarding these programs will be available in the future. For further details concerning the current status, interested applicants may write to:

Advanced Education Programs
College of Allied Health Professions
University of Kentucky
915 South Limestone Street
Lexington, Kentucky 40506

The basic clinical dental hygiene program has been revised from a four-year baccalaureate degree program to a two-year associate degree program offered by the Lexington Technical Institute of the University of Kentucky Community College System. The new two-year associate degree program began in the summer of 1977. For further information regarding this program, please write to:

Dr. C. Lawrence Chiswell
Coordinator of Dental Auxiliary Education
Lexington Technical Institute
234 Oswald Building
Lexington, Kentucky 40506

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 satisfies the educational requirements of the Council on Medical Education of the American Medical Association for Medical Technologists and the prerequisites for national certification by the Registry of Medical Technologists (American Society of Clinical Pathologists).

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 the clinical laboratories of the University Hospital and the Veterans Administration Hospital.

The general objective of the baccalaureate program is to educate medical technologist generalists who, with further experience and/or education, are capable of becoming teachers, specialists or administrators in medical laboratories.

Admission to the Professional Progam

A minimum of 60 semester hours of prerequisite courses is required prior to admission. These must include courses listed as *Pre-professional Requirements.*

The completed Professional application materials must contain transcripts showing completion of at least 45 semester hours of course work. These must include the requirements in mathematics, general chemistry, bacteriology, one semester of physics, either anatomy or physiology, (or a combined course in anatomy and physiology) and one semester of organic chemistry, if taking a two-semester sequence. All other requirements must be satisfied before the date for enrollment.

Selection of students for admission to the professional program in Medical Technology is on a competitive basis. The Admissions Committee will consider overall grade-point average, performance in selected courses, evidence of academic improvement, American College Test (ACT) scores, recommendations, personal interviews, and evidence of motivation for a career in the medical laboratory and knowledge of the field.

Pre-Professional Requirements (60 semester hours)

Mathematics, including calculus
Two semesters of general chemistry with laboratory
Two semesters of college physics (no survey courses accepted)
One semester of elementary bacteriology with laboratory
One semester each, Human Anatomy and 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)

Professional Requirements

Third Year (first semester)

BCH 401 Biochemistry	3 hrs
BIO 585 Pathogenic Bacteriology	4 hrs
MT 831 Introduction to Laboratory Methodology I	3 hrs
MT 854 Medical Parisitology	3 hrs
Elective	3 hrs

Third Year (second semester)

CHE 226 Analytical Chemistry	5 hrs
BIO 594 Immunology and Serology	5 hrs
MT 845 Electronics and Instrumentation*	3 hrs
MT 835 Laboratory Organization and Management I*	1 hr
MT 833 Introduction to Laboratory Methodology II	3 hrs

Fourth Year (first semester)

MT 836 Laboratory Organization and Management II*	1 hr
MT 843 Hematology Lecture	2 hrs
MT 863 Hematology Laboratory	3 hrs
MT 844 Clinical Chemistry Lecture	3 hrs
MT 864 Clinical Chemistry Laboratory	3 hrs
MT 846 Urinalysis and Miscellaneous Microscopy	3 hrs
MT 860 Blood Collection*	1 hr
AHE 855 Allied Health Colloquium	2 hrs

Fourth Year (second semester)

MT 856 Clinical Bacteriology Lecture	3 hrs
MT 866 Clinical Bacteriology Laboratory	3 hrs
MT 858 Immunohematology and Blood Banking	2 hrs
MT 855 Clinical Serology	2 hrs
MT 857 Medical Mycology	2 hrs
MT 860 Blood Collection*	1 hr
AHE 841 Health Care Systems Clerkship	3 hrs
AHE 856 Allied Health Colloquium	2 hrs

This program is followed by four months of Clinical Practicum in laboratories of the University of Kentucky Medical Center and affiliated facilities (for fulfillment of National Certification requirements).

*Pass-Fail grading only.

NOTE: Medical Technology admits students in the spring as well as the fall semester. Please note separate application deadlines for spring in the section on admission to the College.

PHYSICAL THERAPY

The Physical Therapy program leads to the Bachelor of Health Science 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.

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

At the time of application, applicants to the program must have completed four of the six prerequisite courses noted (*) in the *Pre-Professional 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 forseeable future.*** The Admissions Committee will consider such factors as overall grade-point average, performance in selected courses, evidence of academic improvement, American College Test (ACT) scores, recommendations and personal interviews. Initiative as demonstrated by

activities and experiences in physical therapy will be taken into consideration in the final selection. It is strongly recommended that an applicant obtain a minimum or 25 hours experience as an aide or a volunteer in a physical therapy department.

Pre-Professional 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*
(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 among elective course work.

Professional Requirements

JUNIOR-Fall	
ANA 801 Histology for P.T. Students	1 hr
AHA 811 Gross Anatomy	4 hrs
ANA 813 Developmental Anatomy	1 hr
BIO 350 Animal Physiology	4 hrs
PT 834 Introduction to Physical Therapy	2 hrs
PT 864 Research Methodology	2 hrs
	14 hrs
JUNIOR-Spring	
ANA 802 Neuroanatomy for P.T. Students	2 hrs
AHE 854 Biology of Disease	3 hrs
AHE 856 Allied Health Colloquium	2 hrs
PT 805 Normal Functional Anatomy	3 hrs
PT 815 Basic Clinic Skills	4 hrs
PT 835 Clinical Clerkship I	1 hr
PT 856 Therapeutic Exercise I	1 hr
	16 hrs
JUNIOR-Summer (4-week)	
PT 816-10 Summer Clerkship (Optional)	2 hrs
JUNIOR-Summer (8-week)	
PT 806-20 Clinical Functional Anatomy	2 hrs
PT 826-20 Prosthetics	2 hrs
PT 836-20 Clinical Clerkship II	1 hr
PT 846-20 Medical and Physical Therapy Management of Orthopedic Problems	2 hrs
PT 866-20 Electromodalities	1 hr
	8 hrs
SENIOR-Fall	
AHE 855 Allied Health Colloquium	2 hrs
PT 817 Electrophysiological Testing	2 hrs
PT 827 Orthotics and Spinal Cord Rehabilitation Techniques	3 hrs
PT 837 Clinical Clerkship III	2 hrs
PT 847 Medical and Physical Therapy Management of Neurological Problems	1 hr
PT 857 Therapeutic Exercise II	4 hrs
PT 877 Cardio-respiratory Therapy	2 hrs
PT 887 Introduction to P.T. Administration	1 hr
	17 hrs
SENIOR-Spring	
AHE 841 Health Systems Clerkship	3 hrs
PT 818 Clinical Problems	2 hrs
PT 838 Clincial Clerkship IV	2 hrs
PT 858 Therapeutic Exercise III	4 hrs
PT 868 Research Problems and/or	2 hrs
PT 898 Independent Study	1-4 hrs
PT 888 Advanced P.T. Administration	3 hrs
	17-20 hrs
SENIOR-Summer	
PT 839-20 Clinical Internship	9 hrs

GRADUATE PROGRAMS

Center for Learning Resources for Allied Health

The Center for Learning Resources 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 (the major area) and in advanced clinical skill development (the support area). These programs culminate in the awarding of the M.S. or Ed.D. in Education.

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, teach clinical dietetics, or 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 or radiation and the general public.

Master of Science in Medical Radiation Dosimetry. Trained dosimetrists understand the techniques used in radiological treatment of malignant disease, radiation safety and related computer techniques.

Clinical Pastoral Counseling. Programs in this department are integrated with the programs of patient care in the University Hospital, and are designed to educate health and religious personnel in their developing interrelationships.

For complete information about these programs please consult The Graduate School Bulletin, which is available, along with application materials from:

Graduate School Admissions Office
304 Patterson Office Tower
University of Kentucky
Lexington, Ky 40506

CERTIFICATE PROGRAMS

Clinical Associate Program (Physician Assistant)

The Clinical Associate Program is a 25-month curriculum designed for training assistants who work with the primary care physician. This professional program consists of 12 months of didactic instruction and 13 months of clinical teaching. The clinical associate is prepared to function by obtaining medical data, performing routine aspects of patient care and monitoring patients with chronic disease. The outpa-

tient facilities of the University of Kentucky Medical Center and private facilities throughout Kentucky are utilized for clinical rotations.

Candidates who complete the program and are judged to be qualified are awarded a certificate from the College of Allied Health Professions of the Univesity of Kentucky. Graduates are eligible to take the certifying examination for primary care physician assistants given by the National Commission for Certification of Physician Assistants.

Admission to the Clinical Associate (Physician Assistant) Program is contingent on selection by the Admissions Committee. Candidates are evaluated on the basis of demonstrated ability to complete academic work and their suitability for the role of the clinical associate, as evidenced by such factors as recommendations, extent of direct patient care experience in a health care setting, and personal interviews. All applicants to the program must be high school graduates or the equivalent. Previous college work is preferred. Since the Clinical Associate Program is a certificate program, students admitted are classified as "non-degree" students by the University. Applicants to the Clinical Associate Program must:

1. Obtain and submit completed application materials for admission to the Clinical Associate Program by February 15. These materials must include official copies of all transcripts and ACT or SAT scores (ACT preferred).
2. Have three references and evaluations from persons (non-relatives) whom you have known for at least three years forwarded by February 15.
3. Visit the Clinical Associate Program for admission interview if requested by the Admissions Committee.

Application materials may be obtained from:

Clinical Associate Program
805 South Limestone
University of Kentucky
Lexington, Kentucky 40506

Curriculum

The curriculum begins with the University Fall Semester and is 24 months in length. The curriculum consists of two basic phases. The first, or didactic, phase has an integrated basic science-clinical unit with specific educational objectives. This is entitled "An Introduction of Medical Sciences." During this phase, classroom instruction averages 20 hours per week and is in association with suitable training exercises at the bedside. Other courses are offered in this phase and have educational objectives in keeping with this unit.

The second, or clinical, phase is made up of clinical rotations, about 60 percent of which are extramural to the medical center. The preceptorship completes the final 12 weeks of the program.

Following is a list of the specific program courses:

Fall Semester

		Credits
AHE 850	Physical Diagnosis	6
AHE 851	Introduction to the Profession	1
AHE 852	Medical Ethics	1
AHE 853	Medical Terminology (self-instructional)	2
AHE 854	Biology of Disease	5
AHE 855	Allied Health Colloquium	2
BSC 212	Human Growth and Development	3
		20

Spring Semester

AHE 856	Allied Health Colloquium	2
AHE 857	Common Office Laboratory Procedures	4
AHE 858	Common Office Problems	5
AHE 872	Practical Therapeutics for Clinical Associates	3
AHE 873	Counseling and Interviewing Skills	1
AHE 595	Directed Studies	2
ANA 532	Anatomy	2
AHE 859	Introduction to Radiology	1
		20

Intersession

Electrocardiography, Multi-system Disease, Emergency Medicine

Clinical Rotations

Basic Orientation: In all clinical areas, the student will be able to provide for the physician a problem list based on a thorough history and physical exam and routine laboratory and/or x-ray information for the patient with a new problem. In the case of a patient with the ongoing or recurrent problem, the student will be able to complete a record review, an interval history and physical exam and provide a current problem list and/or studies report. When appropriate, the student will assist in counseling patients on problems.

		Credits
AHE 860	Family Practice Practicum	8
AHE 861	Clinical Pediatrics	4
AHE 862	Clinical Obstetrics and Gynecology	4
AHE 863	Clinical Surgery	4
AHE 869	Clinical Internal Medicine	4
AHE 870	Clinical Emergency Room	4
AHE 871	Clinical Psychiatry	2
AHE 865	Clinical Radiology	2
AHE 866	Clinical Dermatology	2
AHE 867	Clinical Preceptorship I	6
AHE 868	Clinical Preceptorship II	6

Rotation sites are constantly being evaluated and expanded as the program grows.

Renal Dialysis Technology Program

The Renal Dialysis Technology Program was established to provide trained personnel with ability to deliver dialysis therapy and transplantation assistance to patients in hospitals and outpatient clinics. These professional medical personnel work directly under the supervision of a physician to supply responsible care for the acute and chronic dialysis patient. The College of Allied Health Professions currently provides academic support and certification for the program. The program also functions as a continuing education effort and provides CEU (continuing education unit) credits for graduates. Two- and four-week courses are available, dependent upon the applicant's previous dialysis experience. Lectures involve a team approach to give the student a total overview of dialysis and transplantation.

Applicants are screened according to amount of experience and desire to continue in the renal dialysis specialty. Registration is required prior to each course. The pre-registration fee is $50. Dates for the two-week and four-week programs are established at the beginning of each academic year. Sufficient applications are required to merit the offering of the course at each pre-established date. Continuing education credits will be awarded according to the following schedule:

Two-week program	**Four-week program**
52 hours didactic	69 hours didactic
no clinical experience	70 hours clinical practicum
5.2 credits awarded	8.9 credits awarded

Further information is available from:

Renal Dialysis Technology Program
College of Allied Health Professions
915 South Limestone
University of Kentucky
Lexington, Kentucky 40506



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 Admissions.

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 application with the Office of the Dean of Admissions and Registrar by February 5, 1979 for fall 1979 admission or summer 1979 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, the minimum academic standards acceptable to the Admissions Committee will be the same as those that apply to admission to the University of Non-Resident Freshmen. 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 the November 1978 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 10, 1979 for fall 1979 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 10, 1979 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 the March 10, 1979 for Fall 1979 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 Feb. 5, 1979 for fall 1979 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 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 11, 1979 for fall 1979 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 credits, 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.

Professional and Professional electives	120 hrs
General Studies required courses	20 hrs
General Studies	18 hrs
Electives (non professional)	18 hrs
	Total 176 hrs

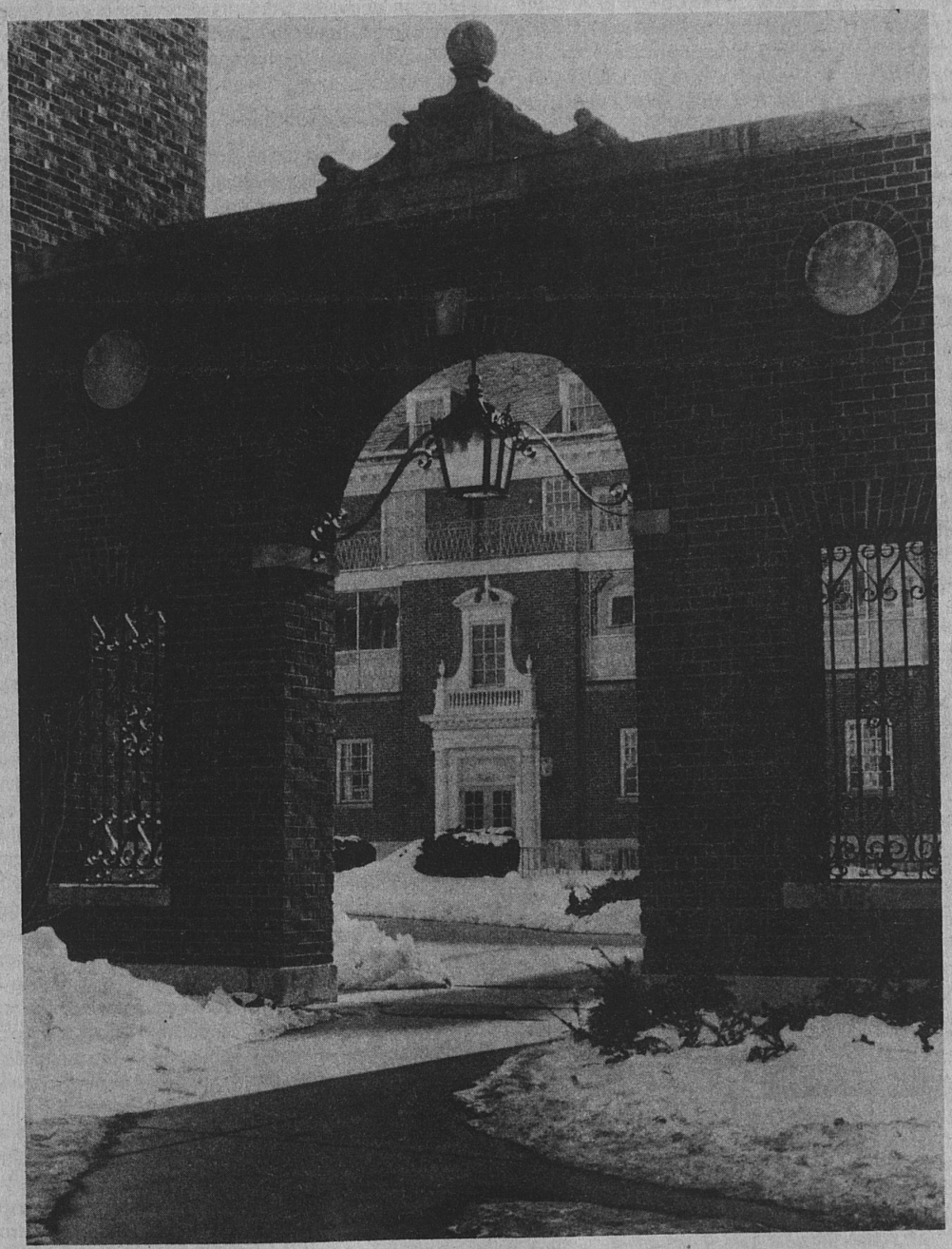
The Program

YEAR ONE	
ARC 101/102 Introduction to Architecture	8 hrs
ARC 120/121 History and Theory of Architecture	4 hrs
ENG 101/102 English Composition	6 hrs
MA 122/123 Finite Mathematics	6 hrs
Elective or General Studies Component	6 hrs
YEAR TWO	
ARC 201/202 Basic Architecture	12 hrs
ARC 220/221 History and Theory of Architecture	6 hrs
ARC 230/231 Materials and Methods of Construction	4 hrs
PHY 201/203 General Elementary Physics	8 hrs
Elective or General Studies Component	6 hrs
YEAR THREE	
ARC 810/811 Architectural Studio	12 hrs
ARC 820 Studies in History and Theory of Architecture and Urban Form	3 hrs
ARC 830/831 Structural Design and Analysis	6 hrs
ARC 834/835 Environmental Controls	6 hrs
ARC 840 Theories of Urban Form	3 hrs
Elective or General Studies Component	12 hrs
YEAR FOUR	
ARC 812/813 Architectural Studio	12 hrs

ARC 821/822 Studies in History and Theory of Architecture and Urban Form	6 hrs
ARC 832/833 Structural Design and Analysis	6 hrs
Elective or General Studies Component	12 hrs
YEAR FIVE	
ARC 910/911 Advanced Architectural Problems	14 hrs
ARC 850 Professional Practice	3 hrs
Elective or Professional Elective Component	21 hrs

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

Art Gallaher, Jr., Ph.D., is Dean of the College of Arts and Sciences; Raymond H. Cox, Ph.D., Associate Dean for Basic Studies; Donald E. Sands, Ph.D., Associate Dean for Advanced Studies; Herbert N. Drennon, Ph.D., Associate Dean for Special Programs; Samuel F. Conti, Ph.D., Associate Dean and Director of the Thomas Hunt Morgan School of Biological Sciences; Ben W. Black, Ph.D., Assistant Dean of Student Academic Affairs; Mary F. Franke, Ed.D., Assistant Dean and Director of Developmental Studies; John E. Delap, M.A., Director of Student Records and Registration.

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 degree. 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 for those students entering the University with an inadequate academic background, an opportunity to upgrade their capability. The program offers credit courses in basic communications and mathematics and a non-credit course in reading and study skills. Those interested in this program should contact the director on the third floor of 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 his major department who will continue to guide him throughout his undergraduate years. If, however, the student is undecided about his life/career/study goal or wishes assistance in testing or confirming a tentative decision previously made, it is of distinct advantage to the student initially to declare 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 his 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 Registration and Records 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 end of Patterson Office Tower.

The Associate Dean for Special Programs is responsibile for promoting opportunities within the College for study in other than disciplinary majors. With the assistance of select advisers of the Academic Advising Service and numerous University faculty, he provides advisement to enable upper division students to draw 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 Pre-Medical, Pre-Dental, Pre-Optometry, Pre-Law 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 disciplinary major file with Ms. Annelle Goodin in Room 263 no later than the end of the junior year a Plan of Study for his area of concentration. 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 experimental 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

This degree program permits an Arts and Sciences student to plan his entire academic program within certain very broad guidelines. Students who wish to pursue a truly general education with substantial work in more than one academic discipline may find the Bachelor of General Studies a valid alternative to the more traditional curricula. In like manner, certain students with specific career goals may wish to prepare themselves for that career free of the requirements entailed by a departmental major.

The Bachelor of General Studies is an experimental program at the University of Kentucky. Many other institutions have similar degrees. Students who wish to enter the Bachelor of General Studies should discuss its advantages and disadvantages with an academic adviser or with the Associate Dean for Special Programs. *Freshmen and students on scholastic probation may not enter this program.*

Requirements

To enter this program the student must (1) have completed at least 30 credits, and (2) not be on academic probation.

To receive the degree the student must:

1. Complete the University requirement in English composition.
2. Complete at least 30 credits after officially entering the program. In order to count the credit hours in a current semester towards the "30 credits after entering this program," a BGS applicant must have completed step 8 under "Procedures for Entering the Bachelor of General Studies Program" by the last day to add a class at the beginning of the semester.
3. Complete at least 120 hours (exclusive of physical education service courses) and have a 2.0 standing.
4. Complete at least 45 hours in courses at or above the 300 level.
5. Earn at least 90 of the 120 hours in the College of Arts and Sciences.
6. Complete and submit the form for application to the Bachelor of General Studies Program, stating degree objectives with specific courses listed. Obtain approval from academic adviser. File a copy of this academic program with the adviser and with his academic records, Room 257 Patterson Office Tower.
7. In the final semester prepare a statement which indicates in depth the results, values, and cohesiveness of the student's program. This is to be used in the eventual evaluation of the BGS program and should be prepared with this in mind. However, it is not intended that this be a conventional

"senior thesis." It must be filed with his academic records, Room 257 Patterson Office Tower.

Remarks:

1. The University General Studies requirements are waived for students in the Bachelor of General Studies program.

2. Students who wish to declare their intention to enroll in the Bachelor of General Studies program may do so by completing a Notice of Change of Major in Room 257 Patterson Office Tower.

3. In order for the credit earned in any semester or summer session to count toward the 30 hours specified in requirement 2, the student must officially enroll in the Bachelor of General Studies by the last day to enter an organized class. This deadline occurs approximately one week after the beginning of a regular semester and approximately three days after the beginning of a summer session.

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 areas of disciplined inquiry. The student seeking the Bachelor of Science must complete at least nine hours in each area.*

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 area.

*The Bachelor of Science degree requires the completion of 60 credits in biological, mathematical and physical sciences. This 60 credits may include freshman level courses and courses used to satisfy the natural science breadth requirement.

**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 freshman, 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 inter-departmental program, at least six of pre-major 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 Problems.

*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 courses.

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

1. **Composition and expression**

At present this requirement may be satisfied only by the completion of the freshman composition requirement:

a. For students with a Standard Score of 21 or less on the English ACT test: ENG 101 in the first semester plus one of ENG 102, 105 in the second semester or 203 in the sophomore year.

b. For students with a Standard score of 22, 23, or 24 on the English ACT test; ENG 102 or 105 with a grade of A or B. If the grade received in one of these courses is C or D, the re-

quirement may be satisfied by successfully completing the other course or ENG 203.

c. Students with very high ACT scores (25 or above) may be qualified to complete this requirement by examination.

2. Translation and Interpretation

Four units in a single foreign language or three units in one language and two units in a second language.

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 but may not complete the requirement by passing the first, second or third semester of that sequence. With this restriction, high school and college units may be combined as the student chooses.

Students who complete the fourth semester of a four semester sequence will satisfy this component of the Basic Skills and Area IV of the General Studies.

The four semester sequences in the various languages are:
Arabic: SO 140, 141, 240, 241.
French: FR 101 (or 111-114), 102 (OR 115-118), 201 and 202. Students with previous experience in French may be assigned to FR 106.
German: GER 121, 122, 221, 222 or GER 121, 201, 202. Students with previous experience in German may be assigned to GER 125.
Greek: Classics 151, 152, 251, 252.
Hebrew: SO 130, 131, 230, 231.
Italian: SPI 191, 192, 291, 292.
Latin: Classics 101, 102, 201, 202.
Russian: Slavic and Oriental 101, 102, 201, 202.
Spanish: SPI 101, 102, 201, 202 or SPI 141, 142, 241, 242. Students with previous experience in Spanish may be assigned to SPI 103.

3. Abstraction and Inference

Four units in computer science, logic, mathematics, or statistics. High school courses in general or business mathematics may not be used to satisfy this requirement.

High school and college units may be combined as the student chooses. High School classes which typically apply are Algebra I and II, Geometry, Trigonometry. Appropriate college courses for this requirement include: Computer Science courses; PHI 120, 520; MA 108R, 109, 112, 113, 122, 123, 199; all Statistics courses (except STA 200).

Students who complete MA 113 or MA 122-123 will satisfy Area I of the General Studies. Students who complete PHI 120 plus PHI 100 or 130 will satisfy Area I of the General Studies, also.

Students who wish to use high school units to satisfy all or part of Basic Skills component 2. or 3., must provide a high school transcript or have the appropriate school officials certify the credit by writing:

The Associate Dean for Basic Studies
College of Arts and Sciences
University of Kentucky
Lexington, Kentucky 40506

2. BREADTH OF STUDY

This requirement is designed to introduce students to three broad areas of disciplined study, but permits each student to choose within limits the particular courses he uses to complete each area. Some students will choose to take a variety of courses from several departments to satisfy a breadth area. Other students may wish to pursue in-depth work in one or two departments. Both plans are valid, but the student and his adviser should insure that the courses taken form a coherent program.

One means to satisfy a breadth area that many students may find attractive is to plan a program around a topic of interest. For example, it is possible to satisfy the natural sciences requirement by choosing courses of an ecological or environmental awareness nature. Even if a student does not have an interest in an academic area, the planning of a breadth area around a topic may be as valuable as a random selection of course.

Even though each student in the Bachelor of Arts and Bachelor of Science program should pay some attention to the structure of the General Studies areas as he plans each breadth component, the structure should not determine his plans. By petition and use of the option which permits the substitution of upper division courses for listed courses in the General Studies, almost any reasonable plan a student presents for the breadth areas can be accommodated to the General Studies.

The following recommendations and guidelines for each breadth area were prepared by special committees of the College faculty. Note that while certain departments are listed in more than one area, it is not permissible to count work in a single department in more than one area.

NATURAL SCIENCES

Definition. The Natural Sciences are studies devoted to the understanding of the natural things of the universe and the laws by which they exist and interrelate. The natural things of the universe include the universe itself, its contained bodies, and such things as atoms, energy forms, plants and animals, but exclude mathematics per se, and the study of man as a cultural being.

Justification. The purpose of the Natural Sciences breadth requirement is to acquaint the student with a body of knowledge and methods of dealing with that body of knowledge in one or more of the following sciences: astronomy, biology, chemistry, geology and physics.

Recommendations. At least six hours must be taken in a single discipline chosen from: astronomy, biology, chemistry, geology, or physics. The remaining Natural Sciences courses may be satisfied by courses in the disciplines listed above or from the following specific courses: ANT 120, 232, 332, PSY 556, 558, GEO 151, 251. Specifically excluded are courses in the history or philosophy of science.

Laboratory and Field Work. At least one course in the natural or social and behavioral sciences must include some laboratory or field experience. Laboratory or field experience is meant to indicate a regularly scheduled and supervised component of a course which focuses on some aspect of data acquisition and/or analysis.

HUMANITIES

Definition. The formal study of the Humanities focuses on man's conscious response to himself as an individual in relation to verbal and non-verbal interpretations of human experience in order that he may expand his sense of self-identity as well as his awareness of values shared by other men both now and in the past.

Recommendations: The Humanities breadth area shall include the following courses:

1. **English Department:** All literature courses. Specifically excluded are composition courses such as ENG 101, 102, 105, 203 and 207 linguistics courses.

2. **Foreign Language Departments:** All literature and civilization courses in the departments of Classics, French, German, Slavic and Oriental, and Spanish and Italian. Specifically excluded are composition, conversation, basic language study (i.e., the first four semester sequences) and linguistic courses.

3. **Philosophy Department:** All courses except PHI 120 (Introductory Logic) and 520 (Intermediate Logic).

4. **Art Department:** All art-history courses.

5. **Music Department:** Courses in music appreciation and the history of music: MUS 102, 103, 200, 202, 203, 300, 500, 501, 502, 503, 504, 505, 506.

6. **Theatre Arts Department:** TA 121 Introduction to Theatre Arts, TA 590 History of the Theatre I, TA 591 History of the Theatre II.

7. **Sociology Department:** SOC 525 Religion and Culture.

8. **Anthropology Department:** ANT 512 Comparative Civilizations, ANT 524, Mythology.

9. **College of Architecture:** ARC 820, 821, 822, 823 History of Architecture. (Note: undergraduate students must have the approval of the Dean of Arts and Sciences and the Dean of Architecture to enroll in these courses.)

10. **Health, Physical Education and Recreation Department:** HPR 290 History and Philosophy of the Dance.

11. **History:** All undergraduate courses.

12. **The following Linguistics courses:** ANT 215, ANT/ENG/LIN 515, ANT/ENG/LIN 516, ANT 518, ANT/LIN 519, ENG 414, 510, 512, 518, FR 417, GER 536, 539, LIN/ENG 301, SPI 502, 503.*

*It is not permissible to count work in a single discipline in more than one area.

SOCIAL AND BEHAVIORAL SCIENCES

Recommendations: The Social and Behavioral Sciences breadth area shall include the following courses:

1. **Sociology Department:** All undergraduate courses.

2. **Political Science Department:** All undergraduate courses.

3. **Psychology Department:** All undergraduate courses except PSY 216, 552, 556 and 558. The excluded courses are statistical or biological in nature.

4. **Anthropology Department:** All undergraduate courses except the following physical anthropology courses: ANT 120, 232, 402.

5. **Geography Department:** All undergraduate courses except GEO 151, 205, 251, 505 and 551. The excluded courses are courses in physical geography, climatology or cartography.

6. **History Department:** All undergraduate courses.

7. **Economics Department:** All undergraduate courses except the following statistical method courses: ECO 291, 391, 592.

8. **Human Communications:** All undergraduate courses which bear the COM prefix and SP 280.

9. **Journalism Department:** Only JOU 535, History of Journalism and JOU 537, Seminar in Public Opinion.

10. **Philosophy Department:** Only 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.

11. **The following Linguistics courses:** ANT 215, ANT/ENG/LIN 515, ANT/ENG/LIN 516, ANT 518, ANT/LIN 519, ENG 414, 510, 512, 518, FR 417, GER 536, 539, LIN/ENG 301, SPI 502, 03.*

*It is not permissible to count work in a single discipline in more than one area.

Laboratory and Field Work: The following courses may be used to satisfy the Breadth of Study requirement that at least one course in the Natural or Social and Behavioral Sciences include some laboratory or field experience:

PSY 100 Introduction to Psychology
ANT 550, Field Studies in Anthropology
ANT 585, Field Laboratory in Archeological Research

General Studies

The University requires that students enrolled in the Bachelor of Arts and Bachelor of Science programs *complete five of the eight areas of General Study.* 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.

The General Studies requirement is waived for those students who obtain the Bachelor of General Studies degree.

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 credits.

2. A total of 40 credits in the field of concentration, including credits in the major.

3. A standing of 2.0 in this 40 credits is required for graduation.

4. A minimum of 18 credits in the department, exclusive of prerequisites.

5. At least 14 credits in the field must be outside the major department.

6. At least 24 credits 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 credits in a field of concentration, most of which must be taken during the junior and senior years. These 40 credits 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 teachers' certificates, it is provided that, if necessary, six credits in education may be included in the 40 credits of the field of concentration.

Each department shall specify the requirements for a major, which shall include a minimum of 18 credits of non-freshman 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 credits 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 credits in the field of concentration. By the beginning of the senior year the student must file a field of concentration signed by his faculty adviser to the Associate Dean for Advanced Studies. This plan must specify all of the courses comprising the 40 credits 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 Associate Dean for Advanced Studies.

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 Student 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 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 Studies.

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 the Associate Dean for Advanced Studies. He must have an adviser in both departments and must turn in two fields of concentration. The student who completes requirements for a double major will receive only one degree, but his record will indicate his two majors.

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, Greek, Latin, Linguistics, Mathematics, Physics and Spanish.

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, he 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 teachers' certificates within the 130 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.

A.B. 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 non-major 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 credits.

Residence Requirements

A minimum of 30 of the last 36 credits presented for the undergraduate degree must be completed in residence at the University.

Extension and Correspondence Courses

A maximum of 30 credits taken by extension or correspondence, or both, may be counted toward the baccalaureate degree. Not more than one-third of the credits required for the major may be gained by extension, special examination, or correspondence.

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 credits. Credits in the other colleges gained during the junior and senior years may, if not open to freshmen, be counted on 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 Law School.

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 credits 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 credits 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 as rated by the Dental Educational Council of America.

4. He must, in his professional courses, secure sufficient credits to bring his total in the arts and professional work up to 120 credits 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.

PRE-LAW 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 pre-law 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.

In most instances it is highly recommended that students complete the bachelor's degree before entering the College of Law. Many law schools require a degree prior to admission.

PRE-MEDICAL 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

1 year English composition
1 year biology with laboratory
1 year physics with laboratory
2 years chemistry including
(1) general chemistry (3) quantitative analysis
(2) qualitative analysis (4) 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.

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 pre-medical office in the College of Arts and Sciences at UK.
3. There is no pre-medical major as such. The pre-medical 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 pre-medical students, a topical major is sometimes appropriate.
4. The College of Arts and Sciences has a pre-medical office in Room 271 of the Patterson Office Tower. General questions should be directed to this office. All pre-meds should register their names with this office.

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF MEDICINE

(Please see the General Studies requirements for Arts and Sciences in addition to the following.)

Freshman Year

FIRST SEMESTER	
CHE 110 General College Chemistry I	3 hrs
MA 113 Calculus	4 hrs
ENG 101 Freshman Composition	3 hrs
Electives (Liberal Arts)*	3 hrs
SECOND SEMESTER	
CHE 112 General College Chemistry II	3 hrs
CHE 115 General Chemistry Lab	3 hrs
ENG 102 Freshman Composition	3 hrs
Electives*	7-9 hrs

Sophomore Year

FIRST SEMESTER	
CHE 230-231 Organic Chemistry I	5 hrs
BIO 200-201 General Biology I	5 hrs
Humanities (Music, Art, or Literature)	3 hrs
Electives*	3 hrs
SECOND SEMESTER	
CHE 232-233 Organic Chemistry II	5 hrs
BIO 202-203 General Biology II	5 hrs
Humanities (Music, Art, or Literature)	3 hrs
Electives*	3 hrs

Third Year

FIRST SEMESTER	
PHY 211 General Elementary Physics	5 hrs
CHE 226 Analytical Chemistry, or	
BIO 340 Comparative Anatomy	4 hrs
Electives and/or "major" courses*	6-9 hrs
SECOND SEMESTER	
PHY 213 General Elementary Physics	5 hrs
BIO 568 Embryology	4 hrs
Electives and/or "major" courses*	6-9 hrs

Fourth Year

Concentration in area of major interest and electives should include at least one biological or physical science course each semester.

*Electives include many courses of the liberalizing type. (Sociology, psychology, history, literature, philosophy, anthropology, etymology, economics, political science, and others.)

Note: To obtain a bachelor's degree it is necessary to complete four semesters (or equivalent) of a foreign language at some time before graduation.

PRE-DENTAL CURRICULUM

Students who wish to prepare themselves to apply for admission to a dental school are advised to consult the bulletin of the dental school of their choice for its entrance requirements. The minimum requirements as set forth by the Council on Dental Education of the American Dental Association are as follows: the successful completion of two full years (60 semester hours) in an accredited college of liberal arts and sciences.

1 year of English (at least six semester hours)
1 year of biology (at least six semester hours)
1 year of physics (at least six semester hours)
1 year of inorganic chemistry (at least six semester hours)
1/2 year of organic chemistry (at least three semester hours

All science courses must include both class and laboratory instruction.

Most dental schools, however, do not encourage students to apply with just the minimal preparation, for only those who demonstrate superior qualifications in personal maturity as well as academic competence will be accepted. Rather, they prefer to consider the applicant with three or four years of undergraduate college preparation, considering him better prepared for a professional career.

The pre-dental student is advised to pursue a broad liberal arts curriculum including courses in speech, political science, art, music, literature, language, social sciences, psychology, statistics and mathematics. A major area of interest should be pursued beyond the introductory level which will provide an opportunity for independent study. The specific area of study chosen is of little significance, for candidates who meet admission requirements and demonstrate excellence will be given equal consideration whether they major in the natural sciences, in the social sciences, or in the humanities.

A combination Arts-Dental curriculum which is similar to that of Arts-Medicine may be followed. All pre-dents should register their names with the Pre-dent Office Room 271, Patterson Office Tower.

PRE-MINISTERIAL, PRE-THEOLOGICAL, AND PRE-RELIGIOUS EDUCATION

Students planning to enter the ministry or the field of religious education should consult the Office of the Associate Dean for Instruction, 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 non-western cultures as well as European and American; philosophy, particularly its history and its methods; natural sciences, both the physical and the life sciences; social sciences—psychology, sociology, and anthropology are particularly appropriate; the fine arts and music, especially for their creative and their symbolic value; biblical and modern languages; religion, both in the Judeo-Christian and in the Near and Far Eastern traditions.

PRE-OPTOMETRY 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 non-residential 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 Public Higher Education and must be admitted to one of the above-mentioned Colleges of Optometry.

Pre-Optometry Requirements

General Chemistry	2 sem.
Organic Chemistry	1 sem.
English	1 or 2 sem.
Calculus	1 sem.
General Biology or Zoology	1 or 2 sem.
General Physics	2 sem.
General Psychology	1 sem.
Principles of Microbiology or Bacteriology	1 sem.
Social Studies	2 sem.
Statistics	1 sem.
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 in Room 271, Patterson Office Tower.

PRE-PHARMACY

The equivalent of two years of liberal arts and basic sciences is required for admission to the professional program. This pre-professional 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

CHE 110	General College Chemistry I	3 hrs
ENG 101	English Composition	3 hrs
CHE 112	General College Chemistry II	3 hrs
CHE 115	General Chemistry Lab	3 hrs
ENG 102	English Composition	3 hrs
MA 113	Calculus	4 hrs
BIO 276	Principles of Bacteriology	4 hrs

Second Year

CHE 230	Organic Chemistry	3 hrs
CHE 231	Organic Chemistry Lab	1 hr
PHY 211	General Elementary Physics	5 hrs
BIO 200	General Biology I	3 hrs
BIO 201	General Biology Lab I	2 hrs
ECO 260	Principles of Economics	3 hrs
CHE 232	Organic Chemistry	3 hrs
CHE 233	Organic Chemistry Lab	1 hr
PHY 213	General Elementary Physics	5 hrs
BIO 202	General Biology II	3 hrs
BIO 203	General Biology Lab II	2 hrs

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 Science 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 pass the Air Force Officer Qualifying Test (AFOQT), a medical evaluation, and an interview with a board of Air Force officers.

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 freshmen 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.

4. FLIGHT INSTRUCTION PROGRAM: In the year prior to commissioning, male cadets who are physically and mentally qualified and who have been selected to receive Air Force pilot training, may participate in the Flight Instruction Program. The Flight Instruction Program (AS 323) provides 45 hours of ground instruction and cadet pilot candidates receive 25 hours of dual and solo flight instruction under the supervision of a Federal Aviation Agency certified flight instructor.

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 Aeorspace 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: physical anthropology, archaeology, ethnology and linguistics.

Degree Requirements

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

Pre-Major Requirements

ANT 120	Human Ancestry	3 hrs
ANT 121	Introduction to Cultural Anthropology	3 hrs

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 area requirements. The Department requires a student in her/his senior year to take ANT 582, Tutorial Seminar, which must be repeated once with a comprehensive written and oral examination.

Fourteen hours of nonfreshman, generically related course work outside the Department. The student should consult with the adviser about course selection.

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 a major in biology, botany, microbiology, and zoology which encompass the major areas of plant biology, animal biology and microbiology.

BIOLOGY

Faculty in the biology area of the Thomas Hunt Morgan School of Biological Sciences are 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:

Pre-Major Requirements*

Physics 211, 213
Mathematics 112; or 122 and 123
Chemistry 110, 112, and 115
Biology 200, 201, 202 203; 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

A course (with laboratory when available) chosen from four of the six following basic areas:

1. Genetics
2. Cell Biology
3. Developmental Biology
4. Regulatory Biology
5. Environmental, Systematic or Evolutionary Biology
6. Morphology and Systematic Biology

One credit in an undergraduate seminar (BIO 325, 523 or 524).

Ten additional upper division credits from biological sciences or related areas (to satisfy Arts and Sciences requirements).

The major shall include at least one upper division course in animal biology, plant biology, and microbial biology.

Chemistry 230, 231, 232, 233; or CHE 230, 231 plus 226 or 444 or 550 or BCH 401.

The student should consult with her/his 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 credits).

BOTANY

The faculty in botany is committed to the education and training of those students interested in a career in the Botanical 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 area.

Degree Requirements

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

Pre-Major Requiremnts

1.	BIO 200/202 General Biology, BIO 201/203 General Biology Laboratory (or)	10 hrs
	BIO 104/105 Animal Biology, BIO 106/107 Plant Biology, BIO 108/109 Microbiology	12 hrs
2.	CHE 110/112 General College Chemistry or	6 hrs
	CHE 106/108 General College Chemistry	6 hrs
	CHE 115 General Chemistry Laboratory	3 hrs
3.	MA 113 Calculus or	4 hrs
	MA 122/123 Fundamental Concepts of Mathematics	6 hrs
4.	Under Area II of the General Studies requirements, the botany area requires the PHY 211/213 sequence.	

Major Requirements

1.	BIO 351 Plant Kingdom	3 hrs
	BIO 530 Plant Physiology	3 hrs
	BIO 574 Anatomy of Vascular Plants	4 hrs
	BIO 404 Principles of Genetics	3 hrs
	BIO 524 Seminar	1 hr
2.	BIO 552 Taxonomy of Vascular Plants or	4 hrs
	BIO 260 Field Biology I or	2 hrs
	BIO 261 Field Biology II or	2 hrs
	BIO 265 Dendrology	3 hrs
3.	CHE 230/232 Organic Chemistry	6 hrs
	CHE 231/233 Organic Chemistry Laboratory	2-4 hrs
4.	Recommended for all botany majors:	
	BIO 571 Algology	4 hrs
	BIO 451 Introductory Ecology	4 hrs
	BIO 573 Mycology	4 hrs

At least 14 credit hours of nonfreshman, generically related courses outside the area 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:

Pre-Major Requirements

Biology 200, 201, 202, 203 or	
Biology 108, 109, 104, 106, and 105 or 107	
CHE 106/108 Elementary General Chemistry	7 hrs
CHE 110/112 General College Chemistry I and II	6 hrs
CHE 115 General Chemistry Laboratory	3 hrs
CHE 226 Analytical Chemistry or	3-5 hrs
CHE 444 Physical Chemistry	3 hrs
MA 113 Calculus	4 hrs
PHY 211/213 General Elementary Physics	10 hrs

NOTE: These pre-major 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 18 hrs

BIO 325 Seminar	2 hrs
BIO 585 Pathogenic Bacteriology	4 hrs
BIO 594 Immunology and Serology	5 hrs

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, and BIO 476, General Bacteriology, will **not** fulfill major requirements.

Fourteen credit hours of nonfreshman, generically related courses outside the major field of study. Must include:

CHE 230/232 Organic Chemistry and	6 hrs
CHE 231/233 Organic Chemistry Laboratory	2-4 hrs
or	
CHE 230, 231, 444 or	
CHE 230, 231, BCH 401, a course in genetics, and one in regulatory biology.	

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:

Pre-Major Requirements

PHY 211/213 General Elementary Physics	10 hrs
MA 113 Calculus	4 hrs
CHE 110/112 General College Chemistry I and II	6 hrs
CHE 115 General Chemistry Laboratory	3 hrs
CHE 230/232 Organic Chemistry	6 hrs
CHE 231/233 Organic Chemistry Laboratory	4 hrs
BIO 200/202 General Biology I and II	6 hrs
BIO 201/203 General Biology Laboratory or BIO 104/105, 105/107, 108/109	4 hrs

Major Requirements

1. At least three courses chosen from:

BIO 404 Principles of Genetics	3 hrs
BIO 451 Introductory Ecology	4 hrs
BIO 508 Evolution	3 hrs
BIO 555 Vertebrate Zoology	4 hrs
BIO 340 Comparative Anatomy	4 hrs
BIO 570 Invertebrate Zoology	4 hrs

2. At least one credit in BIO 523, Senior Seminar.
3. 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 pre-major 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.

Curriculum leading to the B.A. or the B.S. degree in Chemistry:

Freshman Year

FIRST SEMESTER
- CHE 110 General Chemistry (CHE 106)
- ENG 101 English Composition
- MA 113 Calculus
- General Studies

SECOND SEMESTER
- CHE 112 General Chemistry (CHE 108)
- CHE 115 Laboratory
- ENG 102 English Composition
- MA 114 Calculus
- General Studies

Sophomore Year

B.A.	B.S.
First Semester	
CHE 226 Analytical Chem.	CHE 226 Analytical Chem.
CHE 230 Organic Chemistry	CHE 230 Organic Chemistry
PHY 211 Elem. Physics	MA 213 Analysis
Foreign Language	PHY 231 General Physics
	PHY 241 Laboratory
Second Semester	
CHE 232 Organic Chemistry	CHE 232 Organic Chemistry
CHE 231 Lab	CHE 231 Lab
PHY 213 General Physics	MA 214 Analysis
Foreign Language	PHY 232 General
Elective†	PHY 242 Lab
	Elective†

Junior Year

First Semester

CHE 233 Lab	CHE 233 Lab
CHE 444 Physical Chemistry*	CHE 440 Physical
Foreign Language	CHE 572 Seminar (Audit)
General Studies	Foreign Language
Elective†	General Studies
	Major Field Option

Second Semester

Major Field Option**	CHE 442 Physical or
CHE 441 Lab	CHE 443 Physical Lab
Foreign Language	CHE 572 Seminar
General Studies	Foreign Language
Elective†	Major Field Option
	General Studies

Senior Year

B.A.	B.S.
First Semester	
Major Field Options	CHE 395 Indep. Work***
Electives†	CHE 572 Seminar (Audit)
CHE 395 Indep. Work***	Foreign Language
	Major Field Option
	Elective
Second Semester	
CHE 395 Indep. Work***	CHE 572 Seminar
CHE 572 Seminar	Major Field Options
Foreign Language	CHE 395 Indep. Work***
Major Field Option	Electives†
Electives	

Major Field Options (Choose 15 hours.)

1. Three additional hours in CHE 395
2. CHE 442 (if not used to fulfill the regular requirement)
3. Any CHE 500 level courses other than CHE 572
4. BCH 401 Fundamentals of Biochemistry
   BCH 502 General Biochemistry

(NOTE: Credit cannot be counted for both CHE 550, Physiological Chemistry, and BCH 401 or CHE 552, Physiological Chemistry, and BCH 502.)

*Students desiring to take 440 and 442 rather than 444, must take MA 213 and MA 214 (MA 214 may be taken concurrently with 440).

**Major field options include courses at or above the 300 level in the physical sciences, biological sciences, engineering, mathematics.

***Students taking CHE 395 must have a minimum G.P.A. of 3.0 in the Department of Chemistry. Students not wishing to take CHE 395 must take six credits of course work in chemistry at or above the 400 level.

†Twelve of the elective hours must be used to fulfill Breadth of Study requirements. The remainder are "Free Electives."

CLASSICAL CIVILIZATION

This interdisciplinary major, administered by the Department of Classical Languages and Literatures, is a liberal arts program 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 has proved attractive to students interested in such diverse areas as museum curatorship, travel, and archaeology.

CLASSICAL LANGUAGES AND LITERATURE

In addition to the Classical Civilization Major, as described above, the Department of Classical Languages and Literatures offers three majors which involve extensive work in the original languages. The B.A. 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 B.A. 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 B.A. in Greek parallels the Latin major and prepares students for further study in such areas as philosophy, archaeology or biblical studies. All four undergraduate majors in the Classics Department contribute to the Comparative Literature program of the University.

Bachelor of Arts degree with a major in Classics

Degree Requirements

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

Pre-Major Requirements

CLA 151/152 Elementary Greek	6 hrs
CLA 201/202 Intermediate Latin	6 hrs

Major Requirements

Must complete 24 credit hours appropriately divided between Latin and Greek language courses.

Sixteen credit hours of nonfreshman, generically related courses. Fourteen of these credits must be outside the Department of Classics.

Bachelor of Arts degree with a major in Greek

Degree Requirements

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

Pre-Major Requirements

CLA 151/152 Elementary Greek	6 hrs

Major Requirements

Must complete 18 credit hours in Greek language courses. Fourteen credit hours of nonfreshman generically related courses outside the department. Normally chosen from ancient history, ancient art, Greek philosophy, and Latin literature. An additional eight nonfreshman credit hours either in the department of Classics or in other departments in the Field of Concentration. These eight credits are necessary to fulfill the college's 40-hour Field of Concentration requirement.

Bachelor of Arts degree with a major in Latin

Degree Requirements

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

Pre-Major Requirements

CLA 201/202 Intermediate Latin 6 hrs

Major Requirements

Must complete at least 18 credit hours in Latin language courses.

Fourteen credit hours of nonfreshman, generically related courses outside the department.

An additional eight nonfreshman credit hours either in the department of Classics or in other departments in the Field of Concentration. These eight credits are necessary to fulfill the college's 40-hour Field of Concentration requirement.

TEACHER CERTIFICATION REQUIREMENTS

Students who wish to teach Latin in the secondary school must also meet the certification requirements of the College of Education. Refer to the College of Education "Secondary Foreign Languages" or contact the College of Education, Teacher Education and Certification, 166 Taylor Education Building, University of Kentucky, Lexington, Kentucky 40506 for further information.

Bachelor of Arts degree with a major in Classical Civilization

Degree Requirements

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

Pre-Major Requirements

CLA 101/102 Elementary Latin or 6 hrs
CLA 151/152 Elementary Greek or
their equivalent

Major Requirements

1. At least 18 credit hours within the Department of Classics above the freshman level. Six of these credits must be in language courses.

2. Fourteen credit hours of nonfreshman, generically related 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, comparative literature, and Middle East civilization. Other areas are acceptable as long as they are consistent with the theme of the Field of Concentration.

3. An additional eight nonfreshman credit hours either in the Department of Classics or in other departments within the Field of Concentration. These eight credits are necessary to fulfill the college's 40-hour Field of Concentration requirement.

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 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 slant to the study of literature.

Degree Requirements

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

The student will plan his general program in consultation with the chairman, who will then assign him advisers in the particular literature departments. Participating in the Comparative Literature program are the departments of Classical Languages and Literatures, English, French, German, Slavic and Oriental Languages and Literatures, Spanish, and Italian. The Bachelor's degree in Comparative Literature is based on the existing literatures courses in the various language departments and on a four course core offered in the department of English. The student in Comparative Literature must demonstrate proficiency in at least two foreign languages.

General 6 hours

1. CLT 300 Comparative Literature Methodology
2. Any one of the CLT courses in English department: 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

If a student's First or Second Literature is English, he must choose his Third Literature in the language. If the First and

Second Literatures are both foreign, he may choose in a Third Literature in translation to fulfill this requirement.

Electives are to be chosen in consultation with the student's adviser.

NOTE: All literature courses must be above the freshman level to fulfill the graduation requirements in Comparative Literature.

Courses in Comparative Literature and Literature in Translation

CLT 300 Seminar: Comparative Literature Methodology 3
A study of the philosophy and methodology of Comparative Literature.
CLA 235, 236, 261, 262, 265, 390, 395, 424, 425
ENG 261, 262, 361, 362, 363, 366, 367, 368, 380, 473, 560, 561, 562, 563, 566, 568, 569, 570
FR 261, 421, 422, 423, 435, 436, 437, 438, 439, 440, 460, 461, 462
GER 261, 412, 501, 505, 519, 511
SO 263, 264, 555, 556, 563
SPI 261, 315, 316, 318, 319, 420, 543, 544, 591

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 the following:

Pre-Major Requirements

CS 150 Introduction to Algorithmic Processes	3 hrs
CS 250 Computer Organization and Programming	3 hrs
MA 113 Calculus	4 hrs
PHY 231/232 General University Physics	6 hrs
PHY 241/242 General University Physics Laboratory	4 hrs

Major Requirements

1. A minimum of 23 credits are required in computer science, including CS/MA 421, Elementary Numerical Analysis (3 hrs), and at least two credit hours in CS 472, Seminar (2 hrs).

2. A minimum of 23 credit hours in mathematics and statistics, including:

MA 114 Calculus II	4 hrs
MA 213/214 Calculus III and IV	7 hrs
STA 421/422 Basic Statistical Theory I and II	6 hrs

3. Six credit hours chosen from:

MA 361 Elementary Modern Algebra I	3 hrs
MA 432 Methods in Applied Mathematics II	3 hrs
MA 462 Matrix Analysis	3 hrs
MA/STA 423 Introductory Probability	3 hrs
MA/CS 482 Discrete Methods and Models in Applied Mathematics	3 hrs

The college requirement of at least 14 credit hours in related areas satisfied within the major requirements of the department of Computer Science.

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 of Arts and Sciences for Topical Majors.

For further information consult The Graduate School Bulletin.

ECONOMICS

The Department of Economics provides theoretical and applied courses in such widely diverse areas as urban problems, labor, money and banking, international trade, comparative economic systems, economic history, and others. 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 B.A. in Arts and Sciences and a B.S. in Business and Economics. The main distinction lies in the required supporting courses in each college. 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 each student completes the following:

Pre-Major Requirements

1. ECO 260/261 Principles of Economics	6 hrs
STA 292 Descriptive Statistics	1 hr
STA 293 Probability	1 hr
STA 294 Sampling and Inference	1 hr

2. Each student must take a mathematics option from Area I. This option may be substituted for Area II or III. MA 113, Calculus, or MA 122, Fundamental Concepts of Mathematics I, 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

A minimum of 18 credit hours of advanced work in Economics. Must include:

ECO 391 Economic and Business Statistics	3 hrs
ECO 487 Intermediate Macroeconomic Theory	3 hrs
ECO 488 Intermediate Microeconomic Theory	3 hrs
One seminar course	

At least 14 hours of nonfreshman, generically related courses outside the Department.

At least six credit hours must be taken 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.

NOTE: The adviser for this Arts and Sciences major is a member of the College of Business and Economics faculty.

ENGLISH

The Department of English offers a wide variety of courses in English and American literature as well as more limited offerings in comparative literature, linguistics, folklore, creative writing, and composition. Undergraduate majors may also choose a curriculum which leads to a teaching certificate.

Non-majors 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:

Pre-Major Requirements

Six hours in sophomore level literature courses. The courses normally recommended are ENG 221 and ENG 222. Appropriate alternatives will be allowed with permission of the adviser and the department chairman.

Major Requirements

Twenty-four hours in English courses to include:

1. A major author course (Chaucer, Milton, or Shakespeare):
   - ENG 421 Chaucer 3 hrs
   - ENG 425 Shakespeare Survey 3 hrs
   - ENG 428 Milton 3 hrs
   - ENG 426 Shakespeare Studies I 3 hrs
   - ENG 427 Shakespeare Studies II 3 hrs
2. A types course:
   - ENG 226 Introduction to the British Novel 3 hrs
   - ENG 261 Survey of Western Literature from Greeks to Renaissance* 3 hrs
   - ENG 262 Survey of Western Literature from 1600 to the Present* 3 hrs
   - ENG 281 Introduction to Film 3 hrs
   - ENG 361 Comic Mode 3 hrs
   - ENG 362 Tragic Mode 3 hrs
   - ENG 364 Contemporary Fiction of England and America 3 hrs
   - ENG 365 Contemporary Poetry of England and America 3 hrs
   - ENG 366 Studies in Fiction 3 hrs
   - ENG 367 Studies in Poetry 3 hrs
   - ENG 368 Studies in Drama 3 hrs
   - ENG 380 Film Criticism 3 hrs
   - ENG 381 History of Film 3 hrs
   - ENG 440 The 18th Century English Novel 3 hrs
   - ENG 441 The 19th Century English Novel 3 hrs
   - ENG 442 The 20th Century English Novel 3 hrs
   - ENG 454 American Novel before 1900 3 hrs
   - ENG 455 Modern American Novel 3 hrs
   - ENG 490 English Drama I 3 hrs
   - ENG 491 English Drama II 3 hrs
   - ENG 566 Modern Drama 3 hrs
   - ENG 568 History of Literature Criticism I 3 hrs
   - ENG 569 History of Literature Criticism II 3 hrs
   - ENG 581 Aesthetics of Film 3 hrs

*Note: ENG 261/262 cannot be used for both general studies and/or breadth of study and depth of study requirements.

3. A survey course in English Literature before 1800:
   - ENG 422 English Renaissance: 1500-1600 3 hrs
   - ENG 423 English Renaissance: 1600-1660 3 hrs
   - ENG 430 Restoration/18 Century 1660-1730 3 hrs
   - ENG 431 Later 18th Century 1730-1780 3 hrs
   - ENG 519 Middle English Literature 3 hrs
   - ENG 520 Beowulf 3 hrs
   - ENG 521 Middle English Literature 3 hrs
4. A survey course in English Literature after 1800:
   - ENG 435 Romantic Movement: 1780-1815 3 hrs
   - ENG 436 Romantic Movement: 1815-1830 3 hrs
   - ENG 438 Victorian Period: 1830-1860 3 hrs
   - ENG 439 Victorian Period: 1860-1900 3 hrs
   - ENG 541 Contemporary British Literature 3 hrs
   - ENG 542 20th Century British Literature 3 hrs
5. A course in American Literature
   - ENG 264 Major Black Writers 3 hrs
   - ENG 356 Studies in Black American Literature 3 hrs
   - ENG 370 Black Folklore of North America 3 hrs
   - ENG 451 American Literature: 1800-1860 3 hrs
   - ENG 452 American Literature: 1860-1900 3 hrs
   - ENG 453 American Literature since 1900 3 hrs
   - ENG 454 American Novel before 1900 3 hrs
   - ENG 455 Modern American Novel 3 hrs
   - ENG 474 American Folklore 3 hrs
   - ENG 550 American Literature before 1800 3 hrs
6. Three English courses selected with consent of adviser. Includes any courses listed above, plus:
   - ENG 201 Etymology 3 hrs
   - ENG 207 Imaginative Writing 3 hrs
   - ENG 270 Literature of Old Testament 3 hrs
   - ENG 271 Literature of New Testament 3 hrs
   - ENG 363 Literary Studies in Intellectual Movements 3 hrs
   - ENG 390 Junior Seminar 3 hrs
   - ENG 414 Introduction to Modern English Linguistics 3 hrs
   - ENG 473 General Introduction to Folklore 3 hrs
   - ENG 501 Workshop in Imaginative Writing 3 hrs
   - ENG 509 Composition for Teachers 3 hrs
   - ENG 510 American English 3 hrs
   - ENG 512 Modern English Grammar 3 hrs
   - ENG 514 Descriptive Linguistics: Phonetics 3 hrs
   - ENG 515 Descriptive Linguistics: Phonemics 3 hrs
   - ENG 516 Descriptive Linguistics: Morphemics 3 hrs
   - ENG 518 History of the English Language 3 hrs
   - ENG 560 Comparative Literature I 3 hrs
   - ENG 561 Comparative Literature II 3 hrs

ENG 562 Comparative Literature III 3 hrs
ENG 563 Comparative Literature IV 3 hrs
ENG 570 Selected Topics for Advanced Studies 3 hrs
ENG 572 Studies in English for Teachers 3 hrs

Modifications in this program may be made by the student with the permission of the adviser and the consent of the departmental Director of Undergraduate Studies.

Field of Concentration

Sixteen hours of nonfreshman, generically related courses from outside the Department of English, which form a coherent plan in combination with the courses taken in English.

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 your 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 B in Area VI of the General Studies Areas.)

Pre-Major Requirements

1. FR 203 French Conversation and Composition 2 hrs
   FR 304 Introduction to French Literature I 3 hrs
   FR 305 Introduction to French Literature II 3 hrs
2. A minimum of six credit hours in a second foreign language.
3. A minimum of six credit hours in Western European history.
4. A minimum of three credit hours in a second literature (if not English or American, either in the original foreign language or in translation).
5. A minimum of three credit hours in the history of Western European art or music.

Major Requirements 18 hrs

1. Option I (Language Oriented)
   FR 306 French Conversation and Composition 3 hrs
   FR 406 Advanced French Grammar and Composition 3 hrs
   FR 407 French Phonetics 3 hrs
   One course chosen from the FR 435-440 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
2. Option II (Literature Oriented)
   FR 306 French Conversation and Composition 3 hrs
   Three period courses: FR 435 or 436; FR 437 or 438; FR 439 or 440 9 hrs
   One other French course at the 400 or 500 level excluding FR 553, Teaching of Modern Foreign Languages and all French literature in translation
3. Option III (Topical Major in French Studies)
   Individually constructed program for special needs or interests; contact Director or Undergraduate Study in French
   Fourteen credit hours of nonfreshman, generically related courses outside the Department, selected with the help of the Department academic adviser from courses clearly related to the major.

Certification Requirements

General Studies Component
A student can best satisfy these requirements by choosing Areas II; III; IV or V; VI, VII.

Special Studies Requirements
Health (3 credits) BIO 110, HPR 145, or NFS 101
English Composition (6 credits) ENG 101 and 102
Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.
Speech (3 credits) SP 181
Psychology (4 credits) PSY 100

Major and Minor Requirements
1. Demonstration of oral and written proficiency in major and minor languages
2. At least 30 hours in French including FR 200, 203, 304, 305, 306, 407, 440, 450 and 553 (courses at 100 and 200 levels are expressly excluded from the major unless listed above)
3. Minor (choose one option)
   24 hours in a minor (English or another foreign language) OR Two support areas of 12 credits each in other foreign language(s), English or history (no 100 level courses may be counted)

NOTE: With this option there is no certification in a minor.

Professional Education Sequence
EDP 202 Human Development and Learning 3 hrs
EDP 203 Psychology of Teaching 3 hrs
EDF 301 Education in American Culture 3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary School 3 hrs
FR 553 The Teaching of Modern Foreign Languages 3 hrs
EDC 354 Student Teaching in Foreign Languages 12 hrs

NOTE: FR 553, Teaching of Modern Foreign Languages does not count in the French major, but may be taken in addition to the minimum of 18 credit hours in upper-division work.

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 completes the following:

(In Area I of the General Studies requirements, MA 113 or MA 122 and 123 are recommended.)

Pre-Major Requirements

GEO 151 or GEO 251 or equivalent; choose three courses from the following:

GEO 201	Introductory Field Studies in Geography	3 hrs
GEO 205	Elements and Techniques of Map Making	3 hrs
GEO 210	Geography of Environmental Quality	3 hrs
GEO 252	Elements of Human Geography	3 hrs
GEO 255	Geography of Economic Activities	3 hrs

Major Requirements

A minimum of 18 credit hours in upper division courses in geography, distributed in the following three areas:

1. Topical Geography (choose two courses):

GEO 540	Principles of Urban Geography	3 hrs
GEO 541	Geographic Perspectives on Contemporary Urban Problems	3 hrs
GEO 542	Political Geography	3 hrs
GEO 543	Urbanization in Developing Areas	3 hrs
GEO 544	Population Geography	3 hrs
GEO 550	Geography of Natural Resources	3 hrs

2. Regional Geography (choose two courses):

GEO 520	Geography of the United States and Canada	3 hrs
GEO 552	Geography of Kentucky	3 hrs
GEO 524	Geography of Latin America	3 hrs
GEO 526	Geography of Europe	3 hrs
GEO 528	Geography of Asia	3 hrs
GEO 530	Geography of South Asia	3 hrs
GEO 532	Geography of Southeast Asia	3 hrs
GEO 534	Geography of Australia and the Pacific Islands	3 hrs
GEO 536	Geography of Africa	3 hrs

3. Techniques and Methodology (choose two courses):

GEO 407	Development of Geographic Thought	3 hrs
GEO 500	Introduction to Analytic Techniques in Geography	3 hrs
GEO 501	Field Studies in Geography	3 hrs
GEO 505	Cartography	3 hrs

4. GEO 560, Independent Work in Geography, and GEO 565, Topics in Geography, may be used where appropriate to satisfy area requirements 1, 2, and 3 above.

Field of Concentration Requirements

At least 14 credit hours of non-freshman, generically related courses outside the Department, chosen in consultation with the student's adviser. Suggested departments: anthropology, agriculture, economics, education, engineering, mathematics, political science, sociology, statistics, computer science, and history.

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 field and laboratory under the guidance of faculty members who are skilled in the many methods which may be used.

Degree Requirements

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

Pre-Major Requirements (Approximately 23 credit hours)

GLY 144	Introduction to the Earth	3 hrs
GLY 146	Earth History	3 hrs
CHE 106/108	Elementary General Chemistry I and II or	7 hrs
CHE 110/112	General College Chemistry I and II	6 hrs
CHE 115	General Chemistry Laboratory	3 hrs
MA 113/114	Calculus	8 hrs

NOTE: The pre-major requirements also satisfy Areas I and II of the General Studies requirements.

Major Requirements (Approximately 34 credit hours)

1.

GLY 225	Field Studies in Geology or	3 hrs
GLY 227	Elementary Field Work in Regional Geology	6 hrs
GLY 360	The Mineral World	3 hrs
GLY 420	Structural Geology	3 hrs
GLY 424	Field Work and Report in Regional Geology	7 hrs
GLY 450	Stratigraphy and Sedimentation	3 hrs
GLY 461	Elementary Petrology	3 hrs
GLY 540	Advanced General Geology	3 hrs
PHY 201/203	General Elementary Physics or	6 hrs
PHY 231/232	General University Physics	6 hrs
STA 291	Statistical Method or	3 hrs
STA 370	Introduction to Statistics	4 hrs

2. Students emphasizing paleontology may substitute a course in biology for the second semester of physics with the Department's approval.
3. Students emphasizing geophysics should take PHY 231/232 and substitute:

GLY 571	Introductory Geophysics, Gravity and Magnetism	3 hrs
GLY 572	Introductory Geophysics—Seismology	3 hrs
MA 213	Calculus III	4 hrs

for GLY 450, GLY 461 and Statistics.

4. Four additional courses in geology, of which at least one must be at the 500 level and no more than two below the 400 level. GLY 401, Paleontology, is highly recommended. With the Department's approval one or more courses in supporting sciences (such as MA 213/214, Calculus III, and CHE 440/442, Physical Chemistry) may be substituted for one or more of these courses.

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, 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 201/203, 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 nonfreshman, ge-

nerically related course from outside the department. This course should be chosen in consultation with the student's adviser.

Students emphasizing geophysics normally take the following sequence:

MA 214 Calculus	4 hrs
MA 432/433 Methods of Applied Mathematics	6 hrs
PHY 404 Mechanics	3 hrs

two additional courses selected in consultation with their adviser.

GERMANIC LANGUAGES AND LITERATURES

With a broad range of professional training and interests in literature, linguistics and culture, the faculty of the Department of Germanic Languages and Literatures is committed to helping students find their way in the study of German or several Scandinavian languages here and abroad.

Since one year of high school German corresponds to one semester of university study, students who have completed one year of high school German should register for a second semester section (GER 122). Likewise, students offering two years of high school German should enroll in third semester German (GER 221 or 201). Students needing review of grammar should take GER 125, German Grammar Review.

Placement tests are not required.

Bachelor of Arts Degree
With a Major in German.

Degree Requirements

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

Pre-Major Requirements

GER 121/122 Basic German	8 hrs
GER 221/222 Intermediate German	6 hrs
A second language	6-8 hrs

Major Requirements

1.	GER 205 Oral German	3 hrs
	GER 206 German Composition	3 hrs
2.	At least 12 hours of courses selected from:	
	GER 300 German Literature to the Reformation	3 hrs
	GER 302 German Literature from the Baroque to Enlightenment	3 hrs
	GER 304 Classical German Literature	3 hrs
	GER 306 German 19th Century Literature	3 hrs
	GER 308 Modern German Literature	3 hrs
	GER 310 The German Lyric	3 hrs
	GER 312 German Culture and Civilization	3 hrs
3.	GER 536 Introduction to the History of the German Language	3 hrs
	GER 538 Advanced German Conversation and Composition	3 hrs
	GER 553 The Teaching of German	3 hrs

NOTE: Non-teaching majors may substitute another 500 level German course for GER 553.

Fourteen credit hours of nonfreshman, generically related courses, selected with the help and approval of the adviser should be taken in anthropology, art history, English, French, Greek, geography, history, Latin, music, philosophy, Spanish, Italian, linguistics, Slavic and Oriental languages and theatre arts.

CERTIFICATION REQUIREMENTS

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, VII.

Special Studies Requirements

Health (3 credits) BIO 110, HPR 145, or NFS 101
English Composition (6 credits) ENG 101 and 102
Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.
Speech (3 credits) SP 181
Psychology (4 credits) PSY 100

Upper Division Requirements

1. Major Requirements

A major in German requires at least 30 credit hours, including basic and intermediate German. Recommended advanced courses:

GER 205 Oral German	3 hrs
GER 206 German Composition	3 hrs
GER 536 Introduction to the History of the German Language	3 hrs
GER 538 Advanced German Conversation	3 hrs
GER 553 The Teaching of German	3 hrs

NOTE: GER 553 should precede student teaching.

2. Minor Requirements (for German as a minor). At least 24 credit hours, including basic and intermediate German. Recommended courses:

GER 205 Oral German	3 hrs
GER 206 German Composition	3 hrs
GER 538 Advanced German Conversation and Composition	3 hrs

Professional Education Sequence

EDP 202 Human Development and Learning	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary School	3 hrs
GER 553 The Teaching of German	3 hrs
EDC 354 Student Teaching in Foreign Languages	12 hrs

NOTE: The student should consult the College of Education for any recent changes in requirements.

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:

Pre-Major Requirements

HIS 104 A History of Europe to 1713 3 hrs
HIS 105 A History of Europe to the Present 3 hrs
HIS 108 History of the United States Through 1865 3 hrs
HIS 109 History of the United States Since 1865 3 hrs

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.
2. HIS 316 Junior Seminar: Historical Method and Literature 3 hrs

(Strongly recommended for the first semester of the junior year)

Fourteen credit hours of nonfreshman, generically 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.

LATIN AMERICAN STUDIES

The Latin American studies major provides an integrated, interdisciplinary approach to the study of a geographic and cultural region. The team-taught 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:

Pre-Major 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:

1. LAS 401 Directed Research in Latin American Studies (3) (required of all majors; to be taken during the senior year)
2. Group A (3-6 hours)
   ANT 530 Contemporary Latin American Culture
   ANT 546 Pre-historic Meso-America and Peru
   GEO 524 Geography of Latin America
   Group B (6-9 hours)
   HIS 208 Colonial Latin America
   HIS 209 Latin American Republics
   HIS 584 Economic History of Latin America Since Independence
   HIS 587 Twentieth Century Latin American Revolutions
   PS 501 Latin American Relations
   PS 569 Latin American Government and Politics
   Group C (3-6 hours) NOTE that options in Group C have a course or equivalency prerequisite.

Language:
   SPI 310 Stylistic Studies in Spanish
   SPI 311 Advanced Spanish Conversation
   SPI 502 Survey of the Spanish Language
   SPI 501 Spanish Phonetics, Pronunciation and Phonemics
   SPI 504-5 Advanced Spanish Grammar and Composition
   SPI 503 Structure of the Spanish Language

Literature-Civilization:
   SPI 242 Intermediate Spanish (reading approach); any of the Spanish American options
   SPI 213 Civilization of Spanish America
   SPI 214 Mexican Civilization (in Mexico only)
   SPI 318 Survey of Spanish American Literature I
   SPI 319 Survey of Spanish American Literature II
   SPI 407 Literature of Social Protest in Spanish America
   SPI 541 Spanish American Short Story

Field of Concentration

Twenty-two 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:

Pre-Major Requirements

Fourth semester of a foreign language

Core:

1. LIN 301 (or, with permission, ANT 215 or ENG 414)
2. LIN 515 and 516
3. One course in the structure of a language (ENG 512, FR 417, GER 539, SPI 534, SO 401, 440)

4. One course in the history of a language (ENG 518, FR 603 (with special permission), GER 536, SPI 501, or ANT 519)

Correlated

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, 517, PHI 520, 565, PSY 575, SPI 502, 535, 536, LIN 395, and with special permission: ANT 614, FR 610, 603, GER 635, SO 402, 441, SPI 601, 602.

Field of Concentration

At least 24 credits of nonfreshman, generally 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 pre-major, and a year or more of an ancient or non-Indo-European language is recommended.

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.

Degree Requirements

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

Pre-Major Requirements

In Area IV of the General Studies Requirements, French, German, or Russian is recommended.
One of the following calculus sequences:
1. MA 113-114
2. MA 115-116
3. MA 117-118

Major Requirements

1. One of the second year analysis sequences:
   a. MA 213-214
   b. MA 215-216
   c. MA 217-218

NOTE: Students who wish to change sequences after the freshman year should consult the department for advice.

2. Eighteen credits in upper division Mathematics courses (numbered at least 300) subject to the following conditions:
   a. At least six of the 18 credits must be chosen from MA 351-352 (Topology), MA 361-362 (Algebra), MA 471-472 (Advanced Calculus).
   b. The 18 credits may not include MA 341, MA 371, MA 410, or MA 432.
   c. Completion of at least one of the following course sequences is required:
      MA 351-352 Topology
      MA 361-362 Algebra
      MA 471-472 Advanced CalculuMA 481-483 Differential Equations
      MA 421-538 Numerical Analysis
      MA 423-523 Probability
      MA 433/485 Complex Variables or 573
      MA 416-417 Linear and Math Programming

Fourteen credit hours in nonfreshman, generically 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 credits 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.

Certification Requirements

Enroll in the College of Education's Teacher Training Program and complete the requirements for a secondary school teaching certificate in mathematics.

General Studies Requirements: See the College of Education for certification requirements.

In Area IV, French, German or Russian is recommended.

Major Requirements

Complete one of the following:
MA 213 Calculus III
MA 217 Calculus for Mathematics Majors III
MA 215 Elementary Analysis III
plus the following:
MA 341 Topics in Geometry
MA 361 Elementary Modern Algebra I
MA 371 Elementary Set Theory and Number Systems

Complete four additional courses in mathematics numbered 214 or greater, but not including 215 and 217.

Fourteen credit hours of nonfreshman, generically related courses outside mathematics. Any field to which mathematics is significantly applied is acceptable. Six hours of student teaching will count as upper division work in the requirements.

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:

Pre-Major Requirements (12 hours)

SO 140, 141 Elementary Modern Standard Arabic	6 hrs
SO 240, 241 Intermediate Modern Standard Arabic or	6 hrs
SO 130, 131 Elementary Modern Hebrew	6 hrs
SO 230, 231 Intermediate Modern Hebrew	6 hrs

plus one of the following:

ANT 121 Introduction to Cultural Anthropology	3 hrs

GEO 257 Elements of Human Geography 3 hrs
HIS 247 The Middle East from the Rise of Islam to the French Revolution 3 hrs
HIS 248 The Middle East Since the French Revolution 3 hrs
SOC 101 Introductory Sociology 3 hrs

Major Requirements

Twenty-four hours chosen from the following 3 areas:

1. Cultural and Historical (9 hours) chosen from:
   - SO 328 Islamic Civilization: The Rise of Islam to 1798 3 hrs
   - SO 330 The Arab Awakening 3 hrs
   - SO 324 Judaism in the Middle Ages 3 hrs
   - SO 325 Judaism in the Modern World 3 hrs
   - HIS 350-359 Arab Israeli Conflict since 1948 (Course number for this topic is variable) 3 hrs
   - ANT 438 Ethnology of the Near East and North Africa 3 hrs
2. Specialized Areas (9-15 hours) chosen from:
   - ANT 383 Special Problems in Anthropology 3 hrs
   - SO 341 Seminar: Topics in Middle East Studies (May be repeated up to 9 hours as topics vary) 3 hrs
   - SO 396 Independent Work in Middle East Civilization 3 hrs
   - SO 444 Writings of the Muslim Mystics 3 hrs
   - SO 455 Spanish Islam 3 hrs
   - SO 457 Modern Arabic Literature in Translation 3 hrs
   - SO 458 Modern Hebrew Literature in Translation 3 hrs
3. Advanced Language Courses (6 hours: optional)
   - SO 442, 443 Arabic Reading I, II 6 hrs

Sixteen hours normally chosen from the following:

- ANT 512 Comparative Civilization 3 hrs
- ANT 548 European and Near Eastern Archaeology 3 hrs
- CLA 390 Early Christian Literature in Translation 3 hrs
- ENG 270 Literature of the Old Testament 3 hrs
- ENG 271 Literature of the New Testament 3 hrs
- HIS 229 The Ancient Near East and Greece to the Death of Alexander the Great 3 hrs
- HIS 230 The Hellenistic World and Rome to the Death of Alexander the Great 3 hrs
- HIS 501 Fourth Century Greece and the Hellenistic World 3 hrs
- HIS 510 Medieval Civilization to 1100 3 hrs
- HIS 511 Medieval Civilization since 1100 3 hrs
- HIS 528 Cultural and Intellectual History of Europe from the Renaissance to the French Revolution 3 hrs
- HIS 548 The Ottoman Empire 3 hrs
- HIS 549 History of the Middle East since 1916 3 hrs
- HIS 557 The British Empire and Commonwealth 3 hrs
- PHI 440 Great Religions 3 hrs
- PHI 504 Topics of the History of Ancient and Medieval Philosophy 3 hrs
- PHI 565 Philosophy of Language 3 hrs
- PS 290 Ideology, Political Doctrines and Contemporary Society 3 hrs
- SOC 525 Religion and Culture (Prereq: SOC 101) 3 hrs

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 provide 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 as few as 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. In addition to these courses, Army ROTC students must attend a six-week Advanced Camp at Fort Riley, Kansas normally 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 academic juniors to enroll in MS 300 level courses and complete the pre-commission program in two years. Under certain conditions, veterans and 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.

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 students for their prospective role as a junior officer in the United States Army. All junior and senior 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 and are offered, subject to availability of equipment and facilities, to provide students with an opportunity to develop his/her leadership skills, organizational abilities, confidence, and the "whole person" (e.g., Scuba diving, parachuting, orienteering, rappelling, survival training, etc.).

Professional development and enrichment opportunities are also available to the interested student in the form of the Kentucky Rangers, Pershing Rifles, and Kentucky Babes. 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 B.A. is viewed as a terminal degree in a liberal arts education; preparation for graduate work in philosophy or other fields; or pre-professional training for law, medicine, or the ministry. The Department also advises students in the development of B.G.S. programs.

Degree Requirements

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

Pre-Major Requirements

1. PHI 260 History of Western Philosophy I
   PHI 270 History of Western Philosophy II
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 21 hrs

1. Must be above the 200 level
2. Must take PHI 520 Intermediate Logic 3 hrs
   plus at least one course chosen from each of the following groups:

GROUP A

PHI 504	Topics in the History of Ancient and Medieval Philosophy	3 hrs
PHI 509	Topics in the History of Modern Philosophy	3 hrs
PHI 513	Nineteenth Century Philosophy	3 hrs
PHI 514	American Philosophy	3 hrs
PHI 515	Contemporary Analytic Philosophy	3 hrs
PHI 516	Phenomenology	3 hrs

GROUP B

PHI 530	Ethical Theory	3 hrs
PHI 535	Social and Political Philosophy	3 hrs
PHI 537	Philosophy of Law	3 hrs
PHI 545	Philosophy of Religion	3 hrs
PHI 592	Aesthetics	3 hrs

GROUP C

PHI 550	Metaphysics	3 hrs
PHI 555	Epistemology	3 hrs
PHI 560	Philosophy of Science	3 hrs
PHI 562	Philosophy of the Social Sciences	3 hrs
PHI 565	Philosophy of Language	3 hrs
PHI 570	Philosophy of History	3 hrs
PHI 575	Philosophy of Mind	3 hrs

Fourteen credit hours of nonfreshman, generically 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, a student who serves as a liaison on academic matters, 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 major in philosophy may choose the adviser he wishes or request assignment to an adviser by the Director of Undergraduate Studies or the Chairman.

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

Degree Requirements

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

Pre-Major Requirements

Physics: Choose 1 or 2

1. PHY 231/232	General University Physics	6 hrs
PHY 241/242	General University Physics Lab	4 hrs
2. PHY 211/213	General Elementary Physics	6 hrs

Chemistry: Choose 2 or 3 (1 is required)

1. CHE 115	General Chemistry Lab	3 hrs
2. CHE 110/112	General College Chemistry	6 hrs
3. CHE 106/108	Elementary Chemistry	7 hrs

Mathematics

MA 113	Calculus	4 hrs
MA 114	Calculus	4 hrs
MA 213	Calculus	4 hrs

The foreign language requirements should be fulfilled in French, German or Russian.

Major Requirements

1. Must include three courses from the following:

PHY 512	Experimental Physics: Electricity and Magnetism	2 hrs
PHY 530	Experimental Physics: Spectroscopy	2 hrs
PHY 535	Experimental Physics: Atomic and Nuclear	2 hrs
PHY 538	Experimental Physics: Light	2 hrs
PHY 402	Electronic Instrumentation and Measurements	3 hrs

(With departmental faculty consent, this requirement may be reduced to two).

2. Must include 15 hours chosen from the following:

PHY 361	Principles of Modern Physics*	3 hrs
PHY 362	Principles of Modern Physics*	3 hrs
PHY 404	Mechanics*	3 hrs
PHY 416	Electricity and Magnetism*	3 hrs
PHY 417	Electricity and Magnetism*	3 hrs
PHY 472	Interaction of Radiation with Matter	3 hrs
PHY 504	Advanced Mechanics	3 hrs
PHY 508	Optics*	3 hrs
PHY 510	Spectroscopy	3 hrs
PHY 514	Electronics	3 hrs
PHY 520	Introduction to Quantum Mechanics*	3 hrs
PHY 522	Heat and Thermodynamics*	3 hrs
PHY 524	Solid State Physics*	3 hrs
PHY 525	Solid State Physics	3 hrs
PHY 545	Radiation Hazards and Protection	2 hrs
PHY 546	General Medical Radiological Physics	2 hrs
PHY 547	Medical Radiation Imaging I	2 hrs
PHY 548	The Physics of Radiation Therapy	2 hrs
PHY 554	Fundamental Atomic and Nuclear Physics*	3 hrs
PHY 555	Fundamental Atomic and Nuclear Physics*	3 hrs

Fourteen hours of nonfreshman, generically related courses. The student should consult with her/his adviser about course selection. Mathematics and chemistry are strongly recommended.

*Courses recommended for the student interested in a career in physics.

Other courses recommended:

MA 214 Analysis
MA 432 Methods of Applied Mathematics I
MA 433 Methods of Applied Mathematics II
MA 485 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 or CS 221 (Computer Science for Engineers and Scientists), 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.

For the student interested in combining the study of physics with studies in other areas, the Department offers a choice of several programs.

Many different curricula can be arranged to fit the student's own particular needs and interests. These programs are of particular value to students intending to pursue careers in applied physics, medicine, radiation medicine, biophysics, law, meterology, oceanography, geophysics, environmental sciences, or the teaching of physics and/or physical science at the junior/senior high school level.

The required courses, in addition to the Pre-Major Requirements given above, are PHY 361 and 362. The additional courses in any of the programs should be chosen in accordance with the student's interests. Any of these programs allows the student the opportunity to take several other courses from one or more departments outside of physics.

Astronomy

Degree Requirements

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

Pre-Major Requirements

PHY 231	General University Physics	3 hrs
PHY 232	General University Physics	3 hrs
PHY 241	General Physics Lab	2 hrs
PHY 242	General Physics Lab	2 hrs
MA 113	Calculus	4 hrs
MA 114	Calculus	4 hrs
MA 213	Calculus III	4 hrs
MA 214	Calculus IV	3 hrs
AST 191	Descriptive Astronomy	3 hrs
AST 192	Descriptive Astronomy	3 hrs

The foreign language requirement should be fulfilled in French, German or Russian.

Major Requirements 18 hours

(must be beyond the freshman level.)

15 hours of physics and six hours of mathematics above the 200 level.

Suggested Curriculum:

Freshman Year	Fall Semester	Hrs
ENG 101	Freshman Composition	3 hrs
MA 113	Calculus	4 hrs
	Foreign Language	3 hrs
	General Studies	6 hrs
	Spring Semester	
ENG 102	Freshman Composition	3 hrs
MA 114	Calculus	4 hrs
PHY 231	General University Physics	3 hrs
PHY 241	General University Physics Lab	2 hrs
	Foreign Language	3 hrs
Sophomore Year	Fall Semester	
MA 213	Analysis	4 hrs
PHY 232	General University Physics	3 hrs

PHY 242 General University Physics Lab 2 hrs
AST 191 Descriptive Astronomy 3 hrs
Foreign Language 3 hrs

Spring Semester

MA 214 Analysis 3 hrs
PHY 361 Principles of Modern Physics 3 hrs
AST 192 Descriptive Astronomy 3 hrs
Foreign Language 3 hrs
General Studies 3 hrs

Junior Year Fall Semester

MA 432 Methods Applied Math 3 hrs
PHY 362 Introduction to Modern Physics 3 hrs
PHY 416 Electricity and Magnetism 3 hrs
AST 291 Spherical Astronomy 3 hrs
AST 591 Cosmology 3 hrs

Spring Semester

MA 433 Methods Applied Math 3 hrs
PHY 404 Classical Mechanics 3 hrs
PHY 417 Electricity and Magnetism 3 hrs
PHY 520 Introduction to Quantum Mechanics 3 hrs
AST 391 Celestial Mechanics 3 hrs

Senior Year Fall Semester

PHY 508 Optics 3 hrs
PHY 554 Atomic Physics 3 hrs
AST 292 Galactic Astronomy 3 hrs
AST 495 Elementary Astrophysics 3 hrs
General Studies 3 hrs

Spring Semester

PHY 530 Spectroscopy Laboratory 2 hrs
PHY 555 Nuclear Physics 3 hrs
AST 492 Galactic Astronomy 3 hrs
AST 496 Elementary Astrophysics 3 hrs
General Studies 6 hrs

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:

Pre-Major Requirements

PS 101 American Government 3 hrs
PS 201 Introduction to Political Behavior 3 hrs

and one of the following:

PS 200 Introduction to Political Analysis 3 hrs
PS 210 Comparative Politics and Political Development 3 hrs
PS 235 World Politics 3 hrs
PS 240 Ideology, Political Doctrines and Contemporary Society 3 hrs

Major Requirements

A minimum of 21 credits in political science, of which at least 15 shall 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 or PS 101 and 201, courses taken in fulfillment of the pre-major requirements may be used to satisfy these distributional requirements. Undergraduate courses are divided into the following fields:

1. Theory and Methodology:
   - PS 200 Introduction to Political Analysis 3 hrs
   - PS 240 Ideology, Political Doctrines and Contemporary Society 3 hrs
   - PS 441 Early Political Theory 3 hrs
   - PS 442 Modern Political Theory 3 hrs
   - PS 545 American Political Thought 3 hrs
   - PS 547 Micro-Theory in Political Science 3 hrs
   - PS 549 Science, Technology, and Political Theory 3 hrs
2. Comparative Government:
   - PS 210 Comparative Politics and Political Development 3 hrs
   - PS 411 Comparative Government-Parliamentary Democracies I 3 hrs
   - PS 412 Comparative Government-Parliamentary Democracies II 3 hrs
   - PS 417 Survey of Sub-Saharan Politics 3 hrs
   - PS 419 The Governments and Politics of Eastern Asia 3 hrs
   - PS 420 Governments and Politics of South Asia 3 hrs
   - PS 421 Government and Politics of Southeast Asia 3 hrs
   - PS 428 Latin American Government and Politics 3 hrs
   - PS 429 Government and Politics of the Soviet Union 3 hrs
   - PS 515 Comparative Political Parties 3 hrs
   - PS 532 Comparative Foreign Policies 3 hrs
   - PS 538 Latin American Relations 3 hrs
3. International Relations:
   - PS 235 World Politics 3 hrs
   - PS 430 The Conduct of American Foreign Relations 3 hrs
   - PS 431 National Security Policy 3 hrs
   - PS 436 International Organization 3 hrs
   - PS 437 Dynamics of International Law 3 hrs
   - PS 532 Comparative Foreign Policies 3 hrs
   - PS 538 Latin American Relations 3 hrs
   - PS 539 The Foreign Policy of the Soviet Union 3 hrs
4. Political Process:
   - PS 470 American Political Parties 3 hrs
   - PS 473 Public Opinion 3 hrs
   - PS 476 Legislative Process 3 hrs
   - PS 515 Comparative Political Parties 3 hrs
   - PS 584 The American Presidency and the Federal Executive 3 hrs
5. Public Administration:
   - PS 487 Introduction to Public Administration 3 hrs
   - PS 489 Administration Agencies and Public Policy 3 hrs
   - PS 555 Intergovernmental Relations 3 hrs
   - PS 580 The Budgetary Process 3 hrs
   - PS 584 The American Presidency and the Federal Executive 3 hrs
   - PS 588 Public Personnel Administration 3 hrs

6. Public Law and Judicial Behavior:
   - PS 461 Civil Liberties 3 hrs
   - PS 463 The American Judicial Process 3 hrs
   - PS 465 Constitutional Politics 3 hrs
7. State and Local Government:
   - PS 255 State Government 3 hrs
   - PS 450 Rural Local Government 3 hrs
   - PS 452 Municipal Government 3 hrs
   - PS 553 Urban Government and Politics 3 hrs
   - PS 555 Intergovernmental Relations 3 hrs
   - PS 557 Kentucky Government and Constitution 3 hrs

Field of Concentration

The required 14 credits outside political science must include at least six hours in each of two other departments, unless a student has a double major.

Undergraduate Minor Prerequisite: PS 101 or PS 105

Minor Requirements

A minimum of 18 credits in political science, in addition to the prerequisite. These 18 must include PS 201 plus one of the following three courses: PS 210, PS 235 or PS 240. Of the remaining 12 credits, at least 9 credits must be at the 400 or 500 level.

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:

Pre-Major Requirements

1. PSY 100 Introduction to Psychology 4 hrs
   PSY 215 Experimental Psychology 3 hrs
2. It is recommended that a student take Area I, II, III, IV and V of the General Studies requirements.

Major Requirements

1. A minimum of 18 credits in Psychology
2. PSY 216 Applications of Statistics in Psychology 3 hrs
3. One of the following courses:
   - PSY 423 Processes of Psychological Development 3 hrs
   - PSY 523 Research Methods in Developmental Psychology 4 hrs
   - PSY 525 Human Senses and Perception 3 hrs
   - PSY 527 Cognitive Processes 3 hrs
4. One of the following courses:
   - PSY 532 Personality 3 hrs
   - PSY 533 Abnormal Psychology 3 hrs
5. PSY 444 Social Psychology 3 hrs
6. One of the following courses:
   - PSY 550 Psychology of Learning 3 hrs
   - PSY 552 Animal Behavior 3 hrs
   - PSY 556 Physiological Psychology 3 hrs
7. One of the following laboratory courses:
   - PSY 523 Research Methods in Developmental Psychology 4 hrs
   - PSY 526 Human Senses and Perception Laboratory 1 hr
   - PSY 547 Experimental Social Psychology 4 hrs
   - PSY 551 Psychology of Learning Laboratory 1 hr
   - PSY 553 Animal Behavior Laboratory 1 hr
   - PSY 557 Physiological Psychology Laboratory 1 hr

Elective psychology courses include:

- PSY 223 Developmental Psychology 3 hrs
- PSY 301 Introduction to Humanistic Psychology 3 hrs
- PSY 331 The Psychology of Adjustment 3 hrs
- PSY 395 Independent Work in Psychology 3 hrs
- PSY 399 Field Based/Community Based Education 1 to 6 hrs
- PSY 400 Theories of Psychology in Historical Perspective 3 hrs
- PSY 500 Senior Seminar in Psychology 3 hrs
- PSY 502 Introduction to Industrial Psychology 3 hrs
- PSY 503 Psychology of Industrial Personal Procedure 3 hrs
- PSY 529 Psycholinguistics 3 hrs
- PSY 535 Psychological Testing 3 hrs
- PSY 539 Interpersonal Dynamics 3 hrs
- PSY 545 Small Group Behavior 3 hrs
- PSY 546 Applied Social Psychology 3 hrs
- PSY 558 Biology of Motivation 3 hrs

Fourteen hours of nonfreshman generically related courses. The student should consult with his/her advisor about course selection.

RUSSIAN AREA STUDIES

The Russian Area Studies major 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:

Pre-Major Requirement

A minimum of 12 credit hours in the Russian language.

Major Requirements

1. Twenty-four credits of course work directly related or focusing upon Russian-Soviet civilization, of which nine credit hours must include HIS 285, HIS 286, and PS 556. 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.

2. The remaining 16 credits of course work for the field of concentration are to be selected at the discretion of the major and the program adviser, with the aim of supplementing the

substantive and disciplinary contents of the major program.

3. At least 90 credits must be in Arts and Sciences courses. The Bachelor of Arts degree shall include at least 40 credits in upper division courses.

Course Listings:

The selection of courses in Russian Area Studies will vary each semester. Please consult the UK Schedule Book for available courses each semester.

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

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, political science, as well as its language and arts, form an indispensible part of a degree in Russian.

The Department of Slavic and Oriental Languages offers courses in Russian, Hebrew, and Arabic, and in the literatures of these languages.

Degree Requirements

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

Pre-Major Requirements

1.	20 201 Intermediate Russian	3 hrs
	SO 202 Intermediate Russian	3 hrs
	or their demonstrated equivalent	3 hrs
2.	SO 280 Russian Civilization	3 hrs

Major Requirements 21 hours

1. A minimum of 21 hours in courses at or above the 300 level
2. At least 12 hours must be from 300 level courses.
3. At least nine hours must be from 400 or 500 level courses.

Fourteen hours of nonfreshman, generically related courses.

1. Six hours must be taken in:
   HIS 285 History of Russia to 1825 3 hrs
   HIS 286 History of Russia since 1825 3 hrs
2. Remaining eight hours to be chosen with the aid of an adviser.

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 degree in Sociology is offered through the College of Arts and Sciences. A Bachelor of Science degree in Rural Sociology is available through the College of Agriculture.

Courses offered by the Department of Sociology include 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:

Pre-Major Requirements 6 hrs

SOC 101 Introductory Sociology or	3 hrs
GEN 102 Agricultural Social Science and	4 hrs
SOC 102 Introduction to Sociological Analysis	3 hrs

Major Requirements 18-26 hrs

SOC 220 The Community or	3 hrs
SOC 201 Social Interaction and	3 hrs
SOC 365 History of Sociology and	3 hrs
SOC 551 Advanced Principles of Sociology	3 hrs

In addition, it is strongly recommended that majors take:

SOC 581 Techniques of Social Investigation 3 hrs

Outside the regular curriculum students in sociology may secure field based or community based experience under the supervision of a faculty member.

Fourteen to 22 hours of nonfreshman courses to be chosen from the following generically related areas with no more than six hours from those under section 2:

1. Agricultural Economics*
   Anthropology
   Economics
   Geography
   History
   Philosophy
   Political Sciences
   Psychology
2. Communications
   Computer Science
   Education
   Family Life (Home Economics)
   Journalism
   Social Work
   Statistics
   Tele-Communications
   Extension Education*

*Available **only** for Rural Sociology.

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

The Department of Spanish and Italian has several 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:

Pre-Major Requirements

1. SPI 210 Grammar-Composition
2. One course chosen from:
   SPI 211 Spanish Conversation 3 hrs
   SPI 212 Spanish Civilization 3 hrs
   SPI 213 Spanish American Civilization 3 hrs

SPI 214 Mexican Civilization 3 hrs

3. Six credits in another foreign language

Major Requirements 18 hrs

1. Must be in 300-500 level courses in Spanish.
2. At least nine credit hours must be from the 400-500 level courses.

Fourteen hours of nonfreshman, generically related courses chosen from anthropology, art history, English, German, classics, history, French, geography, philosophy, Slavic and Oriental languages, linguistics, political science, music and theatre arts, comparative literature, sociology, honors, 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.

Certification Requirements

Major Requirements: 30 credit hours in Spanish, including elementary and intermediate.

Minor Requirements: 24 credit hours in Spanish.

See Teacher Education and Certification
166 Taylor Education Building
University of Kentucky

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:

Pre-Major Requirements

1. SPI 292 Intermediate Italian
2. Six hours of another language

Major Requirements 18 hrs

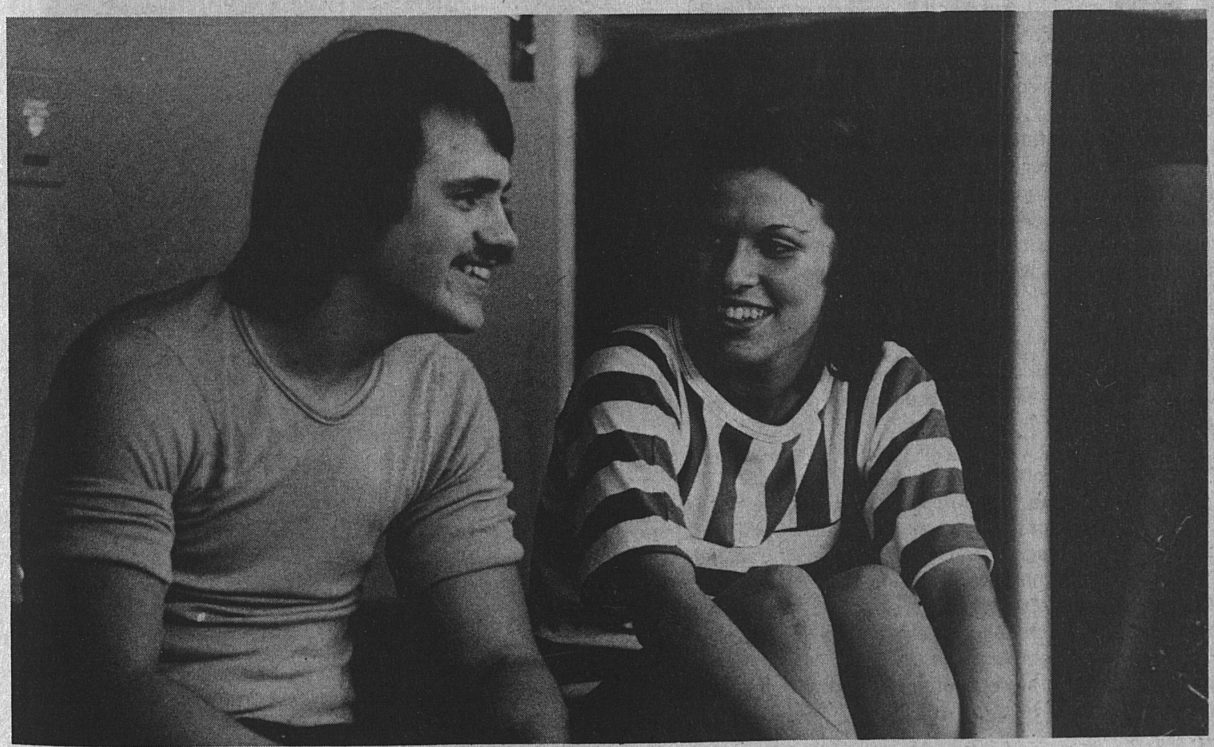
1. Either SPI 295 Italian Conversation and Composition 3 hrs
   or SPI 296 Italian Civilization 3 hrs
2. Fifteen hours in 500 level courses in Italian. Must include:
   SPI 543 Survey in Italian Literature I 3 hrs
   SPI 544 Survey in Italian Literature II 3 hrs

Twenty-two hours of nonfreshman, generically related courses chosen from those offered in the Spanish Field of Concentration as well as Spanish and comparative literature courses. Eight hours may be elective Italian courses. The student should consult 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 Topical Major. The Department does offer the Master of Science and the Doctor of Philosophy degrees.



BUSINESS AND ECONOMICS

William W. Ecton, Ph.D., is Dean of the College of Business and Economics; James L. Gibson, Ph.D., Associate Dean for Administration; Charles W. Hultman, Associate Dean for Research; and Levis D. McCullers, Associate Dean for Continuing Education.

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 through a major in the College of Arts and Sciences.

The objective of the instructional program is to prepare you for a life-long career in business, government, or research and teaching. The program is structured to provide you with 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

Requirements for admission to the College of Business and Economics are the same as those outlined on preceding pages for the University.

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. Several hundred 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.

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 and 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.

Degree Requirements

University Requirements and General Studies Areas:

See Academic Program Section.

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 203, Writing for Business and Industry, is required of a student with a major in Accounting, Business Administration, and Business and Economics.

Pre-Major requirements ar 21 credit hours taken from the following courses:

ACC 201/202 Principles of Accounting	6 hrs
ECO 260/261 Principles of Economics	6 hrs
STA 292 Descriptive Statistics	1 hr
STA 293 Probability	1 hr
STA 294 Sampling and Inference	1 hr
MA 122 Finite Mathematics and Its Applications and	3 hrs
MA 123 Elementary Calculus and Its Applications or	3 hrs
MA 113 Calculus I	4 hrs

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 and Economics and a B.B.A. in Business Administration:

BA 330 Marketing Management	3 hrs

BA 335	Business Management	3 hrs
BA 340	Legal Environment of Business or	3 hrs
BA 341	Business Law I (ACC majors only)	3 hrs
BA 345	Corporation Finance	3 hrs
BA 439	Business Policy	3 hrs
ECO 391	Economic and Business Statistics	3 hrs
	Electives in Economics	6 hrs

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

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	5 hrs
ACC 324	Data Processing in Accounting Systems	3 hrs
ACC 408	Cost Accounting	3 hrs
ACC 417	Income Taxation	4 hrs

At least three hours from the following:

ACC 401	Accounting Theory	3 hrs
ACC 403	Auditing	3 hrs
ACC 410	Accounting for Institutions and Regulated Industries	3 hrs
ACC 416	Accounting for Business Combinations	3 hrs
ACC 517	Corporate Taxation	2 hrs
ACC 527	Taxation of Partnership and Subchapter S Corporations	2 hrs
ACC 537	Estate and Gift Taxation	2 hrs
ACC 547	State and Local Tax Accounting	2 hrs
ACC 518	Controllership	3 hrs

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 18 credit hours from the Department of Business Administration chosen from the following courses:

BA 435	Analysis of Organizational Behavior	3 hrs
BA 450	Quantitative Analysis in Management	3 hrs
	plus departmental electives taken with the consent of the adviser	12 hrs

ECONOMICS

The Department of Economics offers programs of study leading to two different undergraduate degrees—a B.A. in Arts and Sciences and a B.S. in 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 including two seminar-type courses taken from the Department of Economics.

COMMUNICATIONS

Ramona R. Rush, Ph.D., is 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, communication theory and research and communications as related to society. The School of Journalism educates its students for professional careers in the media as writers or editors, or as public relations, advertising or management people. The two divisions share responsibility for instruction in broadcasting. Four majors are offered by the College: Communication, Journalism, 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, with electronic media, and to participate in debate and other oral communication activities.

Degree Requirements

University Requirements and General Studies Areas: See Academic Program section.

College Requirements: See Arts and Sciences section

Initially, College requirements are the same as those of the College of Arts and Sciences. Check with the College of Communications to learn of changes in requirements.

COMMUNICATION

The major in communication is primarily an area of 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 University General Studies requirements and the College requirements, each student completes the following:

Pre-Major Requirements

COM 101 Introduction to Communication 3 hrs

One other three-hour course from courses designated as COM, JOU, TEL, or SP.

Major Requirements

COM 550 Introduction to Communications Research Methods 3 hrs
COM 551 The Communications Process 3 hrs
COM 553 Mass Communications and Social Issues 3 hrs
COM 554 Seminar in Communication 2 hrs
plus 15 hours from the following:
A course in statistics
PSY 532 Personality
PSY 550 Psychology of Learning
PSY 444 Social Psychology
PSY 545 Small Group Behavior
COM 582 Persuasion
SOC 515 Diffusion of Technology of Modern Society
SOC 549 Sociological Aspects of Mass Communications
SOC 581 Techniques of Social Investigation
PS 570 American Political Parties
PS 573 Public Opinion
PS 576 Legislative Process
PHI 520 Intermediate Logic
PHI 560 Philosophy of Science

Plus 15-20 hours of electives in COM, JOU, TEL, or SP, from courses above the 200 level. Nine hours of this 15-hours requirement may be met by substituting courses in linquistics. Courses from the above list not used to meet requirements are recommended as electives.

SCHOOL OF 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 65 schools and departments of journalism in the United States have accredited sequence in the field.

Journalism majors are encouraged to work on the *Kentucky Kernel,* the independent campus daily newspaper, and *The Kentuckian,* the student magazine. 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 University General Studies requirements and the College requirements, each student completes one of the two following sequences:

General Editorial Sequence

Pre-Major Requirements

COM 101	Introduction to Communication	3 hrs
JOU 204	Writing for the Mass Media	3 hrs

Major Requirements

JOU 501	News Reporting	3 hrs
JOU 503	Copyreading and Editing	3 hrs
JOU 531	Law of the Press	3 hrs

Journalism Options

One course from each of the following pairs:

1.	JOU 539	Reporting Public Affairs	3 hrs
	JOU 599	Advanced Writing for the Mass Media	3 hrs
2.	JOU 535	History of Journalism	3 hrs
	COM 553	Mass Communication and Social Issues	3 hrs

Communication Electives

Nine credits 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

Pre-Major Requirements

COM 101	Introduction to Communications	3 hrs
JOU 204	Writing for the Mass Media	3 hrs

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 104 and 106 or PSY 210, since these courses meet requirements for the Bachelor of Arts degree as well as required course prerequisites.

Major Requirements

JOU 561	Newspaper and Magazine Advertising	3 hrs
COM 551	The Communication Process	3 hrs
JOU 563	Advertising Procedures	3 hrs
COM 550	Communications Research Methods	3 hrs

Communication Electives

At least 6 credits from the following:

JOU 531	Law of the Press	3 hrs
JOU 535	History of Journalism	3 hrs
JOU 541	Public Relations	3 hrs
COM 535	Mass Communication and Social Issues	3 hrs
COM 582	Persuasion	3 hrs
COM 325	Business and Industrial Communication	3 hrs
TEL 500	Telecommunications Audience Analysis	3 hrs
TEL 505	Telecommunications Program Policies	3 hrs

At least 6 credits from the following:

JOU 575	Typography	2 hrs
JOU 581	Introduction to Press Photography	3 hrs
JOU 501	News Reporting	3 hrs
TEL 510	Broadcast Advertising	3 hrs
JOU 503	Copyreading and Editing	3 hrs

Field of Concentration

At least 15 credits from the following:

BA 330	Marketing Management	3 hrs
BA 332	Behavioral Systems in Marketing	3 hrs
BA 431	Contemporary Marketing Problems	3 hrs
BA 432	Marketing Strategy and Planning	3 hrs
PSY 507	Learning	3 hrs
PSY 544	Social Psychology	3 hrs

NOTE: Of a student's total coursework for a bachelor's degree, 90 of the 120 hours required for graduation should be in courses other than Journalism or Communications.

SPEECH

The Speech program in the Department of Human 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. In addition, speech education is also offered.

Degree Requirements

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

Pre-Major Requirements

SP 181	Basic Public Speaking	3 hrs
COM 101	Introduction to Communications	3 hrs

Major Requirements

SP 581	Communications Processes in Discussion	3 hrs
SP 582	Persuasion	3 hrs
SP 583	Studies in Argumentation	3 hrs

plus nine credits chosen from:

SP 280	Discussion	3 hrs
SP 283	Argumentation and Debate	3 hrs
SP 285	Applied Phonetics	3 hrs
SP 287	Persuasive Speaking	3 hrs
SP 288	Oral Interpretation	3 hrs

plus six credits chosen from:

SP 585	American Public Address to 1865	3 hrs
SP 586	American Public Address since 1865	3 hrs

SP 588 Oral Interpretation Drama 3 hrs
COM 250 Mass Media and Mass Culture 3 hrs
COM 551 The Communications Process 3 hrs

Sixteen credits chosen in consultation with an adviser, selected from one or more disciplines. May be selected from English, theatre arts, speech therapy and audiology, telecommunications, journalism, political science, history, sociology, anthropology, economics, business administration, philosophy and education.

SPEECH-TEACHER CERTIFICATION

Lower Division

Two semesters freshman composition; two semesters physical education, Biology 110 and Psychology 100.

General Studies Requirements:

Area II, III, IV or V, VI, and VIII. Students who do not choose these component areas may need to take more than the minimum number of hours in order to satisfy these requirements.

Pre-Major Requirements

SP 181 Basic Public Speaking 3 hrs
SP 285 Applied Phonetics 3 hrs

Major Requirements

SP 288 Oral Interpretation 3 hrs
COM 581 Communication Processes in Discussion 3 hrs
COM 582 Persuasion 3 hrs
SP 583 Studies in Argumentation 3 hrs
SP 584 Teaching of Speech 3 hrs

plus nine credits chosen from:

SP 280 Discussion 3 hrs
SP 283 Argumentation and Debate 3 hrs
SP 287 Persuasive Speaking 3 hrs
SP 585 American Public Address to 1865 3 hrs
SP 586 American Public Address since 1865 3 hrs
SP 588 Oral Interpretation Drama 3 hrs
COM 551 The Communications Process 3 hrs

Sixteen hours of related courses outside the Department. These must be nonfreshman courses and must not be courses chosen to meet area requirements. A maximum of six credit hours of education may be counted.

The student should consult the College of Education for additional information.

TELECOMMUNICATIONS

Both units of the College participate in the telecommunications program. The program offers course work in broadcast management and systems, and non-print message design and preparation. 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 University General Studies requirements and the College requirements, each student completes the following:

Pre-Major Requirements

COM 101 Introduction to Communications 3 hrs
TEL 101 Broadcasting Today 3 hrs

Major Requirements

TEL 305 Telecommunications Program Analysis 3 hrs
TEL 312 Signs, Images, and Symbols 3 hrs
TEL 530 Pro-seminar in Radio and Television 2 hrs

plus 18 hours from the following courses:

COM 250 Mass Media—Mass Culture 3 hrs
TEL 395 Independent Study 1-3 hrs
TEL 432 Film Production 2 hrs
TEL 500 Telecommunications Audience Analysis 3 hrs
TEL 501 Telecommunications Regulations 3 hrs
TEL 504 Telesystems 3 hrs
TEL 505 Telecommunications Program Policies 2 hrs
TEL 507 The Public Affairs Program 2 hrs
TEL 510 Broadcast Advertising 3 hrs
TEL 511 Telecommunications Instructional Systems 3 hrs
TEL 512 Teletectonics (May be repeated once) 3 hrs
TEL 599 Telecommunications Topical Seminar (May be repeated twice) 2 hrs

Fourteen hours, 200 level or above, in related courses approved by the Department. Not more than 40 hours including major and pre-major requirements are permitted from within the College of Communications. Normally, these courses should be selected from jouralism, speech, political science, psychology, sociology, history, computer science and statistics.

The M.A. in Communication

The M.A. program in communication is administered by graduate faculty members in the Department of Human Communication and in the School of Journalism. The program emphasizes a behavioral approach to the study of the field with work in theory and research methods. For students interested in professional communication work, it offers the opportunity to take a limited number of advanced professional courses. Students in this program have gone on to Ph.D. work or have taken jobs as secondary level or junior college teachers, in the mass media, in public information, and in research organizations.

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 from groups such as 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

Application for admission to the College of Dentistry must be submitted after July 1 but no later than February 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.

Some dental schools have joined a centralized application service. The University of Kentucky College of Dentistry *does not* participate in this program. You must apply *directly* to the College.

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, including prerequisites, application materials, Dental Admission Test and academic counseling, should be directed to:

Director, Office of Admissions
College of Dentistry
Albert B. Chandler Medical Center
Room MN 118
University of Kentucky
Lexington, Kentucky 40506
Telephone: 606-233-6071

EDUCATION

George W. 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 of 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 (For Vocational, Industrial, and Technical Education Majors only)

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 free 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 outpatient speech, language, and hearing therapy services.

The Programmed Environment Preschool provides a model for early education for children whose development has been severely retarded. As part of a research training and curriculum development project, it serves as a focal point for the development of new training models and curricula for the developmentally retarded. Practicum experiences are available to students on a limited basis.

The Education Library contains more than 46,291 volumes, over 504 periodicals, and approximately 180,000 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 Curriculum Development Center for Career Education provides ancillary services in the preparation of curricula and curricular materials in Career Education.

The Reading Center maintains a special collection of books, pamphlets and other materials relative to reading curricula.

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, and other services through consultation and publications.

ADMISSION TO THE 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 success-

ful 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, he 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 curriculums of the College of Education (elementary education, special education, junior high/middle school, 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 three-fourths of all prerequisites in professional education with a grade-point average of at least 2.25;
4. 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;
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.
10. These requirements apply to the following courses: EDC 330, 340, 342; 353, 354, 355, 356, 357, 377, 411; EDV 370, 393, 380, 362, 352 and HPR 369.

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 a student teaching assignment in any available location. Some schools in which student teaching is done are away from the Lexington campus and out of the Central Kentucky 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. They take 18 semester hours of work—the semester student teaching is done—in agricultural education, which includes student teaching.

In order to take student teaching in home economics, a student must have completed three hours in techniques of teaching home economics in the secondary school. Student teaching and adult education are experienced in off-campus teaching centers. Students may elect to live in the community for approximately 12 weeks and perform the activities of a teacher in the community under the guidance of a trained supervising teacher.

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 majors and minors in approved teaching fields, and who have completed their requirements in professional education. This certificate is granted to students in both elementary and secondary education. The Bachelor of Science in Education is granted to majors in Vocational Technical Education.

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 semi-major, or major and support area; and in over-all university work. Specific GPA requirements are listed in the College of Education Brochure.

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 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 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	Elementary
Communications and Humanities	18	18
Physical Science and Biological Science	12	12
Social Science	12	18

The five General Studies Components 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, Art, and Music
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, for Area II, Physical Sciences. However, if this substitution is made, at least one Physical Science course must be taken to meet teacher certification requirements. Students other than mathematics majors or minors **may not** make this substitution.

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 preparing to be teachers in junior or senior high school may substitute PSY 100 from Areas VII and VIII for Area III, Biological Sciences. However, if this substitution is made, at least one biological science course must be taken to meet teacher certification requirements. (BIO 110 will meet this requirement.) Students in elementary education **may not** make this substitution.

Students majoring in physical education are advised to take Area II and to complete PSY 100 in place of Area III. Students in health and safety education are advised to take Option B or Option C from Area II and to complete Area III. Students in recreation (a non-certification program) are advised to complete PSY 100 and PS 201 in lieu of Area III. (Other students **may not** make this substitution.)

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.

General Information

Students expecting to receive teaching certificates, regardless of the college from which they graduate, must meet the General Studies Component required by the College of Education in addition to the requirements in their own college.

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 required courses in the Professional sequence may be taken at the same time.

Students expecting to receive certificates as elementary or junior high 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 as senior high school teachers may be enrolled either in the College of Education or the college of their major subject. 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.

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.

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 (nursery through grade three), one for elementary

teachers (grades one through eight), one for junior high/middle school teachers, and one for senior high school teachers.

REQUIREMENTS FOR TEACHING IN NURSERY THROUGH GRADE 3

Needed to Graduate (including all elective and required courses) 128 hrs

Professional Requirements

FHR 153 Introduction to Family Development*	3 hrs
EDP 202 Human Development and Learning**	3 hrs
FHR 255 Child Development**	3 hrs
EDP 301 Education in American Culture*	3 hrs
EDC 327 Principles and Trends in Early Childhood Education*	3 hrs
EDC 329 Reading and Language Arts in the Elementary School*	3 hrs
EDC 337 Teaching Mathematics in Early Childhood Education*	3 hrs
EDC 338 Science and Social Studies for Young Children*	4 hrs
EDC 339 Diagnostic Teaching of Reading and Language Arts in Early Childhood Education	3 hrs
FHR 350 Guiding Children in Learning Environments*	4 hrs
EDS 375 Introduction to Education of Exceptional Children*	3 hrs
FHR 507 Assessment of Young Children	2 hrs
EDS 510 Early Childhood Education and the Handicapped	2 hrs
FHR 554 Working With Parents	2 hrs
EDC/FHR 411 Student Teaching	12 hrs

*Prerequisite to Student Teaching

**Upper division professional Early Childhood Education courses may not be taken until after the student has completed EDP 202 and FHR 255 and has been admitted to the Early Childhood Education Program.

Special Studies Component Requirements (20 Hours)

Freshman English	6 hrs
ENG elective (ENG 414 recommended)	3 hrs
COM 101 Introduction to Communications	3 hrs
NFS 101 Food and Nutrition for Man	4 hrs
PSY 100 Introduction to Psychology	4 hrs

Academic Requirements (18 hours)

A-E 270 Introduction to Art Education*	3 hrs
HPR 360 Physical Education in the Elementary School*	3 hrs
LS 510 Children's Literature*	3 hrs
MA 201 Fundamentals of Elementary Mathematics*	3 hrs
MA 202 Fundamentals of Elementary Mathematics*	3 hrs
MUS 260 Music Fundamentals and Skills for Classroom Teachers*	3 hrs

*Prerequisite to Student Teaching

General Studies Component Requirements

(See section on General Studies Component Requirement.)

Admission to Student Teaching

To be admitted to student teaching in Early Childhood Education, the student must meet the following criteria:

1. Have spent one semester in residence on campus;
2. Have completed all prerequisites in the program sequence;
3. Have an overall GPA of 2.5;
4. Have senior standing (90 semester hours);
5. Have applied and been accepted for enrollment in student teaching the semester prior to the student teaching semester;
6. Have been accepted by the school system and supervising teacher where student teaching is to be done;
7. Have a schedule of not more than 15 hours of college work to be carried during student teaching with no classes that interfere with the teaching assignment, and
8. Have presented evidence of having had a negative tubercular examination.

When the student teacher accepts an assignment in a school, he agrees to abide by the same rules and regulations of dress, ethical, moral and professional conduct expected of other employes of the school and is expected to follow the calendar of the school where student teaching is done. Typically, the student will be involved for the full school day. The student must be prepared to accept a student teaching assignment in any available location.

REQUIREMENTS FOR TEACHING IN ELEMENTARY SCHOOLS

Needed to Graduate (including all elective and required courses). 128 hrs

Professional Education Requirements

Total hours required	34 hrs
EDP 202 Human Development and Learning*	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDP 301 Education in American Culture	3 hrs
EDC 324 Teaching Science and Social Learnings in Elementary School**	4 hrs
EDC 329 Teaching Communicative Skills in the Elementary Schools**	3 hrs
EDC 330 Diagnostic Teaching of Reading and Language Arts in the Elementary School**	3 hrs
EDC 331 Teaching Mathematics in the Elementary School**	3 hrs
EDC 333 Student Teaching in the Elementary School	12 hrs

*Prerequisite to ALL other required professional education courses. Students must apply and be admitted to the Teacher Education Program while enrolled in EDP 202.

**Any two of the four methods courses may be taken concurrently.

Students wishing to have their provisional elementary certificates endorsed for special education 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 special education program they are following.

Special Studies Component Requirements (42-46 hours)

Communications and Humanities (In addition to AREA IV or V)	9-12 hrs
English Composition—ENG 101, 102, 105, 203	3-6 hrs

NOTE: If ENG 105 is completed with a grade of A or B, this three hours will meet the composition requirement. If the grade is below a B, ENG 102 or 203 must be completed. If only ENG 105 is taken, this lowers the number of required hours in Communications and Humanities from 18 to 15 but does not lower the minimum total number of hours required for graduation from the College of Education, which is 128.

SP 181 **or** COM 101	3 hrs
Elective chosen from ENG, COM, HUM, JOU, PHI, REL, SP, TA	3 hrs

NOTE: If Area IV is selected instead of Area V, then this 3 hours must be a literature course.

PSY 100	4 hrs
BIO 110, or HPR 145, or NFS 101	3-4 hrs

NOTE: 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.

LS 510 Children's Literature	3 hrs
MA 201, 202 Fundamentals of Elementary Mathematics	6 hrs
HPR 360 Physical Education in the Elementary School	3 hrs
Social Science Electives (Geography, History, Economics, Political Science, Sociology)	6 hrs
Nine hours chosen from the following:	9 hrs

A-E 270 Introduction to Art Education
A-E 272 Workshop in Design Education
MUS 260 Music Fundamentals and Skills for Classroom Teachers
MUS 261 Methods and Materials of Teaching Music in the Elementary Grades

General Studies Component Requirements

(See section on General Studies Component Requirement.)

REQUIREMENTS FOR TEACHING IN JUNIOR/MIDDLE SCHOOLS

The 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 junior high school provided they hold a certificate valid for high school or 12-grade teaching.

Needed to graduate (including all electives and required courses). Total 128 hrs

Professional Education Requirements

Total hours required	31 hrs
EDP 202 Human Development and Learning*	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 340 Teaching in the Junior High School**	4 hrs
EDP 520 The Secondary School Pupil** (adolescent psychology)	3 hrs
EDC 533 Teaching Reading in the Secondary School	3 hrs
Student Teaching	12 hrs

*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.

General Studies Component Requirements

(See section on General Studies Component Requirements.)

Special Studies Component Requirements 15-17 hrs

Communications and Humanities (In addition to AREA IV or V)	9-12 hrs
English Composition—ENG 101, 102, 105, 203	3-6 hrs

NOTE: If ENG 105 is completed with a grade of A or B, this three hours will meet the composition requirement. If the grade is below a B, ENG 102 or 203 must be completed. If only ENG 105 is taken, this lowers the number of required hours in Communications and Humanities from 18 to 15 but does not lower the minimum total number of hours required for graduation from the College of Education, which is 128.

SP 181 **or** COM 101	3 hrs
Elective chosen from ENG, COM, HUM, JOU, PHI, REL, SP, TA	3 hrs

NOTE: If Area IV is selected instead of Area V, then this 3 hours must be a literature course.

PSY 100	4 hrs
BIO 110, or HPR 145, or NFS 101	3-4 hrs

NOTE: 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.

Preparation Plans for Academic Teaching

Each student preparing for junior high/middle school teaching is required to meet the requirements of one of three plans for majors, minors, and semi-majors. Appropriate courses taken in the general education field may be used in the teaching major, semi-major, and minor. Subjects may be counted only one time in the teaching major, semi-major, or minor areas.

One of the following plans must be followed.

Plan 1. Two majors of at least 24 semester hours each and one semi-major of 12 semester hours.

Plan 2. One major of at least 24 semester hours and three semi-majors of 12 semester hours each.

Plan 3. One major of at least 30 semester hours, one minor of 18 semester hours, and one semi-major of 12 semester hours.

The subject areas shall total 60 semester hours in the combination of majors, minors, and semi-majors.

Subject Fields for Majors, Minors, and Semi-Majors

Majors for junior high teaching may be chosen from the following list. The numbers indicate the minimum number of hours required.

Biology
Biology (18)/Health (6)*

Chemistry
Dramatics (6)/Speech (18)
Economics (6)/Sociology (18)
English and Communications*
French
Geography
German
History
History (18, including American History)/Political Science (6)
Humanities/Fine Arts*
Languages*
Latin
Mathematics*
Physics
Political Science
Science*
Social Science*
Spanish

*These are majors developed for the junior high school preparation-certification and apply **only** to that certificate. A description of these majors is given below.

English and Communications: 24-30 semester hours to be made up of composition, 6 semester hours; linguistics, advanced composition or phonetics, 3 semester hours; books and literature for young adolescents, 3 semester hours; literature, 9 semester hours including American Literature; speech 3 semester hours.

Humanities and Fine Arts: 24 semester hours with a minimum of 6 semester hours in each of three fields to be chosen from the following: music, art, humanities, appropriate philosophy and appropriate literature courses. The remaining 6 semester hours are to be electives from any of these fields.

Languages: 24 semester hours made up of any two languages with 12 semester hours or two full years of study each.

Mathematics: 24 semester hours including 6 semester hours of work designed especially to present the newer concepts of mathematics, including algebra. The remainder will be chosen from the regular, planned curriculum.

Science: 24-30 semester hours with a minimum of 6 semester hours in each of three fields chosen from the following: physics, chemistry, biological sciences, and earth science. The student will be required to have at least 6 semester hours in physical science (physics or chemistry) and 6 semester hours in biological sciences.

Social Science: 24-30 semester hours with a minimum of 6 semester hours in each of three fields to be chosen from the following: History (required), Geography (required), Political Science or Government, Economics, Social Anthropology, and Sociology.

Minors for Junior High teaching from: (18 hours)

Biology
Chemistry
French
Geography
German
History
Latin
Mathematics
Physics
Sociology
Spanish
Speech

Semi-majors for junior high teaching may be chosen from:

A semi-major consists of 18 hours, with at least 12 semester hours in one subject.

Any Foreign Language
Biology
Chemistry
Dramatics (6)/Speech (12)
Geography
Geography (12)/Geology (6)
History
History (12)/Political Science (6)
Mathematics (6 hrs. in newer concepts of math)
Physics

Only one semi-major may be chosen from the following: Art, Dramatics, Economics, Health, Journalism, Political Science, Psychology, Sociology and Speech.

REQUIREMENTS FOR TEACHING IN SENIOR HIGH SCHOOLS

Professional Education Requirements

Total hours required	27 hrs
EDP 202 Human Development and Learning*	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary School**	3 hrs

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 hrs
EDC 522 Materials and Methods in Teaching Social Studies in the Secondary School (required of all history majors)	3 hrs
EDC 524 Materials and Methods for Teaching Science in the Secondary School (required of all majors included in the Science group). Prereq: EDC 344	3 hrs
EDC 525 Materials and Methods of Teaching English in the Secondary School (required of all English majors)	3 hrs
EDC 564 Modern Educational Problems (Seminar for student teachers)	3 hrs
Student Teaching	9-12 hrs

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, 203 and EDF 301 and the special methods courses where appropriate are prerequisite courses for EDC 344.

During the professional semester, students majoring in the sciences will take the appropriate special methods course during the first four and one half weeks for three credit hours, and student teach for 10 1/2 weeks for nine credit hours. Also, EDC 564 Modern Educational Problems (Seminar for student teachers, three credit hours) will be taken concurrently with student teaching.

All other students will take student teaching for 12 credit hours. In these programs all special methods courses are completed prior to student teaching.

Students majoring in special education and another major or minor will take student teaching in special education for six credit hours and in the other field for six credit hours.

Special Studies Component Requirements

(Same as for Junior High/Middle 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 this minor.
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. Spanish, French or German (24 hours in one language). The Teaching of Modern Foreign Languages (553) is required as one of the courses.

Secondary Sciences

Students majoring in secondary science in the College of Education may choose one of the following four plans:

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.

General Studies Component

A student can best satisfy these requirements by choosing Areas II; III; IV or V; VI; VII.

Special Studies Requirements

Health (3 credits) BIO 110*, HPR 145 or NFS 101; English Composition (6 credits) ENG 101, 102, 105, or 203; Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.

Speech (3 credits) SP 181

Psychology (4 credits) PSY 100

*BIO 110 does not count toward Biology major.

Professional Education Sequence

EDP 202 Human Development and Learning 3 hrs

EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary Schools	3 hrs
EDC 524 Materials and Methods for Teaching Science in the Secondary Schools	3 hrs
EDC 355 Student Teaching in Sciences	9 hrs
EDC 564 Modern Education Problems	3 hrs

Secondary English, Speech, and Speech and Theatre Arts

English Education

Specialty Support

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 hrs.) in Theatre Arts or Journalism.

Plan III: Two support areas of 12 hours each in two related areas approved by the adviser.

Plan IV: Support block of 24 hours chosen from three or more related fields approved by the adviser.

Secondary Speech

Specialty Support Requirements

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.)

Speech and Theatre Arts

Specialty Support Requirements

In addition to the 38-hour major, the student will select a minor from the following areas: English or a foreign language. English is strongly recommended. (Students minoring in English must also take EDC 525 and EDC 534.)

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

Health (3 credits) BIO 110, HPR 145 or NFS 101

English Composition (6 credits) ENG 101, 105, or 203

Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.

Speech (3 credits) SP 181

Psychology (4 credits) PSY 100

Professional Education Sequence

EDP 202 Human Development and Learning	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary School	3 hrs
EDC 522 Materials and Methods in Teaching Social Studies in the Secondary School	3 hrs
EDC 357 Student Teaching in the Social Studies	12 hrs

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, during, and as a part of the program.
6. Experiences in community participation to be fulfilled prior to, during, 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 as courses are. 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.

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 6 hours of American history and any other 9 hours which will give the student a broad background. At least 6 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 9 hours which will give student a broad background.

*Anthropology may currently be used only as a support area. A student may take 18 hours of anthropology under Plan 3.

Secondary Foreign Languages

General Studies Component

A student can best satisfy these requirements by choosing Areas II; III; IV or V; VI; VII.

Special Studies Requirements

Health (3 credits) BIO 110, HPR 145, or NFS 101

English Composition (6 credits) ENG 101 and 102.

Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.

Speech (3 credits) SP 181

Psychology (3 credits) PSY 100

Professional Education Sequence

EDP 202 Human Development and Learning	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary School	3 hrs
FR 553; GER 553; SPI 552; SO 553; CLA 530 Special Methods of Teaching in French, German, Spanish, Russian or Latin	3 hrs
EDC 354 Student Teaching in Foreign Languages	12 hrs

Teaching Field Programs

Students majoring in foreign language will select **one** of the following plans:

Plan 1.—Major and Minor

30 hours for a major chosen from:
French, German, Latin, Russian, Spanish

24 hours for a minor chosen from:
English, French, German, Latin, Russian, Spanish

Plan 2.—Major with two 12-hour Support Areas

30 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.

EDUCATIONAL PSYCHOLOGY AND COUNSELING

The Department offers master and doctoral level degrees in educational psychology, school psychology, and counseling psychology. 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 the development of educational research and evaluation skills. Graduates of the educational psychology program option 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 competent school psychologists. 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 option sit for State Board of Psychological Examiners examinations in order to be certified or licensed as school psychologists. Upon graduation, students in this program option are employed by school systems and in other community agencies as school psychologists.

The counseling psychology program option trains students as counseling psychologists. The core of this program option 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 option 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. Graduates of the school guidance counseling program option work as guidance counselors in elementary and secondary schools. This latter program option requires prior certification and experience as either an elementary or secondary school teacher and it results in certification by the State Education Department as a guidance counselor. Other graduates of the counseling psychology program option 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.

The Department awards both the Ph.D. and the Ed.D. as well as the M.A. and M.S. No undergraduate degrees are awarded. Except in the area of general educational psychology, master's degree programs are long because of the need for extensive professional training and practica.

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 for one hour credit of each semester successfully

completed. They may choose from a large variety of life-time activities. (See Schedule of Classes for each semester.)

A standard uniform is required in most physical education classes. The cost of such uniform ranges from $5 to $12. 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, soap, locker rental and the privilege of using the equipment and facilities and swimming pool of the Department during non-class periods. Students must furnish their own swim suits.

General Studies Component

A student can best satisfy these requirements by choosing Areas II, III, IV or V, VI, and VII.

Special Studies Requirements

Health (3 credits) BIO 110, HPR 145, or NFS 101
English Composition (6 credits) ENG 101, 102, 105, or 203
Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.
Speech (3 credits) SP 181
Psychology (4 credits) PSY 100

HEALTH EDUCATION

Professional Education Sequence

EDP 202 Human Development and Learning	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in the Secondary Schools	3 hrs
Student Teaching in Health	12 hrs

Pre-Major Requirements

CHE 101/103 Chemistry: A Cultural Approach or	6 hrs
CHE 106/108 Elementary Chemistry or	7 hrs
CHE 110/112, 115 General Chemistry and a Laboratory	9 hrs
BIO 110/101 Biology or	3 hrs
BIO 200/201 General Biology and Lab or	5 hrs
BIO 202/203 Biology and Laboratory	5 hrs
MB 200 Principles of Bacteriology or	4 hrs
MB 400 General Bacteriology	4 hrs
ANA 206 Elementary Anatomy	3 hrs
PGY 206 Elementary Physiology	3 hrs

Professional Health Education Major

HPR 190 First Aid and Emergency Care	2 hrs
HPR 330 School Health Education	3 hrs
HPR 430 Methods of Teaching Health Education	3 hrs
HPR 530 Administration of Health and Safety Education	3 hrs
HPR 307 Introduction to Safety Education	2 hrs
HPR 507 Driver and Traffic Safety	3 hrs
HPR 445 Introduction to Tests and Measurements	3 hrs
HPR 395 Independent Work in P.E. or Health and Safety	3 hrs
HPR 509 Workshop in Health and Safety	2 hrs
CH 521 Community Health	3 hrs
NFS 101 Food and Nutrition for Man	4 hrs
PSY 518 Mental Hygiene	3 hrs
Electives in related health areas	

Professional School Health Minor

BIO 110 Human Biology and Health	3 hrs
HPR 190 First Aid and Emergency Care	2 hrs
HPR 330 School Health Education	3 hrs
HPR 430 Methods in Health Education	3 hrs
HPR 530 Organization and Administration of Health and Safety	3 hrs
PSY 518 Mental Hygiene	3 hrs
CH 521 Community Health	3 hrs
NFS 101 Food and Nutrition for Man	4 hrs

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 requirement in each of the minors).

PHYSICAL EDUCATION

Professional Education Sequence

EDP 202 Human Development and Learning	3 hrs
EDP 203 Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDC 344 Principles and Techniques of Teaching in Secondary Schools	3 hrs
HPR 369 Student Teaching in Physical Education plus	9 hrs
Those students who want a K-12 certificate must also take:	
EDC 325 Teaching in the Elementary School	3 hrs
Elementary P.E. Endorsement Courses	12 hrs

Pre-Professional Requirements

ANA 206 Elementary Anatomy	3 hrs
PGY 206 Elementary Physiology	3 hrs
NFS 101 Food and Nutrition for Man	4 hrs
PSY 210 General Psychology or PSY 104	3 hrs
HPR 115 Gymnastics	1 hr
HPR Service Course elective	

Professional Physical Education Major

HPR 147 Dance Foundations I*	1 hr
HPR 148 Women's Basketball* or	1 hr
HPR 149 Wrestling	
HPR 150 Soccer* or	1 hr
HPR 151 Field Hockey	

HPR 152	Techniques of Swimming*	2 hrs
or		
HPR 252	Water Safety Leadership	
HPR 153	Volley Ball*	1 hr
HPR 154	Dance Foundations II*	1 hr
HPR 155	Principles of Conditioning*	1 hr
HPR 156	Gymnastics*	1 hr
HPR 157	Track and Field*	2 hrs
HPR 159	Tennis*	1 hr
HPR 180	Professional Orientation*	2 hrs
HPR 190	First Aid and Emergency Care*	2 hrs
or		
HPR 340	Athletic Training	
HPR 344	P.E. in the Secondary School*	3 hrs
HPR 360	P.E. in the Elementary School*	3 hrs
HPR 361 or 362	Field Experiences*	1 hr
HPR 491	Dance in Education*	3 hrs
or		
HPR 540	Organization and Administration of P.E.	
HPR 420	Physiology of Exercise*	3 hrs
HPR 445	Introduction to Tests and Measurements*	3 hrs
HPR 472	Kinesiology*	3 hrs
HPR 579	Adapted PE*	3 hrs

*Required in Major

Professional Activity course electives (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, Support Areas and Endorsements

Minors (21-24 hrs.) Physical Education majors may minor in the following areas only: biology, chemistry, dance, health (24 hrs.), mathematics, physics, psychology, sociology, and special education. Students should check with the College of Education for the requirements in the selected minor because each minor has specific program requirements.

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 twelve semester hour related subject field for physical education majors.

HPR 128	Ballet	1 hr
HPR 129	Modern Dance*	1 hr
HPR 181	Modern Dance I*	2 hrs
HPR 182	Modern Dance II*	2 hrs
HPR 291	Folk Dance*	2 hrs
HPR 393	Rhythmical Forms and Analysis*	3 hrs
HPR 592	Choreography*	2 hrs

2. In consultation with his adviser, and depending upon his academic and professional interests, the student shall choose at least 8 hours of courses from the following list.

HPR 290	History and Philosophy of the Dance	3 hrs
HPR 292	Ethnic Dance	2 hrs
HPR 293	Classical Ballet I	2 hrs
HPR 294	Classical Ballet II	2 hrs
HPR 390	Dance Activities in the Elementary School	3 hrs
HPR 391	Theater Dance I	2 hrs
HPR 392	Theater Dance II	2 hrs
HPR 395	Indep. Work in Health and Safety of P. E. or Recreation	2 hrs
HPR 491	Dance in Education	3 hrs
HPR 593	Dance Production	3 hrs

Support Area and Endorsements

If you do not choose to take a minor you may select any **two** of the following support areas instead of the minor.

1. Pre-major (ANA 206, PGY 206, NFS 101, and PSY 100)
2. Biology (12 hrs. from major requirements)
3. Sociology (SOC 101, SOC 152, SOC 409, and SOC 551)
4. Psychology (PSY 100, and 6 hrs. PSY elective)
5. Anthropology (ANT 120, ANT 121 and 6 hrs. 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 P. E. — Required for K-12 certificate:
    HPR 263 Sports Activities in Elementary School
    HPR 360 Physical Education in Elementary School
    HPR 361 Field Experience in Elementary School
    HPR 390 Dance in Elementary School
    HPR 560 Motor Develop in Infants and Young Children
11. Coaching (Related Area) Consult adviser and see College of Education brochure.

RECREATION (Non-certificate)

General Studies Component

A student can best satisfy these requirements by choosing Areas V, VII, and VIII, and two others chosen with the assistance of the adviser.

Pre-Professional Requirements (17-18 hours)

STA 370 Introduction to Statistics	4 hrs
Social and Behavioral Sciences (6 hours upper division) ECO, ANT, PSY, GEO, PS, and/or SOC*	
Activities — A minimum of 8 credit hours, no more than 2 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)

HPR 170 Introduction to Recreation Services*	3 hrs

HPR 280 Recreation Program Planning and Leadership*	3 hrs
HPR 370 Fundamentals of Camping	2 hrs
HPR 374 Principles of Outdoor Recreation	2 hrs
HPR 379 Field Studies in Recreation (2 sections)*	4 hrs
HPR 395 Independent Study in Recreation**	3 hrs
HPR 471 Outdoor Education Through Camping	2 hrs
HPR 478 Senior Seminar in Recreation*	3 hrs
HPR 570 Landscape Design of Park and Recreation Areas	3 hrs
HPR 571 Therapeutic Recreation	3 hrs
HPR 573 Administration and Organization of Recreation*	3 hrs
HPR 575 Interpretations of Recreation and Leisure*	3 hrs
HPR 577 Practicum in Recreation*	9 hrs

*Required of all majors.
**Senior standing and consent of instructor.

Area of Specialization Requirements

In addition to the major requirements, students are to choose one area of specialization (option) and complete the requirement for selected area.

Option 1: Recreation Administration	12 hrs
HPR 374 Principles of Outdoor Recreation	3 hrs
PS 201 Introduction to Political Behavior	3 hrs
PS 280, 552, 553 (Choose 1) State, Rural, Municipal or Urban Government	3 hrs
PS 573, 576, 577, 578, 579 (Choose 1) or BA 341—Business Law	3 hrs
Option 2: Therapeutic Recreation	12 hrs
HPR 571 Therapeutic Recreation	3 hrs
PSY 533 Abnormal Psychology	3 hrs
ANA 206 Human Anatomy	3 hrs
EDS 375 Introduction to Education of Exceptional Children	3 hrs
Option 3: Park Management	12 hrs
HPR 374 Principles of Outdoor Recreation	3 hrs
BA 341 Business Law	3 hrs
Forestry or Horticulture	6 hrs

Electives

Electives to complete the 128 hours 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 administation. 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, Master of Science, 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-Language Pathology.

Students enrolling in the undergraduate program should note that it **is not** possible to obtain teacher certification in the usual four year (8 semester) undergraduate program. Interested students should contact the Department for sample programs that illustrate various options for scheduling course work that will 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 (1-6) and in the area of learning and behavior disorders (K-12). Graduates will be qualified to teach in regular elementary schools, in non-categorical special education programs for the mildly handicapped, and in public school programs for the educable mentally retarded, learning disabled, emotionally disturbed, and orthopedically 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 4 1/2 years or 4 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

Nine hours chosen from the following Art and Music courses:

A-E 270 Introduction to Art Education	3 hrs
A-E 272 Workshop in Design Education	3 hrs

MUS 260 Music Fundamentals and Skills for Classroom Teachers 3 hrs
MUS 261 Methods and Materials of Teaching Music in the Elementary Grades 3 hrs
ENG 101 Freshman Composition 3 hrs
ENG 102 Advanced Freshman Composition 3 hrs
SP 181 Basic Public Speaking or COM 101 3 hrs
English Literature Electives 3 hrs
Six hours of electives chosen from sociology, history, geography, political science, economics, anthropology
HPR 360 Physical Education in the Elementary School 3 hrs
BIO 110 Introduction to Human Biology and Health (3 hrs), or HPR 145 Concepts of Health and Fitness (3 hrs), or NFS 101 Food and Nutrition for Man (4 hrs)
LS 510 Children's Literature and Related Materials 3 hrs
MA 201 Mathematics for Elementary Teachers I 3 hrs
MA 202 Mathematics for Elementary Teachers II 3 hrs
PSY 100 Introduction to Psychology 4 hrs

Elementary Education Requirements

EDP 202 Human Development and Learning 3 hrs
EDP 203 Psychology of Teaching 3 hrs
EDF 301 Education in American Culture 3 hrs
EDC 324 Teaching Science and Social Learnings in the Elementary School 4 hrs
EDC 329 Reading and Language Arts in Elementary School 3 hrs
EDC 330 Diagnostic Teaching of Reading and Language Arts in the Elementary School 3 hrs
EDC 331 Teaching Arithmetic in the Elementary School 3 hrs
EDC 333 Student Teaching in the Elementary School 6 hrs

Special Education Core Requirements

EDS 250 Introduction to Special Education 4 hrs
EDS 510 Early Childhood Education for the Handicapped 2 hrs
EDS 511 Speech and Language Development 3 hrs
EDS 512 Language Disorders I 3 hrs
EDS 513 Protecting the Human Rights of the Handicapped 2 hrs
EDS 514 Special Education Learning Environments 2 hrs
EDS 515 Career Education in Special Education 2 hrs
EDS 516 Principles of Behavior Management for Handicapped Children 2 hrs
EDS 517 Prosthetics for Handicapped Children 2 hrs
EDS 518 Working with Parents of the Handicapped 2 hrs
Using Instructional Media 1-2 hrs

Learning and Behavior Disorders Area Requirements

EDS 528 Educational Assessment of the Mildly Handicapped 3 hrs
EDS 529 Educational Programming for the Mildly Handicapped 3 hrs
EDS 358 Field Experiences with Mildly Handicapped Children 3 hrs
EDS 359 Student Teaching in Special Education 6 hrs

TRAINABLE MENTALLY HANDICAPPED

Students graduating from this program obtain Kentucky teacher certification in elementary education (1-6) and in the area of the trainable mentally handicapped (K-12). Students are required to complete 142 semester hours of course work. With careful scheduling beginning in the freshman year, this program can be completed in either 4 1/2 or 4 years plus enrollment in two summer sessions.

Students must meet the same general studies, special studies, elementary 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

EDS 541 Characteristics of the Trainable Mentally Handicapped 2 hrs
EDS 547 Direct Observation and Assessment Procedures 2 hrs
EDS 548 Curriculum and Materials for the Trainable Mentally Handicapped 2 hrs
EDS 549 Practicum in the Trainable Mentally Handicapped Classroom 4 hrs
EDS 360 Teaching Internship in Trainable Mentally Handicapped 6 hrs

SPEECH-LANGUAGE PATHOLOGY

In keeping with the standards of the American Speech and Hearing Association, the undergraduate program in speech-language pathology 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 Masters 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

ENG 101 Freshman Composition 3 hrs
ENG 102 Advanced Freshman Composition 3 hrs
BIO 110 Introduction to Human Biology and Health or HPR 145 Concepts in Health and Fitness 3 hrs
PSY 100 Introduction to Psychology 4 hrs
Choose three hours from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV is substituted for Area V, 3 hours must be literature.

Professional Requirements

EDP 202 Human Development and Learning 3 hrs

EDP 203 Psychology of Teaching 3 hrs
EDP 301 Education in American Culture 3 hrs

Speech Pathology Area Requirements

EDS 250 Introduction to Special Education 4 hrs
EDS 277 Introduction to Disorders of Speech and Language 3 hrs
SP 285 Applied Phonetics 3 hrs
EDS 378 Anatomy and Physiology of Speech 3 hrs
EDS 379 Fundamentals of Hearing 3 hrs
EDS 380 Pathologies of the Auditory System 3 hrs
EDS 381 Introduction to Management Procedures in Speech Pathology 3 hrs
EDS 382 Clinical Orientation in Speech and Language I 3 hrs
EDS 383 Clinical Orientation in Speech and Language II 3 hrs
EDS 384 Introduction to Diagnostic Procedures in Speech and Language 3 hrs
EDS 511 Speech and Language Development 3 hrs
EDS 512 Language Disorders I 3 hrs
EDS 585 Sociolinguistics 3 hrs
EDS 586 Clinical Interviewing 3 hrs
EDS 587 Audiometry 3 hrs
EDS 588 Disorders of Articulation 3 hrs
EDS 589 Cleft Palate 3 hrs

Elective courses

Students select up to 26 semester hours from areas such as special education, linguistics, psychology, and allied health professions.

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 the preparation of administrators, coordinators, and supervisors of local and area programs of vocational education.

The Department offers masters' level 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 (Non-Certificate)

A student may wish to follow one of the following programs:

Administrative Secretary 51 hrs
Office Administration 51 hrs

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

Freshman English 6 hrs
PSY 100 Introduction to Psychology 4 hrs
SP 101 Basic Public Speaking 3 hrs

Special Curriculum Requirements

EDP 202 Human Development and Learning 3 hrs
EDF 301 Education to American Culture 3 hrs
ENG 203 Writing for Business and Industry 3 hrs
STA 200 Statistics: A Force in Human Judgment 3 hrs
BA 340 Legal Environment of Business 3 hrs

For Administrative Secretary:

ENG 201 Etymology 3 hrs
PSY 502 Introduction to Industrial Psychology 3 hrs
or
PSY 503 Psychology of Industrial Personnel Procedure 3 hrs

For Office Administration:

PSY 502 Introduction to Industrial Psychology 3 hrs
PSY 503 Psychology of Industrial Personnel Procedure 3 hrs

Major Requirements in Academic Area

The student in Business and Office Education may follow one of the following areas of concentration:

1. Administrative Secretary 51 hrs

Required Courses (39 hours from the following; consult adviser)

BOE 112 Theory and Principles of Shorthand 3 hrs
BOE 113 Intermediate Shorthand and Transcription 3 hrs
BOE 117 Typewriting 3 hrs
BOE 118 Advanced Typewriting 3 hrs
ACC 201 Principles of Accounting 3 hrs
ACC 202 Principles of Accounting 3 hrs
BOE 209 Secretarial Application of Accounting 4 hrs
BOE 214 Secretarial Procedures 3 hrs
BOE 215 Advanced Secretarial Procedures 3 hrs
BOE 219 Office Machines 3 hrs
ECO 260 Principles of Economics 3 hrs
BOE 445 Office Administration and Services 3 hrs
BOE 519 Records Management and Control 3 hrs
BOE 556 Bus. Reports and Commun. 3 hrs

Suggested Electives (12 hours; consult adviser)

BOE 301-303 1-3 hrs
BA 330 Marketing Management 3 hrs
BA 335 Business Management 3 hrs
BA 341 Business Law 3 hrs
BA 351 Introduction to Business Data Processing 3 hrs
BOE 395 Individual Work in BOE 1-3 hrs

2. Office Administration 51 hrs

Required Courses (39 hours from the following; consult adviser)

BOE 117 Typewriting 3 hrs
BOE 118 Advanced Typewriting 3 hrs
ACC 201 Principles of Accounting 3 hrs
ACC 202 Principles of Accounting 3 hrs
BOE 219 Office Machines 3 hrs
ECO 260 Principles of Economics 3 hrs
ECO 261 Principles of Economics 3 hrs
ACC 301 Intermediate Accounting 5 hrs
BA 536 Applied Personnel Management 3 hrs
BA 335 Business Management 3 hrs
BA 341 Business Law 3 hrs
BOE 445 Office Admistration and Services 3 hrs
BOE 519 Records Management 3 hrs
BOE 556 Business Reports and Communication 3 hrs

Suggested Electives (12 hours; consult adviser)

BA 351 Introduction to Business Data Processing 3 hrs
BOE 395 Individual Work in BOE 1-3 hrs
ACC 408 Cost Accounting 3 hrs
ACC 417 Income Tax Accounting 4 hrs
BA 435 Analysis of Organizational Behavior 3 hrs
BA 551 Advan. Bus. Data Processing 3 hrs
BA 330 Marketing Management 3 hrs

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

Health (3 credits) BIO 110, HPR 145, or NFS 101
English Composition (6 credits) ENG 101, 102, 105, or 203
Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.
Speech (3 credits) SP 181
Psychology (4 credits) PSY 100

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 9 hours in accounting); 9 additional hours in General Business, and 6 hours of electives chosen with the aid of the adviser.

Secretarial Sequence Major

Required Courses:

BOE 117 Typewriting 3 hrs
BOE 118 Typewriting 3 hrs
BOE 112 Theory and Principles of Shorthand 3 hrs
BOE 113 Intermediate Shorthand and Transcription 3 hrs
BOE 214 Secretarial Procedures 3 hrs
ACC 201 Principles of Accounting 3 hrs
BOE 209 Secretarial Applications of Accounting 4 hrs
or
ACC 202 Principles of Accounting 3 hrs
BOE 219 Office Machines 3 hrs
BOE 445 Office Administration and Services 3 hrs
ECO 260 Principles of Economics 3 hrs

Suggested Electives:

BOE 215 Advanced Secretarial Procedures 3 hrs
BOE 301-303 Office Internship 1 hr ea.
BOE 395 Individual Work in Business and Office Education 1-3 hrs
BOE 519 Records Management 3 hrs
BOE 556 Business Reports and Communication 3 hrs
ACC 202 Principles of Accounting 3 hrs
ECO 261 Principles of Economics 3 hrs
BA 330 Marketing Management 3 hrs
BA 335 Business Management 3 hrs
BA 341 Business Law 3 hrs
BA 456 World Business 3 hrs

General Business Sequence Major

Required courses:

ACC 201 Principles of Accounting 3 hrs
ACC 202 Principles of Accounting or 3 hrs
BOE 209 Secretarial Applications of Accounting 4 hrs
ECO 260 Principles of Economics 3 hrs
ECO 261 Principles of Economics 3 hrs
BOE 117 Typewriting 3 hrs
BOE 118 Typewriting 3 hrs
BOE 219 Office Machines 3 hrs

Suggested Electives:

ACC 301 Intermediate Accounting 5 hrs
BA 330 Marketing Management 3 hrs
BA 335 Business Management 3 hrs
BA 341 Business Law I 3 hrs
BA 345 Corporation Fianance 3 hrs
BA 456 World Business 3 hrs
BOE 395 Individual Work in Business and Office Education 1-3 hrs
BOE 445 Office Administration and Services 3 hrs
BOE 519 Records Management 3 hrs
BOE 556 Business Reports and Communication 3 hrs

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 201, 201, and 209)
   Data Processing (ACC 324, BA 551, CS 150, CS 250, CS 440)
   Economics (above 260, 261, and 291)
   English
   Marketing (BA 330, BA 332, BA 335, BA 431, BA 432, BA 434)
   Mathematics

Psychology (above 100, 104, and 210)
Sociology

*For Secretarial or General Business Majors.

Professional Education Sequence

1. Area of Concentration
   - EDV 210 Intro. to Voctional Education 3 hrs
   - EDP 202 Human Development and Learning 3 hrs
   - EDP 203 Psychology of Teaching 3 hrs
   - EDV 513 Teaching Typewriting and Clerical Practice 3 hrs
   - EDV 514 Teaching Gen. Business Subjects 3 hrs
   - EDV 393 Supervised Student Teaching 12 hrs
2. Secretarial Majors

All courses required in Area of Concentration plus the following recommended elective:

- EDV 511 Teaching Secretarial Subjects 3 hrs

3. General Business or Accounting Majors

All courses required in Area of Concentration **except** substitute EDV 512 Teaching Bookkeeping and Accounting (3 hrs) 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:

Health (3 credits) BIO 110, HPR 145 or NFS 101
English Composition (6 credits) ENG 101, 102, 105, or 203
Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.
Speech (3 credits) SP 181
Psychology (4 credits) 100

Professional Education Sequence: The following courses should be taken in sequence:

- EDV 210 Introduction to Vocational Education 3 hrs
- EDP 202 Human Development and Learning 4 hrs
- EDP 203 Psychology of Teaching 3 hrs
- EDV 516 Problems of the Coordinator in Vocational Education 3 hrs
- EDV 517 Determining Teaching Content in Distributive Education 3 hrs
- EDV 528 Technique of Teaching Distributive Education 3 hrs
- EDV 380 Student Teaching in Distributive Education 9 hrs

Education Electives: If needed, are usually chosen from the following:

- EDC 544 Utilization of Educational Media 3 hrs
- EDV 535 Principles and Philosophy of Vocational Education 3 hrs
- IND 525 Supervised Work Experience in Business or Industry 3 hrs
- EDP 548 Educational Psychology 3 hrs

Area of Concentration in Distributive Education (48 hours)

Required (34-35 hours)

- ACC 201 Principles of Accounting 3 hrs
- A-S 220 Graphic Design 2 hrs
  or
- HID 102 Design for Home Economics 2 hrs
- BA 330 Marketing Managment 3 hrs
- BA 335 Business Management 3 hrs
- BA 340 Legal Environment of Business 3 hrs
  or
- BA 341 Business Law I 3 hrs
- BA 432 Marketing Strategy and Planning 3 hrs
- BA 536 Applied Personnel Management 3 hrs
- ECO 260 Principles of Economics 3 hrs
- ECO 261 Principles of Economics 3 hrs
- JOU 203 Principles of News Writing 3 hrs
- SP 183 Parliamentary Usage 2 hrs

Electives (13-14 hours) chosen from:

- ACC 202 Principles of Accounting 3 hrs
- BA 336 Industrial Relations 3 hrs
- BA 340 Legal Environment of Business* 3 hrs
- BA 341 Business Law I* 3 hrs
- BA 345 Corporation Finance 3 hrs
- BA 351 Introduction to Business Data Processing 3 hrs
- BA 431 Contemporary Marketing Problems 3 hrs
- BA 434 Research in Marketing 3 hrs
- BA 435 Analysis of Organizational Behavior 3 hrs
- BA 456 World Business 3 hrs
- ECO 465 Comparative Economic Systems 3 hrs
- ECO 477 Labor Economics 3 hrs
- SOC 493 Social Determinants of Economics Behavior 3 hrs
- TC 422 Economics of Clothing 3 hrs
- JOU 561 Newspaper and Magazine Advertising 3 hrs

*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.

VOCATIONAL—INDUSTRIAL AND TECHNICAL TEACHER 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

Health (3 credits(BIO 110, HPR 145, or NFS 101
English Composition (6 credits) ENG 101, 102, 105, or 203
Communication and Humanities (3 credits) from ENG, COM, HUM, JOU, PHI, REL, SP, TA. If Area IV substituted for Area V, three credits must be literature.

Speech (3 credits) SP 181
Psychology (4 credits) PSY 100
PSY 540 Introduction to Industrial Psychology (3 credits)

Professional Education Requirements 29 hrs

EDV 109 Instructional Materials in Industrial Education	3 hrs
EDV 110 Principles of Industrial Teaching	3 hrs
EDP 202 Human Development and Learning	3 hrs
EDP 203 The Psychology of Teaching	3 hrs
EDF 301 Education in American Culture	3 hrs
EDV 224 Techniques of Teaching Industrial Education or	3 hrs
EDV 518 Methods in Industrial Education	3 hrs
EDV 352 Student Teaching for Industrial and Educational Training Directors	8 hrs

Academic Area Requirements

Area of Concentration

IND 222 Occupational Internship for Industrial Teachers	9 hrs
IND 226 Basic Competencies in Industrial Occupations	9 hrs
IND 228 Advanced Competencies in Industrial Occupations	9 hrs
IND 525 Supervised Work Experience in Business and Industry	9 hrs
Courses related to technical specialty	12 hrs



ENGINEERING

James E. Funk, Ph.D., is Dean of the College of Engineering. Robert G. Grieves, Ph.D., is Associate Dean for Graduate Studies. Thurlow R. Robe, Ph.D., is Associate Dean of Academic Programs. David K. Blythe, M.S., is Associate Dean of Continuing Education and Extension. Warren W. Walton, M.S., is Assistant Dean for Undergraduate Studies.

The College of Engineering offers programs leading to the Bachelor of Science degree and graduate degrees in Departments of Agricultural, Chemical, Civil, Electrical, Mechanical, Metallurgical Engineering and Materials Science, Mining Engineering and graduate degrees in the Department of Engineering Mechanics. Graduate training in biomedical engineering is also offered through the Colleges of Engineering and Medicine. Programs leading to the Associate in Applied Science degree are offered by the University's Community College System. These two-year programs are offered in civil engineering technology, mechanical engineering technology and electrical-electronics engineering technology on the main University campus at Lexington through the Lexington Technical Institute.

Resting upon the conviction that creative accomplishment in the career of an engineer will most often be derived from an education that stresses major ideas and fundamental concepts of engineering rather than specific technologies, the academic programs in engineering provide for wide experience in the mathematical, physical and engineering sciences blended with the social sciences and humanities in such a way that makes it possible for you to obtain 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 6,000 degrees have been awarded in the various fields of engineering. There are among these alumni of the College of Engineering those who have distinguished themselves in the major fields of industry, government and education.

Concern for the individual is a most important feature of education in the College of Engineering. Close faculty-student relationships are necessarily a meaningful part of the educational process. The faculty, in addition to their duties related to instruction and research, serve as advisers to the student in the preparation of the academic program best matched to the student's needs and intellectual capabilities.

Admission

Currently, students who meet the admission requirements of the University may enroll and study in the College of Engineering simply by indicating one of the major areas of engineering as his choice of major. However, the College of Engineering faculty has proposed a new admission policy which would require earlier deadlines for application and possibly additional criteria for admission. Please check with the College of Engineering or with the Admissions Office about these changes, which have not been officially approved by the University Senate at the time of printing.

You are encouraged to study the curriculum of the area of your choice. It is particularly important that those who plan to transfer to the College with advance standing carefully study their chosen curriculum to determine those courses acceptable as meeting degree requirements. You should ask your school to assign you to a pre-engineering adviser knowledgeable in your area of engineering requirements. Most schools have faculty members so designated. You are encouraged to contact the College of Engineering directly if you have questions which cannot be answered by your pre-engineering adviser.

Regular Program of Continuous Study

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 non-degree courses increases. This is particularly true of the transfer student who attends an institution requiring basic R.O.T.C., 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 twelve or more credits of work which is approximately four-fifths of an average semester's load. For other than the exceptional student, this will add an additional semester to the time required for the degree. Any of these times may be shortened by attending summer sessions, provided the desired courses are offered.

Combined Degree Program

The College of Engineering has formally initiated 3-2 combination Liberal Arts-Engineering programs with six academic institutions throughout the State. Joint programs are presently being offered with Eastern Kentucky University, Cumberland College, Georgetown College, Kentucky State University, Thomas More College 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 with whom they originally

enrolled and the other, a bachelor of science in engineering, from the University of Kentucky.

Co-operative Program of Work-Study

The College offers a program of co-operative education for those who wish to participate in such a program. This plan allows the student to work for a selected company for a maximum of two semesters in addition to the summers, generally in his or her sophomore and junior years. It will extend his or her time in college by one year beyond that required for the regular student. 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 offerings of the selected department.

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 non-credit 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 Engineering Council for Professional Development. 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 to him through technical electives, some of which are listed following the degree requirements of each department. This is designed to allow him to apply the fundamentals of a particular department in an area of special interest to him during his senior year.

Students interested in Mining Engineering should note that this is now a program leading to the degree of Bachelor of Science in Mining Engineering. It will still be administered through the Department of Civil Engineering, and a complete outline of the degree requirements is given in the CE Department section of this publication.

A student in any department interested in biomedical engineering may make special arrangements with his 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, and it is an interdisciplinary program in The Graduate School.

The Department of Chemical Engineering has approved an optional program in pre-medicine. 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 pre-calculus math or PHY 211.

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. See Academic Program Section.
2. Complete the following graduation requirements.
3. Complete the required curriculum for the engineering area of his choice of major.

Graduation Requirements

To earn a Bachelor of Science from the College of Engineering, a student must complete a minimum of 128 credit hours (exclusive of those earned in freshman college algebra, freshman college trigonometry, physical education and Basic Reserve Officer Training courses) with a cumulative grade-point standing of not less than 2.0.

Students seeking the degree of Bachelor of Science in Chemical Engineering also must earn a minimum cumulative standing of 2.0 in the following group of courses: CHE 200, CME 220, CME 412, CME 421, CME 422, CME 430, CME 462, CME 550, and CME 570.

Students seeking the degree of Bachelor of Science in Electrical Engineering also must earn a minimum cumulative standing of 2.0 in the group of courses that are shown as electrical engineering core courses offered by that department.

Students seeking the degree of Bachelor of Science in either Civil Engineering or Mining Engineering also must earn a grade of C or better in each civil engineering or mining engineering course to be credited toward satisfying the minimum degree requirements of either of these programs.

The student who expects to graduate from the College of Engineering must meet the Engineer's Council for Profes-

sional Development (ECPD) requirements of at least 18 credit hours taken in humanistic-social studies.

The engineering student, in meeting the technical requirements of the department in which he/she 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. Three more General Studies Areas must be completed. Courses which fulfill the General Studies Areas are outlined in the Engineering Bulletin and the UK Bulletin.

Courses listed in Areas IV through VIII meet the ECPD definition of humanistic-social studies. 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 complete. The student who wishes to elect courses in Area III, Biological Sciences, may do so. However, those courses cannot be used to meet degree requirements unless they are specified in the particular curriculum, as is shown in Agricultural Engineering, or unless they are used as supportive electives.

Note that the foreign language requirement may be met by completing the fourth semester in one language. Freshman foreign language courses will not meet either Area IV or the ECPD requirements.

AGRICULTURAL ENGINEERING

The curriculum in agricultural engineering is administered jointly by the College of Engineering and the College of Agriculture. The course descriptions are listed under agriculture.

Work in agricultural engineering depends upon knowledge of both engineering and biological sciences. Agricultural engineers apply the principles of engineering science to agricultural problems, such as the design of controlled environment farm structures, soil and water management systems and new, more effective ways to use fuel and power.

Degree Requirements

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

Freshman Year	First Semester	
ENG 101, 102, or 105	English Composition	3 hrs
MA 113	Calculus I	4 hrs
CHE 110	General College Chemistry I	3 hrs
AEN 100	Surveying	1 hr
ME 105	Basic Engineering Graphics	2 hrs
General Studies*		3 hrs
	Second Semester	
MA 114	Calculus II	4 hrs
CHE 112	General College Chemistry II	3 hrs
PHY 231	General University Physics	3 hrs
PHY 241	General University Physics Lab	2 hrs
CS 221	First Course in Computer Science for Engineers	3 hrs
General Studies*		3 hrs
Sophomore Year	First Semester	
MA 213	Calculus III	4 hrs
PHY 232	General University Physics	3 hrs
PHY 242	General University Physics Lab	2 hrs
EM 221	Statics	3 hrs
AEN 200	Agricultural Engineering Problems	1 hr
ENG 203	Writing for Business and Industry (preferred over ENG 102)	3 hrs
	Second Semester	
MA 214	Calculus IV	3 hrs
ME 220	Engineering Thermodynamics I	3 hrs
EM 302	Mechanics of Deformable Solids	3 hrs
EM 303	Deformable Solids Lab	1 hr
Biological Science Elective***		3 hrs
General Studies*		3 hrs
Junior Year	First Semester	
ME 330	Fluid Mechanics	3 hrs
EM 313	Dynamics	3 hrs
EE 305	Electrical Circuits and Electronics or	
EE 306	Electrical Circuits and Machinery	3 hrs
General Studies*		3 hrs
Technical Elective*****		3 hrs
	Second Semester	
AEN 417	Agricultural Machinery	3 hrs
AEN 437	Soil and Water Conservation Engineering	3 hrs
ME 325	Elements of Heat Transfer	3 hrs
General Studies*		3 hrs
Bio. Science Elective**		3 hrs
Supportive Elective****		3 hrs
Senior Year	First Semester	
AEN 007	The Engineering Profession	0 hrs
AEN 447	Processing & Food Engineering	3 hrs
AEN 427	Agricultural Structures	3 hrs
General Studies*		3 hrs
Elective (MA, STA, or CS)***		3 hrs
Technical Electives*****		4-6 hrs
	Second Semester	
Supportive Elective****		3 hrs
Technical Electives*****		12 hrs
Total		129-131 hrs

*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 approved list of Biological Science Electives.

***Select from approved list of Mathematics, Statistics or Computer Science Electives.

****Supportive Electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 221.

*****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 the student may choose to increase his 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 406, 503, AGR 366, 575, ASC 530, 534, CME 422, 462, CE 425, 550, 553, EE 305, 306, EM 513, 531, ME 321, 343, MET 201, BIO 276, 476.
2. Engineering Design and Analysis: AEN 505, 519, 525, 535, 548, 599, CE 351, 355, 380, 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 206, 366, BIO 103, 104, 106, 108, 276, 476.

Mathematics, Statistics or Computer Science Electives: The listed courses are recommended, however, other courses will be considered, each for its individual merit. MA 262, CS/MA 421, MA/STA 432, MA 432, 462, 481, CS/STA/MA 482, STA 381.

CHEMICAL ENGINEERING

The student in chemical engineering learns the basic tools of mathematics, physics and chemistry and then enrolls in courses in chemical engineering fundamentals such as thermodynamics, mass transfer, and reactor design. Undergraduate options are available in energy engineering and environmental engineering. A program is also available fulfilling the pre-medical and pre-dental requirements while simultaneously fulfilling the B.S. requirements in chemical engineering.

Degree Requirements

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

Freshman Year	First Semester	
CME 001	The Engineering Profession	0 hrs
CHE 110	General College Chemistry I	3 hrs
ENG 101	Freshman Composition***	3 hrs
MA 113	Calculus I	4 hrs
	General Studies*	3 hrs
	General Studies*	3 hrs
	Second Semester	
CME 002	The Engineering Profession	0 hrs
CHE 112	General College Chemistry II	3 hrs
CHE 115	General Chemistry Lab	3 hrs
ENG 102	Advanced Freshman Composition***	3 hrs
MA 114	Calculus II	4 hrs
	General Studies*	3 hrs
Sophomore Year	First Semester	
CME 200	Process Principles	3 hrs
CHE 230	Organic Chemistry	3 hrs
MA 213	Calculus III	4 hrs
PHY 231	General University Physics	3 hrs
PHY 241	General University Physics Lab	2 hrs
	Second Semester	
CME 220	Engineering Thermodynamics	3 hrs
CHE 231	Organic Chemistry Lab	1 hr
CHE 232	Organic Chemistry	3 hrs
EM 221	Statics	3 hrs
MA 214	Calculus IV	3 hrs
PHY 232	General University Physics	3 hrs
Junior Year	First Semester	
CME 412	Staged Mass Transfer Processes	2 hrs
CME 462	Process Control	3 hrs
CHE 440	Physical Chemistry	3 hrs
CS 221	First Course in Computer Science for Engineers	2 hrs
ME 330	Fluid Mechanics	3 hrs
	Supportive Elective**	3 hrs
	Second Semester	
CME 006	The Engineering Profession	0 hrs
CME 422	Rate Mass Transfer Processes	3 hrs
CHE 441	Physical Chemistry Lab	2 hrs
ME 325	Elements of Heat Transfer	3 hrs
MET 201	Materials Science	3 hrs
	Supportive Elective**	3 hrs
	General Studies*	3 hrs
Senior Year	First Semester	
CME 007	The Engineering Profession	0 hrs
CME 430	Advanced Problems in Chemical Engineering	2 hrs
CME 431	Chemical Engineering Lab I	1 hr
CME 455	Chemical Engineering Process Design I	2 hrs
CME 550	Chemical Reactor Design	3 hrs
CME 570	Chemical Separation and Measurement for Chemical Engineers	3 hrs
	Elective (Mathematics)	3 hrs
	General Studies*	3 hrs
	Second Semester	
CME 008	The Engineering Profession	0 hrs
CME 432	Chemical Engineering Lab II	3 hrs
CME 456	Chemical Engineering Process Design II	2 hrs
EE 305	Electrical Circuits and Machinery	3 hrs
	Elective (CME)	3 hrs
	Supportive Elective**	3 hrs
	General Studies*	3 hrs

*Select from General Studies areas IV, V, VI, VII, VIII in consultation with academic adviser.

** Supportive Electives are any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

***The University English requirement can be satisfied in several ways—see General Catalog.

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 Problems
CME 515 Air Pollution Control
CME 520 Equilibrium Thermodynamics
CME 530 Transport I

CME 552 Polymeric Materials
CME 555 Advanced Chemical Engineering Process Design I
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 engineers.

Degree Requirements

In addition to satisfying the University General Studies requirements and the graduation requirements listed earlier, each student completes the following curriculum.

Freshman Year First Semester

CE 101 The Engineering Profession	1 hr
MA 113 Calculus I	4 hrs
ME 105 Basic Engineering Graphics	2 hrs
Chemistry*	3 hrs
English**	3 hrs
General Studies Elective***	3 hrs

Second Semester

CE 100 Plane Surveying	3 hrs
MA 114 Calculus II	4 hrs
PHY 231 General University Physics	3 hrs
PHY 241 General University Physics Lab	2 hrs
Chemistry*	3 hrs

Four-Week Intersession

CE 215 Route, Control, and Topographic Surveying	4 hrs

Sophomore Year First Semester

CS 221 Computer Science for Engineers	2 hrs
EM 221 Statics	3 hrs
MA 213 Calculus III	4 hrs
PHY 232 General University Physics	3 hrs
PHY 242 General University Physics Lab	2 hrs
English**	3 hrs

Second Semester

CE 206 Descriptive Geometry	2 hrs
EM 302 Mechanics of Deformable Solids	3 hrs
EM 303 Deformable Solids Lab	1 hr
MA 214 Calculus IV	3 hrs
ME 220 Engineering Thermodynamics I	3 hrs
MET 201 Materials Science	3 hrs
General Studies Elective***	3 hrs

Junior Year First Semester

CE 301 CE Materials I	2 hrs
CE 380 Structural Mechanics	3 hrs
EM 313 Dynamics	3 hrs
GLY 240 Elementary Geology for Engineers	4 hrs
ME 330 Fluid Mechanics	3 hrs
General Studies Elective***	3 hrs

Second Semester

CE 340 Transportation Engineering	3 hrs
CE 351 Hydraulic Applications and Experiments	2 hrs
CE 355 Water Qaulity Engineering	3 hrs
CE 425 Soil Mechanics	3 hrs
Math Elective****	3 hrs
Technical Elective†	3 hrs

Senior Year First Semester

Technical Elective†	3 hrs
Electrical Engineering Elective††	3 hrs
Supportive Elective†††	3 hrs
General Studies Elective***	6 hrs

Second Semester

CE 371 Seminar	1 hr
Design Elective††††	3 hrs
Supportive Elective†††	3 hrs
General Studies Elective***	3 hrs
Technical Elective†	6 hrs

*Either CHE 106 and CHE 108 or CHE 110 and CHE 112 in accord with the criteria established by Chemistry Department.

**The Department recommends that students who are required to complete two semesters of English take ENG 101, 102, or 105 and ENG 203. Students who elect to take two semesters of freshman English must complete both courses during their freshman year.

***Three areas from either General Studies areas IV, V, VI, VII, or VIII.

****The mathematics elective is to be chosen from the following: MA 262, 432, 433, 462, 481, STA 381, 421, 423, 482, CS/MA 416, CS/MA 421.

†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 pre-calculus math or PHY 211.

††††The engineering design elective is to be chosen from the following: CE 489, 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. (*Approved engineering design electives.)

CE 199 Topics in Civil Engineering
CE 305 Construction Planning and Management
CE 395 Independent Work in Civil Engineering
CE 485 Design of Timber Structures, Formwork and Falsework
CE 487 Steel Structures
CE 489 Design of Structures*
CE 492 Reinforced Concrete
CE 515 Advanced Surveying
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 Topic 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 451 Physical Properties of Rock
MIN 551 Rock Mechanics
MIN 562 Mine Design Project*
MIN 572 Advanced Coal Preparation
MIN 581 Mine Valuation
MIN 599 Topic in Mining Engineering

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, each student must have earned a grade of C or better in each civil engineering and mining engineering course to be credited toward satisfying the minimum degree requirements. Each student must complete the following curriculum:

Freshman Year First Semester

MA 113 Calculus I	4 hrs
ME 105 Basic Engineering Graphics	2 hrs
MIN 121 Elements of Mining	3 hrs
Chemistry*	3 hrs
English**	3 hrs

Second Semester

CE 100 Plane Surveying	3 hrs
MA 114 Calculus II	4 hrs
PHY 231 General University Physics	3 hrs
PHY 241 General University Physics Lab	2 hrs
Chemistry*	3 hrs

Four-Week Intersession

CE 215 Route, Control, and Topographic Surveying	4 hrs

Sophomore Year First Semester

CE 206 Descriptive Geometry	2 hrs
EM 221 Statics	3 hrs
ENG 203 Writing for Business and Industry**	3 hrs
MA 213 Calculus III	4 hrs
PHY 232 General University Physics	3 hrs
PHY 242 General University Physics Lab	2 hrs

Second Semester

EM 302 Mechanics of Deformable Solids	3 hrs
EM 303 Deformable Solids Lab	1 hr
GLY 240 Elementary Geology for Engineers	4 hrs
MA 214 Calculus IV	3 hrs
ME 220 Engineering Thermodynamics I	3 hrs
General Studies Elective***	3 hrs

Junior Year First Semester

CE 380 Structural Mechanics	3 hrs
CS 221 Computer Science for Engineers	2 hrs
ME 330 Fluid Mechanics	3 hrs
MIN 451 Physical Properties of Rock	2 hrs
General Studies Elective***	3 hrs
Math Elective†	3 hrs

Second Semester

CE 351 Hydraulic Applications and Experiments	2 hrs
CE 355 Water Quality Engineering	3 hrs
GLY 420 Structural Geology	3 hrs
MIN 332 Mine Plant Machinery	3 hrs
MIN 341 Mine Ventilation	3 hrs
General Studies Elective***	3 hrs

Senior Year First Semester

EE 306 Electrical Circuits/Machinery	3 hrs
MIN 322 Coal Preparation	3 hrs
MIN 551 Rock Mechanics	3 hrs
General Studies Elective***	3 hrs
Supportive Elective††	3 hrs
Technical Elective†††	3 hrs

Second Semester

MIN 371 Seminar	1 hr
MIN 562 Mine Design Project	3 hrs
General Studies Electives***	6 hrs
Supportive Elective††	3 hrs
Technical Elective†††	3 hrs

*Either CHE 106 and CHE 108 or CHE 110 and CHE 112 in accord with criteria established by Chemistry Department.

**The first semester English course is to be chosen from ENG 101, 102, or 105. ENG 203 is required regardless of whether University English requirements are otherwise satisfied.

***Three areas from among these General Studies areas, IV, V, VI, VII or VIII.

†The mathematics elective is to be chosen from the following: MA 262, 432, 433, 462, 481, STA 381, 421, 423, 482, CS/MA 421.

††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.

†††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 572 Advanced Coal Preparation
MIN 581 Mine Valuation
MIN 599 Topics in Mining Engineering
CE 301 Civil Engineering Materials I
CE 425 Soil Mechanics
CE 487 Steel Structures
EM 531 Advanced Strength of Materials
MET 201 Materials Science

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 information and communication theories, electronic devices, quantum electronic devices,

automation and computers 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, each student completes the following curriculum:

Freshman Year	First Semester	Hrs
EE 001	The Engineering Profession	0 hrs
MA 113	Calculus I	4 hrs
CHE 110	General College Chemistry I	3 hrs
ME 105	Basic Engineering Graphics	2 hrs
ENG 101, 102, or 105	Freshman Composition***	3 hrs
General Studies*		3 hrs
	Second Semester	
MA 114	Calculus II	4 hrs
CHE 112	General College Chemistry II	3 hrs
CHE 115	General Chemistry Laboratory	3 hrs
HPY 231	General University Physics	3 hrs
PHY 241	General University Physics Laboratory	2 hrs
Sophomore Year	First Semester	
CS 221	First Course in Computer Science for Engineers	2 hrs
MA 213	Calculus III	4 hrs
PHY 232	General University Physics	3 hrs
PHY 242	General University Physics Laboratory	2 hrs
EE 211	Circuits I	3 hrs
General Studies*		3 hrs
	Second Semester	
MA 214	Calculus IV	3 hrs
EM 221	Statics	3 hrs
EE 221	Circuits II	3 hrs
EE 222	Electric Engineering Laboratory I	2 hrs
ENG 203	Writing for Business and Industry (Preferred over ENG 102)****	3 hrs
General Studies*		3 hrs
Junior Year	First Semester	
EE 420	Engineering Analysis I	3 hrs
EE 461	Electronics Circuits I	3 hrs
EE 462	Electric Engineering Laboratory II	2 hrs
EE 467	Electric and Magnetic Fields	3 hrs
EM 313	Dynamics	3 hrs
MET 412	Electronic Properties of Materials	3 hrs
	Second Semester	
EE 415	Electromechanics I	3 hrs
EE 416	Electric Engineering Laboratory III	2 hrs
EE 480	Logical Design	3 hrs
EE 468	Fields and Waves	3 hrs
ME 220	Engineering Thermodynamics I	3 hrs
General Studies*		3 hrs
Senior Year	First Semester	
Technical Elective**		3 hrs
EE 471	Linear Feedback Control Systems	3 hrs
EE 403	Advanced EE Laboratory I	2 hrs
General Studies*		3 hrs
Supportive Elective***		3 hrs
Technical Elective**		3 hrs
	Second Semester	
EE 371	Seminar	1 hr
Technical Elective**		3 hrs
Technical Elective**		3 hrs
Technical Elective**		3 hrs
Supportive Elective***		3 hrs
General Studies*		3 hrs

*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 any University courses, excluding more elementary versions of required courses, such as pre-calculus math or PHY 211.

****If the student elects ENG 102 rather than ENG 203, he must take it in his freshman second semester.

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 Communications Systems
- EE 517 Advanced Electromechanics
- EE 520 Engineering Analysis II
- EE 528 Electromagnetic Radiation and Wave Propogation
- EE 537 Electric Power Transmission I
- EE 538 Electric Power Transmission II
- EE 560 Semiconductor Device Design
- EE 561 Solid State Engineering
- EE 562 Electronics Circuits II
- EE 563 Communications Circuits Design
- EE 564 Electronics Circuits III
- EE 567 Introduction to Lasers and Masers
- EE 571 Nonlinear and Sampled-Data Control Systems
- EE 581 Advanced Logical Design
- EE 584 Computer Aided Design
- EE 595 Independent Problems
- EE 599 Topics in Electrical Engineering

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 manufactured 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, each student completes the following curriculum:

Freshman Year	First Semester	
ME 001	The Engineering Profession	0 hrs
ME 105	Basic Engineering Graphics	2 hrs
CHE 110	General College Chemistry I	3 hrs
MA 113	Calculus I	4 hrs
ENG 101	Freshman Composition	3 hrs
	General Studies*	3 hrs
	Second Semester	
ME 002	The Engineering Profession	0 hrs
ME 151	Manufacturing Engineering	3 hrs
CHE 112	General College Chemistry II	3 hrs
CHE 115	General Chemistry Lab	3 hrs
MA 114	Calculus II	4 hrs
	General Studies	3 hrs
Sophomore Year	First Semester	
PHY 231	General University Physics	3 hrs
PHY 241	General University Physics Lab	2 hrs
MA 213	Calculus III	4 hrs
ECO 260	Principles of Economics	3 hrs
CS 221	First Course in Computer Science for Engineers	2 hrs
ENG 203	Writing for Business and Industry	3 hrs
	Second Semester	
ME 220	Engineering Thermodynamics I	3 hrs
PHY 232	General University Physics	3 hrs
PHY 242	General University Physics Lab	2 hrs
MA 214	Calculus IV	3 hrs
EM 221	Statics	3 hrs
	General Studies*	3 hrs
Junior Year	First Semester	
ME 321	Engineering Thermodynamics II	3 hrs
ME 330	Fluid Mechanics	3 hrs
EM 302	Mechanics of Deformable Solids	3 hrs
EM 313	Dynamics	3 hrs
MET 201	Materials Science	3 hrs
	Second Semester	
ME 310	Engineering Experimentation I	3 hrs
ME 344	Mechanical Design	3 hrs
EE 305	Electrical Circuits and Electronics	3 hrs
	Elective (Mathematics)**	3 hrs
	Technical Elective**	3 hrs
	General Studies*	3 hrs
Senior Year	First Semester	
ME 007	The Engineering Profession	0 hrs
ME 311	Engineering Experimentation II	3 hrs
ME 325	Elements of Heat Transfer	3 hrs
ME 343	Control Theory	3 hrs
ME 371	Seminar	1 hr
EE 306	Electrical Circuits and Machinery	3 hrs
	Technical Elective**	3 hrs
	Second Semester	
ME 008	The Engineering Profession	0 hrs
ME 312	Engineering Experimentation III	3 hrs
	Technical Elective**	3 hrs
	Supportive Elective	3 hrs
	Supportive Elective or General Studies*	3 hrs
	General Studies*	3 hrs

*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.

Technical Electives: Of the three technical electives provided for in the undergraduate program, students are required to select at least one from a list provided by the Department of Mechanical Engineering. 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 432, Methods of Applied Mathematics I; MA 462, Matrix Analysis; MA 481, Differential Equations; MA/CS 421, Elementary Numerical Methods; 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 non-metallic materials as well 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, each student completes the following curriculum:

Freshman Year	First Semester	
MET 001	The Engineering Profession	0 hrs
ENG 101	Freshman Composition*	3 hrs
MA 113	Calculus	4 hrs
CHE 110	General College Chemistry I	3 hrs
	General Studies**	3 hrs
	General Studies**	3 hrs
	Second Semester	
ENG 102	Freshman Composition*	3 hrs
MA 114	Calculus	4 hrs
CHE 112	General College Chemistry II	3 hrs
CHE 115	General Chemistry Lab	3 hrs
PHY 231	General University Physics	3 hrs
PHY 241	General University Physics Lab	2 hrs

Sophomore Year First Semester

MET 003 The Engineering Profession	0 hrs
MA 213 Calculus III	4 hrs
PHY 232 General University Physics	3 hrs
PHY 242 General University Physics Lab	2 hrs
ECO 260 Principles of Economics	3 hrs
ME 105 Basic Engineering Graphics	2 hrs
CS 221 First Course in Computer Science for Engineers	2 hrs

Second Semester

MA 214 Calculus IV	3 hrs
CME 220 Engineering Thermodynamics	3 hrs
ECO 261 Principles of Economics	3 hrs
CHE 236 Organic Chemistry	4 hrs
MET 201 Materials Science	3 hrs

Junior Year First Semester

MET 361 Structure and Properties of Alloys I	3 hrs
MET 302 MET Lab I	2 hrs
CHE 440 Physical Chemistry	3 hrs
EE 305 Electrical Circuits and Machinery	3 hrs
EM 221 Statics	3 hrs
General Studies**	3 hrs

Second Semester

MET 362 Structure and Properties of Alloys I	3 hrs
MET 442 Extractive Metallurgy	3 hrs
MET 303 MET Lab II	2 hrs
MET 371 Seminar	1 hr
EM 302 Mechanics of Deformable Solids	3 hrs
ME 330 Fluid Mechanics	3 hrs

Senior Year First Semester

MET 412 Electronic Properties of Materials	3 hrs
MET 304 MET Lab III	2 hrs
MET 535 Mechanical Metallurgy	3 hrs
Metallurgical Elective	3 hrs
Technical Elective	3 hrs
Supportive Elective***	3 hrs

Second Semester

MET 314 Metallurgical Analysis	2 hrs
MET 538 Deformation Processing	3 hrs
General Studies**	3 hrs
Metallurgical Elective	3 hrs
Technical Elective	3 hrs
Supportive Elective***	3 hrs

*The University English requirement can be satisfied in several ways.

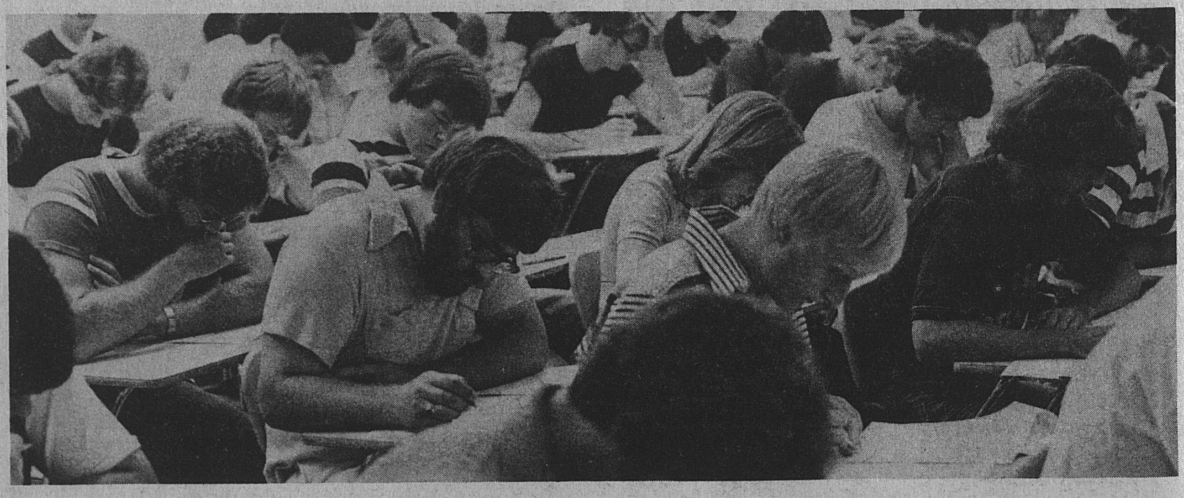
**Select from General Studies areas IV-VIII in consultation with your academic adviser.

***Supportive electives are 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 Metallurgical Engineering
- MET 421 Solidification and Casting
- MET 425 Ferrous Alloys Processing
- MET 426 Non-Ferrous Alloys Processing
- MET 443 Minerals Beneficiation
- MET 451 Metallurgical Thermodynamics
- MET 531 Powder Metallurgy
- MET 536 Ceramic Engineering
- MET 539 Nuclear Metallurgy
- MET 550 Corrosion
- MET 551 Advanced Chemical Metallurgy
- MET 552 Polymeric Materials
- MET 566 Crystallography and X-ray Metallography
- MET 553 Polymer Thermodynamics
- MET 541 Advanced Extractive Metallurgy
- MET 505 Viscoelasticity
- MET 534 Physical Structure of Polymers
- MET 506 Mechanics of Composite Materials
- MET 532 Composite Materials
- MET 599 Topics in Materials

Electives may be selected which will meet the requirements for pre-medicine, pre-business, pre-dentistry and many others. Eighteen semester credit hours of electives are available.



FINE ARTS

J. Robert Wills, Jr., Ph.D., is Dean of the College of Fine Arts.

The College of Fine Arts was established in September 1976 and includes the Department of Art, the Department of Theatre Arts, and the School of Music. College requirements currently are identical to those of the College of Arts and Sciences; however, a new Fine Arts curriculum has been proposed and final action on the proposal should become effective during the 1978-79 academic year. Students in Fine Arts are encouraged to check in the Dean's Office (206B Fine Arts Building) for current and accurate curriculum requirements and possibilities.

Requirements for the Bachelor of Arts Degree

The requirements for this degree currently are identical to those of the College of Arts and Sciences.* For a detailed statement see the section of this bulletin devoted to Bachelor of Arts degree requirements of the College of Arts and Sciences. In reference to the requirement that 90 hours of work must be in Arts and Sciences departments, courses in Art, Theatre Arts, and Music will be counted.

*Note, however, that curriculum changes have been proposed by the College of Fine Arts. Please check in the Dean's Office, 206B Fine Arts Building, for current and accurate curriculum requirements.

ART

The Department offers undergraduate majors in studio, art history, and art education. Intensive studio work is offered in drawing, painting, printmaking, ceramics, fibers, and sculpture. Special facilities are provided for the critical and historical study of the visual arts.

Degree Requirements*

*NOTE: Rather extensive curriculum changes have been submitted by the Department of Art and final action on theses proposals should become effective during the 1978-79 academic year. Students are encouraged to check in the Dean's Office, 206B Fine Arts Building, for current and accurate curriculum requirements.

In addition to satisfying the University General Studies requirements and the College requirements, each student completes one of the following programs:

It is recommended that the Art Major choose German, French or Italian to satisfy Area IV, Foreign Language Requirement.

Studio Major

Pre-major Requirements

1. Art 001-004
2. Two art history courses at the 100 or 200 level
3. Five art studio courses: A-S 102, A-S 103, A-S 180, A-S 215 and A-S 255.

Major Requirements:

An Art Studio Major may undertake any of several fields of study. Sculpture, painting, drawing, ceramic, fibers and printmaking are presently the major fields in the studio areas of the Department.

1. Art 005-008
2. Two art history courses at the 200 or 500 level
3. Eighteen hours in the area of major concentration
4. Six hours in a related studio area
5. Senior Exhibition

Field of Concentration Requirements

The field of concentration, including the major, must include a minimum of 40 semester hours at the 200 level or above, of which at least 24 hours must be in courses at the 300 level or above. At least 14 hours must be in courses related to the major outside the Department. Students are encouraged to consult with their advisers in selecting electives related to their major.

Art History Major

Pre-Major Requirements

1. Art 001-004
2. Two art history courses at the 100 or 200 level
3. Four art studio courses

Major Requirements

1. Art 005-008
2. Fifteen additional hours of art history or museum training
3. A-H 450, Art History Seminar
4. Satisfactory completion of a Senior Comprehensive Examination

Field of Concentration Requirements

The field of concentation, including the major, must include a minimum of 40 semester hours at the 200 level or above, of which at least 24 hours must be in courses at the 300 level or above. Students are encouraged to elect courses in anthropology, classics, history, philosophy, literature, the arts, and most particularly, languages, especially French and German and other languages relevant to special period or regional studies.

Art Education Major

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. Students seeking teacher certification in art may enroll through either the College of Fine Arts or the College of Education, but must fulfill the requirements for certification as established by the College of Education. All students seeking certification must apply for and be admitted to the Teacher Education Program during the semester in which the student is enrolled in EDP 202.

Pre-Major Requirements

1. Art 001-004 (Fine Arts student)
2. Art History—six semester hours at the 100 or 200 level
3. Art Studio—fourteen semester hours from the following required courses: A-S 102, A-S 103, A-S 180, A-S 215, A-S 255

Major Requirements

1. Art 005-007 (Fine Arts student)
2. Art History—three semester hours at the 200 level and three semester hours at the 500 level. Six hours at the 500 level may be substituted.
3. Art Studio—fifteen semester hours
   a) Nine semester hours as designated: A-S 310, A-S 320, and either A-S 321 or A-S 370
   b) Six semester hours total of art studio electives in two of three studio areas: painting/printmaking, sculpture/ceramics or textiles.
4. Art Education—eight semester hours of the following required courses: A-E 575, A-E 577, A-E 579.

Field of Concentration Requirements

The field of concentration, including the major, must include a minimum of 40 semester hours at the 200 level or above, of which at least 24 hours must be in courses at the 300 level or above. At least 14 hours must be in courses outside the Department, selected with the approval of the adviser from courses related to the major. Students are encouraged to elect courses in philosophy, architecture, theater arts, music, telecommunication, psychology, and enthropology. Six hours of education courses may be counted.

Certification Requirements for Major in Art Education

1. General Studies Areas—students who do not choose the listed component areas may need to take more than the minimum number of required hours in order to satisfy these requirements. Recommended areas: Area II, Area III, Area IV or V, Area VI, Area VII.
2. BIO 110 and PSY 100.
3. One speech course.
4. Communications and Humanities—18 semester hours.

Professional Education Requirements

Students must take EDF 301, EDP 202, and EDC 344, prior to the semester in which they take EDC 342 Student Teaching. EDC 325 is an additional requirement if 12-grade certification is to be obtained.

Graduate Program in Art Education

Students may presently work toward a Master of Arts Degree in Secondary Education with an emphasis in art through the College of Education. Candidates take course work in the professional education areas and course work in art studio and art history, criticism and aesthetics.

SCHOOL OF MUSIC

DEGREES

Three undergraduate degrees are offered by the School of Music: (1) the Bachelor of Arts with a concentration in music, (2) the Bachelor of Music in Music Education; (3) the Bachelor of Music with a concentration in voice, piano, organ, or other instrument. A brief description of each undergraduate degree is given below.

Admission to any of the above undergraduate programs, either as an entering freshman or as a transfer student, will be granted only after the applicant has completed an audition in his applied area and has taken the theory placement test.

The School of Music also offers courses leading to the Master of Music degree (in Applied Music, Composition, Music Theory, or Music Education), the Master of Arts degree, the Doctor of Musical Arts, and the Doctor of Philosophy in musicology. For further information on advanced degrees in music, see the Graduate School Bulletin or contact the Director, School of Music, Univerity of Kentucky, Lexington, Kentucky 40506.

SPECIAL FEES

Music Performance Courses (MUP)

$25 per semester for one course for one credit (or non-credit)

$50 per semester for one course for two credits (or non-credit)

$50 for two or more courses (credit or non-credit)

Bachelor of Arts Degree in Music

The Bachelor of Arts in Music degree includes music performance courses, ensembles, and a core of theory and music literature courses. With a great degree of flexibility, it includes about 30 elective hours that can be used either for additional work in music or for the pursuit of interests outside the field. It provides a sound preparation for entrance into most graduate schools and for study at the doctoral level.

NOTE: Curriculum changes have been proposed by the School of Music and the College of Fine Arts for the Bachelor of Arts in Music. These should become effective during the 1978-79 academic year. Students are encouraged to check in the Office of the Dean of the College of Fine Arts, 206B Fine Arts Building, for current and accurate curriculum requirements.

Graduation Requirement

To receive a Bachelor of Arts in Music, the 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. Courses in art, theatre arts, and music may be included toward the requirement of 90 hours of work from Arts and Sciences. The Bachelor of Arts degree shall include at least 40 credits in upper division courses. (Note:

courses completed to satisfy Basic Skills, Breadth of Study, and Depth of Study may be included in the 40 credits.)

Degree Requirements

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

(The School of Music recommends German, French, or Italian to fulfill language requirements.)

Admission to the program is granted only after completing the theory placement test and the audition in the student's applied area.

Pre-Major Requirements

1. Major musical instrument or voice performance course of two credits each semester — 8 hrs
2. Twenty-five hours of inter-related music theory and history courses: MUS 102, 103, 170, 171, 172, 173, 202, 203, 270, 271, 272, 273. — 25 hrs
3. Ensemble — 4 hrs
4. Piano: MUP 101 (Piano-1 credit) or MUP 150, etc. (Must pass the departmental proficiency examination to satisfy the piano requirement.) — as needed
5. The School of Music recommends Area II, sequence H; III; IV; V; VI of the General Studies requirements.

Requirements for A.B. — **46 hrs**

1. Continuation of major musical instrument or voice performance course above the sophomore level — 4 hrs
2. MUS 372 Musical Analysis — 2 hrs
3. Ensemble — 4 hrs
4. Other courses as directed to complete the following: — 37 hrs
   a. College of Arts and Sciences
      1) Basic Skills
      2) Breadth of Study
      3) Fourteen hours in nonfreshman, generically related courses outside the major program. (These 14 hours may include any courses completed under the Basic Skills or Breadth of Study provided it is in a related area and a nonfreshman course.)
   b. Music courses chosen from upper division courses appropriate to the area of specialization in music. Suggested areas: theory and composition, history, literature, independent work in music, vocal pedagogy and conducting.
5. Courses completed to satisfy Basic Skills, Breadth of Study and Depth of Study may be included in the 40 credits in upper division courses.

Bachelor of Music Degree in Music Education

The curriculum leading to a Bachelor of Music in Music Education is designed for the student who desires to teach music in the elementary and secondary school. The degree includes a core program in liberal arts, music theory, music history and literature, performance and education.

Graduation Requirements

To receive a Bachelor of Music in Music Education, the student must complete 129 credit hours and have at least a 2.0 grade-point standing. Following a pre-recital hearing, a half recital or the equivalent must be presented on the major instrument during the last semester of study of the instrument in partial fulfillment of the degree requirements. Admission to the program is granted only after completing the theory placement test and the audition in the student's applied area.

Degree Requirements

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

General Education requirements for Kentucky Teacher Certification will be partially fulfilled by the following five areas of the General Studies component—Area II, III (including BIO 110, Hygiene), V, VI, and VII. Psychology 100 is required for the purposes of certification. Students may substitute this course for three hours of the six-hour requirement in Area VII (approved by the College of Fine Arts and the College of Education).

Professional Education Courses* — **24 hrs**

EDP 202 Human Development and the Curriculum
EDF 301 Education in American Culture
EDC 325 Teaching in Elementary School
EDC 344 Principles and Techniques of Teaching in the Secondary School
EDC 377 Student Teaching in Music

*Students must also meet the requirements as set forth in this bulletin by the College of Education regarding the teacher education program and student teaching.

Music Courses—Vocal Emphasis (voice, piano or organ)

1. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 371, and 372 — 18 hrs
2. Music History: MUS 102, 103, 202, 203 — 11 hrs
3. Music Performance:
   Major instrument (2 credits)—voice, piano or organ — 12 hrs
   MUS 120 Foreign Language Diction (2 semesters) — 2 hrs
   Ensemble — 6 hrs
   Voice Majors: Class Instruction-piano (MUS 150, etc.) or private instruction (MUP 101, etc.) or — 4 hrs
   Keyboard Majors: MUC 176 Piano Ensemble, MUS 522 Piano Literature (All students earning a B.M. in Music Education must pass the departmental piano proficiency examination to satisfy the piano requirement.) — 4 hrs
4. Music Education Courses — 12 hrs
   MUS 262 Vocal Music Methods and Materials Seminar I
   MUS 264 Vocal Music Methods and Materials Seminar II
   MUS 360 General Music in the Elementary School
   MUS 362 Vocal Music Methods and Materials Seminar III

MUS 364 Vocal Music Methods and Materials Seminar IV
MUS 568 General Music in the Secondary School

Electives (except ensembles) 6 hrs

Music Courses—Instrumental Emphasis (band or orchestral instrument)

1. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 371, 372 18 hrs
2. Music History: MUS 102, 103, 202, 203 11 hrs
3. Music Performance Courses:
   Music instrument MUP (2 credits) 12 hrs
   Piano—MUC 150, 151, 152, 153 or private instruction (MUP 101, etc.) (All students earning a B.M. in Music Education must pass the departmental piano proficiency examination to satisfy the piano requirements.) 4 hrs
   Secondary instruments: MUC 158, 158, 161, 163 4 hrs
   Ensembles 4 hrs
4. Music Education Courses 10 hrs
   MUS 263 Instrumental Music Methods and Materials Seminar I
   MUS 265 Instrumental Music Methods and Materials Seminar II
   MUS 363 Instrumental Music Methods and Materials Seminar III
   MUS 365 Instrumental Music Methods and Materials Seminar IV
   MUS 568 General Music in the Secondary School
5. Electives (except ensembles) 4 hrs

Bachelor of Music in Applied Music with a Concentration in Voice, Piano Organ, or an Instrument

The Bachelor of Music degree is designed to prepare students for performance and/or teaching of music. Structured on the premise that the student enters college with above-average talent and with considerable performing experience, the program provides a heavier concentration of music courses than any other undergraduate music degree.

NOTE: Curriculum changes have been proposed by the School of Music and the College of Fine Arts for the B.M. in Applied Music. These should become effective during the 1978-79 academic year. Students are encouraged to check in the Office of the Dean of the College of Fine Arts, 206B Fine Arts Building, for current and accurate curriculum requirements.

Graduation Requirements

To earn a Bachelor of Music degree in Applied Music, the student must complete 128 credit hours and have at least a 2.0 grade-point standing. At the conclusion of the sophomore year every student in this program must perform before the applied music faculty for approval before continuing applied music at the upper division level. Following a pre-recital hearing, a full recital must be presented during the senior year in partial fulfillment of the degree requirements. Admission to the program is granted only after completing the theory placement test and the audition in the student's applied area.

Degree Requirements

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

Music Requirements of the Various Concentrations

Concentration in an instrument 92 hrs
1. Major Instrument Study (MUP)—three credits each semester 24 hrs
2. Piano (or piano class)—one credit: MUP 101* (or MUC 150 and 151); MUP 201* (or MUC 152 and 153) 4 hrs
3. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 371, 372, 572, 573 24 hrs
4. Conducting: MUS 358 2 hrs
5. Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506. 14 hrs
6. Music Ensemble: each semester (such as MUC 190, Marching Band, or MUC 191, Orchestra) 8 hrs
7. Electives 16 hrs

Concentration in Piano 92 hrs
1. Piano—three credits each semester: MUP 101*, 201*, 301*, 401* 24 hrs
2. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, 572, 573 22 hrs
3. Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506 14 hrs
4. Piano Literature: MUS 522 3 hrs
5. Music Ensemble: each semester (such as MUC 192, University Choristers) 8 hrs
6. Electives 21 hrs

Concentration in Organ 92 hrs
1. Organ—three credits each semester: MUP 103*, 203*, 303*, 403* 24 hrs
2. Piano—one credit hour: MUP 101*, 201* 4 hrs
3. Music Theory: MUS 170, 171, 172, 173, 270/271, 272, 273, 370, 372, 572, 573 22 hrs
4. Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506 14 hrs
5. Organ Literature: MUS 521 3 hrs
6. Music Ensemble: each semester (such as MUC 192, University Choristers) 8 hrs
7. Electives 17 hrs

Concentration in Voice 92 hrs
1. Voice—three credits each semester: MUP 102*, 202*, 302*, 402* 24 hrs
2. Piano—one credit course: MUP 101*, 201*, (or MUC 150, 151, 152, 153) 4 hrs
3. Music Theory: MUS 170, 171, 172, 173, 270, 271, 272, 273, 370, 372, 572, 573 22 hrs
4. Music History: MUS 102, 103, 202, 203. Plus one course elected from: MUS 500, 501, 502, 503, 504, 505, 506 14 hrs

5. Vocal Solo Literature: MUS 250 3 hrs
6. Conducting: MUS 358 2 hrs
7. Music Ensembles: each semester (such as MUC 192, University Choristers, or MUC 195, University Chorus) 8 hrs
8. Electives 15 hrs

*Repeated once.

THEATRE ARTS

The Department of Theatre Arts 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 the Bachelor of Arts in Theatre Arts

The following are the present requirements for a B.A. degree in Theatre Arts. Note, however, that new curriculum has been proposed which should become effective during the 1978-79 academic year. Students are encouraged to check in the Office of the Dean of the College of Fine Arts, 206B Fine Arts Building, for current and accurate curriculum requirements and possibilities.

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

Pre-Major Requirements

TA 101 Introduction to Theatre Arts 3 hrs
TA 102 Design for Theatre 3 hrs

Major Requirements

1. Twenty-four credit hours at or above the 200 level.
2. Must complete TA 395 (Independent study) in the junior or senior year and TA 387 (Seminar in Theatre) in the senior year.

Fourteen hours of nonfreshman, generically related courses chosen from anthropology, architecture, communications, art, music, philosophy, English, psychology, classics, history and languages.

Both curricular and co-curricular experiences are necessary for graduation. Students are expected to achieve basic proficiency in acting, directing, design, costuming, technical theatre, theatre history, current trends in theatre, and theatre theory and criticism. Each student in consultation with his/her adviser will decide how his/her proficiency will be measured—on the basis of courses completed, co-curricular activities, competency exams, practical demonstrations or another method. The relationship of these proficiencies to an over-all concept of theatre arts will be determined by a comprehensive exam during the senior year.

A prospectus of major courses, methods of determining proficiency, and courses in related departments will be prepared by the student and adviser upon declaring a theatre arts major. Approval of this prospectus by the department chairman is required for graduation.

Students wishing to meet Kentucky certification requirements should consult with their advisers to select courses accordingly.



GRADUATE SCHOOL

Wimberly C. Royster, Ph.D., is Dean of The Graduate School and Coordinator 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 IN MUSIC TEACHING
SPECIALIST IN EDUCATION
MASTER OF ARTS
MASTER OF PUBLIC ADMINISTRATION
MASTER OF CIVIL ENGINEERING
MASTER OF SCIENCE
MASTER OF SCIENCE IN ACCOUNTING
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN CLINICAL NUTRITION
MASTER OF SCIENCE IN HOME ECONOMICS
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN CHEMICAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN DENTISTRY
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN ENGINEERING MECHANICS
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN METALLURGICAL ENGINEERING
MASTER OF SCIENCE IN NUCLEAR ENGINEERING
MASTER OF SCIENCE IN RADIOLOGICAL HEALTH SPECIALTY
MASTER OF SCIENCE IN MEDICAL RADIATION DOSIMETRY
MASTER OF SCIENCE IN NURSING
MASTER OF SOCIAL WORK
MASTER OF ARTS IN EDUCATION
MASTER OF SCIENCE IN EDUCATION
MASTER OF BUSINESS ADMINISTRATION
MASTER OF MUSIC
MASTER OF FINE ARTS

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, Crop Science, Diplomacy and International Commerce, 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, Physics, 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 11 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 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 Admissions Office two official transcripts of all college courses and a written application. Consult The Graduate School Bulletin for application deadlines. Application blanks may be obtained from the Graduate Admissions Office, Room 304, 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 average of at least 2.5 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 you are to be an applicant for a degree. The total load in this case 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. The incidental fee is that of a full-time student in the school in which more than half of the work is taken. In cases where the load is evenly divided between the schools, the larger fee is assessed. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. Students desiring to enroll in The Graduate School under these conditions must fill out in duplicate a petition listing the course or courses to be taken in order to complete their undergraduate requirements. The petition must be approved by both deans concerned.

Unclassified 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 an unclassified graduate student.

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 12 hours of credit with a grade A or B earned in the unclassified 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.

Applications for admission to The Graduate School as an unclassified 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.

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.

FEES

Registration fees per semester are $313 for residents of Kentucky. $878 for non-residents. Part-time graduate students who are legal residents of the state pay $35 per semester credit; non-residents pay $98 per semester hour.

Detailed requirements for the various masters' degrees may be found in The Graduate School Bulletin.

FELLOWSHIPS AND ASSISTANTSHIPS

The Graduate School is responsible for the awarding and administration of the various University of Kentucky Non-service Fellowships, as well as a number of other non-service fellowship awards open to graduate students. A fellowship preference may be indicated by writing the name of the preferred award across the top of the first page of the application form. The application deadline for fellowships, unless otherwise stated, is February 1. Additional information and the application form may be obtained from the Graduate School Office.

Most departments employ part-time teaching and research assistants at stipends which vary with the departments. Information concerning assistantships may be obtained from the various departments.

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.

Home Economics is concerned with a dual approach to its subject areas that evolve around the individual, the family, and the community. Its programs are arranged to meet general or professional requirements that encompass:

- Family relationships, human development, and early childhood education.
- Consumerism and other economic dimensions of personal and family living.
- Managerial behavior contributing to goal achievements, value awareness, and effective resource utilization.
- The selection, preservation, preparation, and use of food to meet nutritional needs for private and public consumption.
- Physiological requirements to meet normal and clinical nutrient needs for health.
- Sociological, psychological and economic aspects of design, selection, construction, care and merchandising of clothing.
- Textiles for clothing and other purposes in private and public institutions.
- Restricted shelter, public or work space, and the interior components required for utilization.
- Analysis of art, design, and function factors as required for meaningful life style.

Admission and Advising

Students admitted to the University who indicate Home Economics (including Home Economics Education) as their major field of study are assigned an academic adviser from the departmental faculty. The faculty adviser helps the student in defining educational goals and planning a course of study to attain the goals.

The Curriculum

To become a professional in the field of home economics, the student takes courses during the freshman and sophomore years which provide a broad educational background and professional support for the chosen subject matter area of home economics. Courses taken during the junior and senior years provide specialization in science, business, or the professions. These courses also provide for subject matter competence in the six areas of home economics: housing and interior design; human development and family relations; management and family economics, nutrition and food science; textiles, clothing and merchandising; and home economics education.

REQUIREMENTS AND DEGREES OFFERED

Three undergraduate degrees are offered: Bachelor of Science in Home Economics, Bachelor of Science in Dietetics and Bachelor of Arts in Housing and Interior Design. Requirements differ for each of these.

All students are required to earn 128 semester credits and 256 grade points (i.e., a C average) to receive a degree.

Students in Vocational Home Economics Education must complete 130 semester credits.

For the Bachelor of Science in Home Economics, 42 credits must be in Home Economics courses with the exception of Home Economics Education majors who must earn 48 credits in Home Economics courses. Changes in a curriculum to meet specific needs may be made if approved in accordance with the rules of the University Senate.

BACHELOR OF SCIENCE IN HOME ECONOMICS

University Requirements:

1. English Composition 6 hrs
2. Five areas of study chosen from the eight General Studies Components. (See Department recommendations below. These recommendations are based on certification requirements within the specific department.)

College Requirements

Physical Education	2 hrs
Natural Sciences (3 hours in Chemistry or Physics; and 3 hours in Biological Sciences)	6 hrs
Humanities	3 hrs
Social and Behavioral Sciences (3 hours each in Psychology, Sociology and Economics)	9 hrs
Mathematics MA 122 or equivalent with ACT score of 50 percentile (National Norm) or below	
Communications (To be selected from Speech 181, English 203, 205, Journalism 203, or other approved courses)	6 hrs
HED 101 Basic Design for Home Economics	3 hrs
NFS 101 Food and Nutrition for Man	3 hrs
HET 101 Introduction to Textiles, Clothing, and Merchandising	3 hrs
HET 220 Textiles I (for Vocational Education majors)	3 hrs
FHR 153 Introduction to Family Development	3 hrs
FHR 101 Management and Decision Making in the Family	3 hrs

FAMILY STUDIES: HUMAN DEVELOPMENT AND RESOURCE MANAGEMENT

The Department of Family Studies: Human Development and Resource Management includes the following subject matter areas: (1) The Early Childhood Laboratory and Certification Program, (2) Human Development and Family Development, and (3) Family Economics and Resource Management. A total of seven options (two professional and five science) are offered. Consult the Department for specialty support electives and recommendations.

Degree Requirements

In addition to satisfying the University General Studies requirements and the College requirements, each student follows a course of study based on one of the following options.

Professions Options

Early Childhood Option (N-3 Certification)

1. Special Studies Requirements: 19 credits to include PSY 100; NFS 101; ENG 101, 102, or 105; COM 101; ENG 414 (recommended).
2. Professional Requirements: 54 credits to include FHR 153; EDP 202; FHR 255; EDF 301; EDC 327; FHR 350; FHR 554; EDS 338; EDC 329; EDC 337; FHR 411; EDS 250; EDS 510; FHR 507; EDC 339.
3. Academic Requirements: 18 credits to include A-E 270; MUS 260; LS 510; MA 201; MA 202; HPR 360.
4. Six credits in social sciences are required as electives.

Consumer Education

1. Major Requirements:

Vocational Home Economics: FHR 255, 350, 363, 364; HET 130; NFS 204, 206.

Family Studies (Resource Management): FHR 362, 363, 364, 368, 462, electives

2. Professional Support:

Vocational Home Economics: EDP 202, 203; EDF 301; EDV 462, 587, 362

Family Studies (Resource Management): BA 330, 332, 341, or FHR 563

Science Options

Human Development: The life cycle including pre-natal, infant, child, adolescent, young adulthood, the middle years, and the later years.

1. Major Requirements (24 hours): FHR 253, 255, 357, 390, 551, 553, 557
2. Specialty Support: 15 hours
3. Required Professional Electives (6 hours): A minimum of two courses (3 hours each) in two different subject matter areas within the College of Home Economics but outside the specific area of specialization. (Must be at the 200 level or above.)

Family Studies: The family life cycle including relationship and marital dynamics, lifestyles, historical and societal perspectives.

1. Major Electives (24 hours): FHR 253, 255, 301, 353, 357, 360, 390, 462, 532, 551, 553, 554, 561, 557, 573, 595
2. Specialty Support: 15 hours
3. Required Professional Electives (6 hours): A minimum of two courses (3 hours each) in two different subject matter areas within the College of Home Economics but outside the specific area of specialization. (Must be at the 200 level or above.)

Community Services (Developmental): Subject areas include human development and resource management as these relate to the delivery systems of personal, family, and community services.

1. Major Requirements (24 hours): FHR 253, 255, 353, 360, 390, 554, 573, 599
2. Major Electives: 9 hours
3. Specialty Support: 12 hours
4. Required Professional Electives (6 hours): A minimum of two courses (3 hours each) in two different subject matter areas within the College of Home Economics but outside the specific area of specialization. (Must be at the 200 level or above.)

Community Services (Management):

1. Major Requirements (18 hours): FHR 362, 363, 364, 368, 462, 596
2. Specialty Support: 24 hours
3. Required Professional Electives (6 hours): A minimum of two courses (3 hours each) in two different subject matter areas within the College of Home Economics but outside the specific area of specialization. (Must be at the 200 level or above.)

Home Economics in Business:

1. Major Requirements (19 hours): FHR 301, 362, 363, 364, 368, 462
2. Specialty Support:
   a. General: 30 hours
   b. Communications: 30 hours
   c. Administration: 30 hours
3. Required Professional Electives (6 hours): A minimum of two courses (3 hours each) in two different subject matter areas within the College of Home Economics but outside the specific area of specialization. (Must be at the 200 level or above.)

HUMAN ENVIRONMENT: DESIGN AND TEXTILES

Area I: Bachelor of Arts in Housing and Interior Design

The Department provides a professional 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 socio-economic 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

University Requirements: General Studies Requirements, 30-36 hours. The University requirements for English composition and the General Studies must be satisfied. 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 in the

University Catalogue. 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 of the student's choice.

College Requirements: Home Economics, 9 hours total.
2 semesters of basic textiles
1 semester of the student's choice other than HET, HED

Department Requirements: Professional Specialization, 71 hours total.

1. Lower Division Requirements: 16 hours
   2 semesters of architectural drafting (i.e., ACH 140, 144)
   1 semester of free hand drawing (i.e., ACH 141)
   1 semester of 2-dimensional basic design (HED 101)
   1 semester of 3-dimensional basic design (HED 102)
   1 semester of professional survey, Interior Design (HED 100)
2. Pre-Major Requirements: 9 hours
   HED 203, 204, 206
3. Upper Division Requirements: 27 hours
   HED 305, 306, 507, 508, 401, 402, 405, 528, 536
4. Professional Support: 19 hours
   Chosen by the student as approved by the academic adviser: two semesters of history of architecture and at least one course from each of the following areas: art, architecture, horticulture, business administration. These are above and beyond the Lower Division Requirements.
5. **Electives:** 12 hours total.

Unrestricted electives to be selected by the student from any area of the University to compliment and expand the requirements of the College and the Department.

Area II: Textiles

The student in this department studies trends in clothing and textile needs, learns the newest technical developments in clothing and textiles, acquires the fundamental skills of clothing construction, and gets experience in merchandising. The Department provides opportunities for research and statewide leadership in Extension Home Economics programs.

Degree Requirements

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

Departmental Requirements

Professional Support 18 hours

ECO 260, 261; ACC 201; BA 201; BA 330; SOC three credits; PS three credits; CHE with Lab. (It is recommended that the student take Areas VII and VIII to meet the above requirements.)

Subject Matter in HET 37 hrs

Twenty-two (22) Credit Hours Required

HET 220	Textiles I	3 hrs
HET 221	Textiles I; Laboratory	1 hr
HET 130	Principles of Clothing Construction and Selection (Special Exam available)	3 hrs
HET 230	Intermediate Apparel Construction	3 hrs
HET 310	Fashion Analysis	3 hrs
HET 337	Clothing Awareness and Selection	3 hrs
HET 412	Merchandising I—Promotion	3 hrs
HET 414	Merchandising II—Buying Procedures	3 hrs

Six Credit Hours Required to be Selected From:

HET 320	Textiles for Interiors	3 hrs
HET 335	Draping	3 hrs
HET 336	Flat Pattern Design	3 hrs
HET 430	Tailoring	3 hrs
HET 439	Children and Their Clothing	3 hrs

Nine Credit Hours Required to be Selected From:

HET 520	Textiles II	3 hrs
HET 522	History of Textiles	3 hrs
HET 526	Decorative Textiles	2 hrs
HET 533	History of Costume	3 hrs
HET 537	Socio-Psychological and Economic Aspects of Apparel	3 hrs
HET 540	Textiles and Design Study Tour	1-3 hrs
HET 590	Merchandising III—Internship	5 hrs
HET 592	Special Problems in Clothing and Costume Design	1-3 hrs
HET 597	Special Problems in Textiles	1-3 hrs

Home Economics Electives
To include at least one course at a 200 level or above in the other two departments.

VOCATIONAL HOME ECONOMICS EDUCATION

Admission to the Teacher Education Programs

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) Submit 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 General Studies requirements and the College requirements, each student must earn 130 semester credits and complete the following:

Departmental Requirements

Lower Division:
Three hours in art, to be selected from AH 210, 220, 230, 240
Three hours in literature, to be selected from ENG 261, 262
Three hours in sociology, to be selected from SOC 101, 152, 220
Three hours in economics to be selected from ECO 260, 261
Three hours in SP 181 and three hours in English, to be selected from ENG 203, 205, JOU 203
Four hours in psychology (Psychology 100)
Three hours in biological science, to be selected from BIO 101, 103, or 104, BIO 108, PGY 206
Three to five hours in chemistry

Major Requirements
1. TC 130, TC 220, MFE 364, HF 255, 350, 358, NFS 204, HID 204, 303
2. Professional Support—EDP 202, 203, EDV 362, 586, 588
3. Electives 9 hrs

To include three hours each in TCM, NFS, and HID.

Electives—All electives are subject to the approval of the student's adviser.

NUTRITION AND FOOD SCIENCE

Teaching, research, and extension are the concerns of this Department. Sound professional preparation is offered in the various aspects of nutrition and food science. The professional specialization in dietetics meets the minimum academic requirements for American Dietetic Association (ADA) membership.

Graduation Requirements

To receive a Bachelor of Science degree in Home Economics, or a Bachelor of Science in Dietetics a student must complete 128 credit hours and have a 2.0 grade-point standing.

University Requirements

Students must complete English and General Studies requirements. All specializations in this Department require courses in general studies Areas II, III, VII, and VIII.

College Requirements

Communications (6 hours from the following)
- SP 181—Basic Public Speaking
- ENG 203—Writing for Business and Industry
- ENG 205—Advanced Composition
- JOU 203—Principles of News Writing
- JOU 204—Writing for the Mass Media

Mathematics (ACT 50th percentile or below)
- MA 122—Finite Mathematics and its Applications or equivalent (Required for ADA certification)

Health, Physical Education and Recreation

General Studies Courses (may be included in University Requirements).
- Area II—Physical Sciences (CHE 106, 108 or 110, 112)
- Area III—Biological Sciences (BIO 104 and 108)
- One course (3 hrs) in each of the following:
  - Humanities, Sociology, Economics, and Psychology

Basic College Courses:
- FHR 153—Introduction to Family Development*
- FHR 101 Introduction to Management and Consumer and Family Economics
- HET 101—Introduction to Textiles, Clothing and Merchandising*
- HED 101—Visual Awareness I: Experiences in Two-dimensional Perception.*

*Not required for B.S. in Dietetics

Departmental Specializations

Options available in the Department are science, business, and professional dietetics. Specializations in science and business lead to a B.S. in Home Economics degree. Students interested in professional dietetics may choose curriculums leading to either the B.S. in Home Economics or the B.S. in Dietetics degree.

The science specialization is designed for students who have an interest in nutrition and food science as a fundamental science with goals toward nutrition and food science research or non-clinical teaching. In addition to the previously mentioned requirements, the following courses are required:

NFS 204, 212, 311, 312, 503, 505, 508, 512, 591, CHE 226, 236, ECO 260, PGY 206, PHY 211, ANT 121.

The business specialization is directed toward those interested in institutional and food service management, business communications, and restaurant and hotel management. Additional required courses are: NFS 204, 206, 212, 312, 342, 542, 518, 546, 594, ACC 201, ECO 261.

The dietetics specialization offers several options to students which fulfill the requirements established by the American Dietetic Association. These include: general, management, clinical, community, and the Coordinated Undergraduate Program in General Dietetics.

Students that prefer the degree in Home Economics will take three College of Home Economics courses: HED 101, FHR 101, AND HET 153. These courses are starred as elective in the basic courses listed for the first two years of the dietetics program.

All students who choose dietetics in either degree program take these basic courses: NFS 204, 206, 212, 312, 342, ECO 260, PGY 206, JOU 203, MA 122, EDP 548.

Note: See typical curriculum below.

Specialization requirements within dietetics are:

1. Management Option—NFS 340, 344, 542, 546, 548, BA 335, 336, STA 291.
2. Clinical Option—NFS 311, 503, 508, 512, 591, ANA 206, CHE 236, ANT 121, STA 291.
3. Community Option—NFS 311, 340, 503, 508, 514, 540, 546, 560, ANT 121, PSY 100, STA 291.
4. General Option—NFS 311, 340, 344, 505, 508, 512, 546, CHE 236, ANT 121.

(See typical curriculum for General Dietetics Option below.)

5. A Coordinated Undergraduate Program in General Dietetics (CUP) is also available, which combines both academic and clinical experiences and precludes the need for a dietetic internship or traineeship before ADA registry examination. Selections for this program are made by an NFS Faculty Committee by the end of the sophomore year. (See Coordinated Undergraduate Program below.)

Preparatory courses are similar for all options and include inorganic and organic chemistry, biology including microbiology, principles of sociology, psychology and economics, food preparation, nutrition, management theory and principles, and learning theory or educational methods.

Typical Curriculum for Specialization in Dietetics

Freshman Year

Semester 1	
CHE 106 or 110: General Chemistry I	4 hrs
ENG 101: Freshman Composition	3 hrs
BIO 104: Animal Biology	3 hrs
HED 101: Visual Awareness I	3 hrs
Semester 2	
CHE 108 or 112: General Chemistry II	3 hrs
CHE 115: General Chemistry Lab	3 hrs
ENG 102: Advanced Freshman Composition	3 hrs
BIO 108: Principles of Microbiology	3 hrs

BIO 109: Introductory Microbiology Lab	2 hrs
Health, Physical Education and Recreation	1 hr

Sophomore Year

Semester 1	
PSY 100 Introduction to Psychology	4 hrs
CHE 230 or 236: Organic Chemistry	3-4
NFS 204: Principles of Food Preparation	3 hrs
SOC 101: Introductory Sociology	3 hrs
HPR: Health, P.E. and Recreation	1 hr
FHR 101 Management and Decision Making	3 hrs
HF 153: Introduction to Family Development*	3 hrs
	20-21
Semester 2	
SP 181 : ENG 203, ENG 205, JOU 201 or JOU 203 (Communications)	3 hrs
NFS 311: Nutritional Biochemistry*	4 hrs
ECO 260: Principles of Economics	3 hrs
SOC 152: Modern Social Problems or SOC 220: The Community	3 hrs
NFS 206: Meal Planning and Service	3 hrs
PGY 206: Elementary Physiology	3 hrs

General Dietetics Option A

Junior Year

Semester 1	
NFS 311: Nutritional Biochemistry*	4 hrs
SP 181, ENG 203, ENG 205, JOU 201 or JOU 203 (Communications)	3 hrs
Humanities (Literature, Art or Music)	3 hrs
ACC 201: Principles of Accounting**	3 hrs
EDP 202: Human Development and Learning or EDP 548: Educational Psychology or CEX 501: Principles of Cooperative Extension	3 hrs
Elective	1-3 hrs
	17-19
Semester 2	
NFS 340: Institution Marketing	3 hrs
NFS 342: Institution Foods	3 hrs
NFS 312: Applied Nutrition	3 hrs
NFS 344: Food Service Accounting**	3 hrs
Electives	4-6 hrs
	16-18

*Course required only once.
**Choose one.

Senior Year

Semester 1	
NFS 503: Community Nutrition	3 hrs
NFS 508: Seminar in Nutrition	1 hr
Electives	12-15 hrs
	16-19
Semester 2	
NFS 505: Experimental Foods	3 hrs
NFS 512: Normal and Therapeutic Nutrition	5 hrs
NFS 546: Institution Organization and Management	3 hrs
Electives	5-8 hrs
	16-19

Coordinated Undergraduate Program

Junior Year

Semester 1	
NFS 801: Professional Dietetics 1: Orientation	1 hr
NFS 803: Nutrition and the Life Cycle	3 hrs
SP 181, ENG 203, ENG 205, JOU 201 or JOU 203 (Communications)	3 hrs
AHE 853: Medical Terminology	2 hrs
EDP 548: Educational Psychology	3 hrs
Elective	4 hrs
	16
Semester 2	
NFS 804: Food Service Systems I	7 hrs
NFS 806: Nutrition Education in the Community	5 hrs
NFS 505: Experimental Foods	3 hrs
SP 181, ENG 203, ENG 205, JOU 201 or JOU 203 (Communications)	3 hrs
	18

Senior Year

Semester 1	HRS
NFS 811: Nutrition and Diet Therapy	7 hrs
NFS 813: Food Service Systems II: Organizational and Control	6 hrs
Electives	3 hrs
	16
Semester 2	
NFS 814: Food Service Systems III: Personnel Management and Administration	6 hrs
NFS 816: Professional Dietetics II: Clinical Experiences	4 hrs
NFS 818: Professional Dietetics III: Evaluation of Clinical Experiences in Dietetics	1 hr
NFS 505: Experimental Foods	3 hrs
Electives	3 hrs
	17

HONORS PROGRAM

The Honors Program at the University of Kentucky serves an important function in the University's commitment to excellence in undergraduate education. It is an instructional and advisory program providing a special academic track for students with superior abilities.

Purpose

The purpose of the Honors Program is to provide a special academic track for students with superior abilities in order to assure that they receive the best education the institution is able to provide. The Honors Program does not entail extra credit hours. Honors students often move at a faster pace than ordinary students because they are especially gifted and because they have been sufficiently well trained to receive advanced placement.

Selection of Honors Students

Entering freshmen with superior abilities 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.

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 participation; and transfer students are invited to enter the program, through the middle of the junior year, provided they are willing and able to make a commitment to the Honors approach to education.

Any student in the University may apply for consideration by the selections committee. If the committee is convinced the program will best serve a student's academic endeavors, he is invited to participate.

Students are very seldom dismissed from the Honors Program for failure to maintain academic standards; instead, should such failure ensue, students are provided with counseling in hopes they can solve their problems. Graduation with Honors in the program, of course, means with high academic record, but students who do not attain academic distinction are permitted to continue participation so long as the program is able to serve their needs.

How to Apply

If you are interested in the Honors approach to education, believe you have superior abilities and are seriously interested in academic work, 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 to develop academic excellence. For example, they have very close advising from a member of the Honors staff and from an adviser appointed in each department. Lower division students in the program are often housed together in separate sections of the dormitories; however, no student is required to live in the Honors dormitories. Honors students are encouraged to make decisions for themselves in the light of the fullest information available to them and the best advice they can secure. Students in the program have many opportunities to meet and discuss problems with faculty members.

Perhaps even more important is the opportunity for dedicated students to meet with other students of similar interests. Honors Program students mingle in their classes, in their special study room, and at semi-social functions.

Rewards

The greatest reward an Honors student can earn is a sense of the importance of his or her own achievement. There are, however, other more tangible rewards to be gained from participation in the Honors Program. Among these are lasting friendships with other young persons of superior intellectual ability, graduate fellowships, assistantships, etc. At any given time about 90 percent of the graduates of the Honors Program enter professional or graduate schools, most of them with financial support. A considerable portion of each class is initiated into societies such as Phi Beta Kappa or Sigma Xi.

The Honors Curriculum

The academic development of superior students is served in the Honors Program in several separate and distinct ways.

1. The Honors colloquia: Six courses in history of ideas (HON 101, 102, 103, 201, 202, 203) and two pro-seminars, also in history of ideas but with the content varying from semester to semester (HON 301, 302). Also HON 300, an experimental course, usually divided into three one-hour credit segments each, taught by departmental faculty who contribute to Honors. Four of the six lower division colloquia are required of students who enter the program as freshmen. Students who enter the Honors Program after the freshman year will be required to take at least three colloquia, the courses to be decided by the Director.

2. Independent work: All Honors Program students are required to engage in an independent study project under the direction of a faculty member during the junior and/or senior year. The project may be undertaken for credit; the program is designed so that a student with a sufficiently valid research problem may be freed from other academic obligations for an entire semester, with the permission of the Director and his

departmental adviser. Students may use either HON 395 or departmental 395 courses to fulfill this obligation.

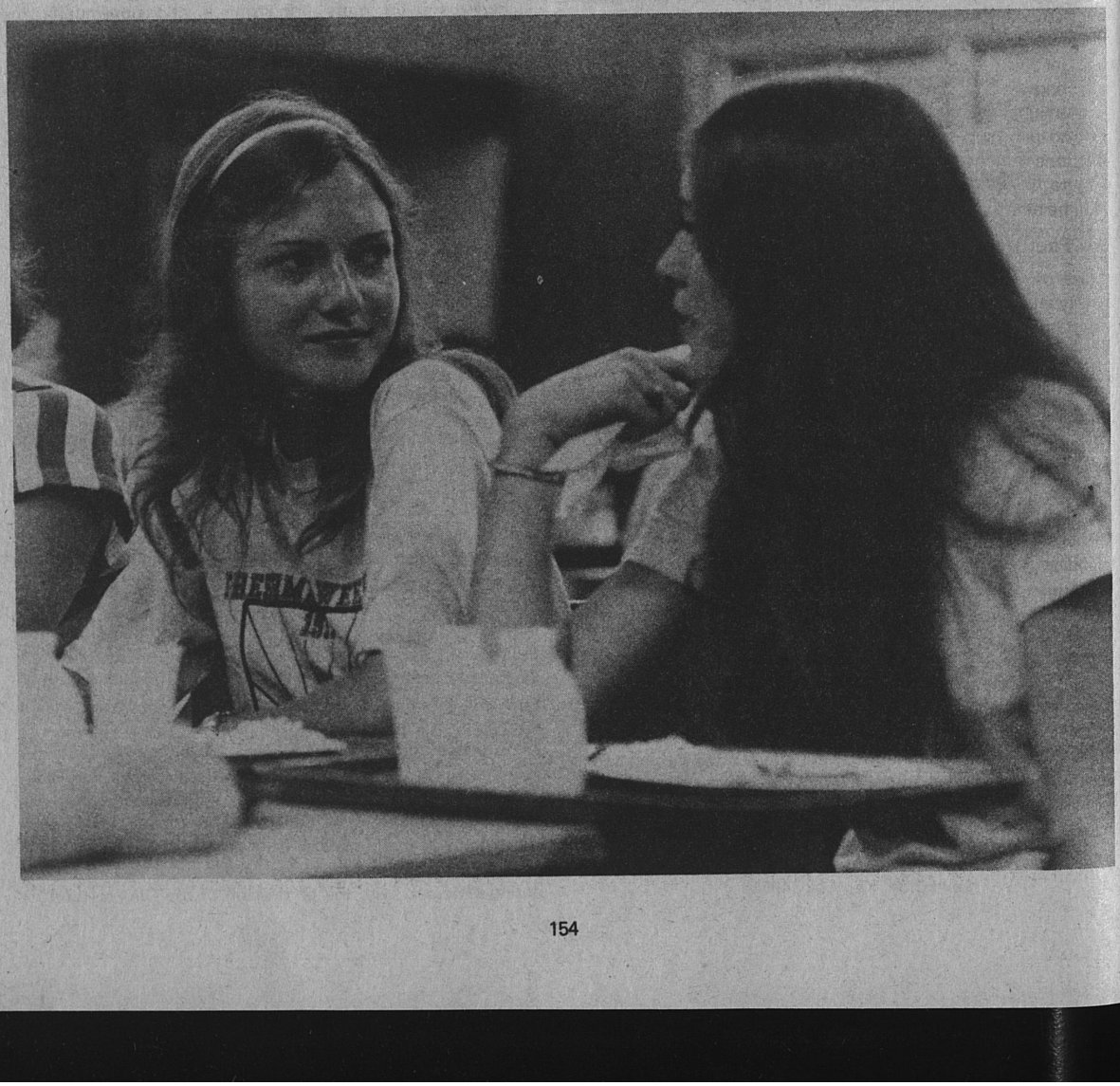
3. Honors sections of departmental classes: Students in these sections are homogeneously grouped. Students who are not members of the Honors Program are permitted to attend Honors classes—with permission of the respective departments. Honors students are expected to take these sections if they take the courses; however, they may be permitted to take other sections.

Departmental Honors Courses

The following courses are open only to students in the Honors Program or to well-qualified students with the permission of the respective department.

Descriptions for these courses may be found under the respective departments.

Course	
CS 150-99 Introduction to Algorithmic Processes	3 hrs
ECO 260-99 Principles of Economics	3 hrs
ECO 261-99 Principles of Economics	3 hrs
GEO 152-99 Regional Geography of the World	3 hrs
GLY 144-99 Introduction to the Earth	3 hrs
GLY 146-99 Earth History	3 hrs
HIS 104-99 A History of Europe to 1713	3 hrs
HIS 105-99 A History of Europe—1713 to the present	3 hrs
HIS 108-99 History of U.S. through 1865	3 hrs
HIS 109-99 History of U.S. since 1865	3 hrs
MA 115-99 Elementary Analysis I	3 hrs
MA 116-99 Elementary Analysis II	3 hrs
MA 215-99 Elementary Analysis III	3 hrs
MA 216-99 Elementary Analysis IV	3 hrs
MA 395-99 Problem Seminar	3 hrs
MA 396-99 Problem Seminar	3 hrs
PHI 100-99 Introduction to Philosophy	3 hrs
PHY 231-99 Honors University Physics	3 hrs
PHY 232-99 Honors University Physics	3 hrs
PS 101-99 American Government	3 hrs
PSY 100-99 Introduction to Psychology	4 hrs
SO 101-99 Elementary Russian	4 hrs
STA 300-99 Statistics: A Force in Human Judgment	3 hrs



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 Assistant 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. College of Law programs are 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 154,000 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; five classrooms; three seminar-conference rooms; 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.

A $1.75 million addition to the Law Building is planned to permit expansion of the library and additional classroom and office space. Construction should begin in 1978.

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, Practice Court, 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 Legal Aid 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 pre-law study, undergraduate extra-curricular activities, and work experience. The Committee also considers post-baccalaureate experiences where such experiences, in the Committee's determination, indicate a development of aptitude for the study of law. The Committee 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 non-residents of Kentucky.

Statement of Admissions for Application to Transfer

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 application form, which may be obtained from that office or the Office of the Dean, College of Law.

The Law School Admissions Test (LSAT), administered by the Educational Testing Service (ETS), is given in October, December, February, April and July of each year at testing centers throughout the country according to a schedule of dates and places published by the ETS.

In addition to administering the LSAT, ETS 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 ETS for this service, which is done at the time one applies to take the LSAT. Transcripts of prelaw work should be sent to ETS 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 and Admissions Committee.

The LSAT application and the LSDAS registration form are available from ETS, 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 15 and files should be completed by February 1. March 1 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 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.

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 government 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 course 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. It may be obtained at college bookstores or ordered from Educational Testing Service, Princeton, New Jersey 08540.

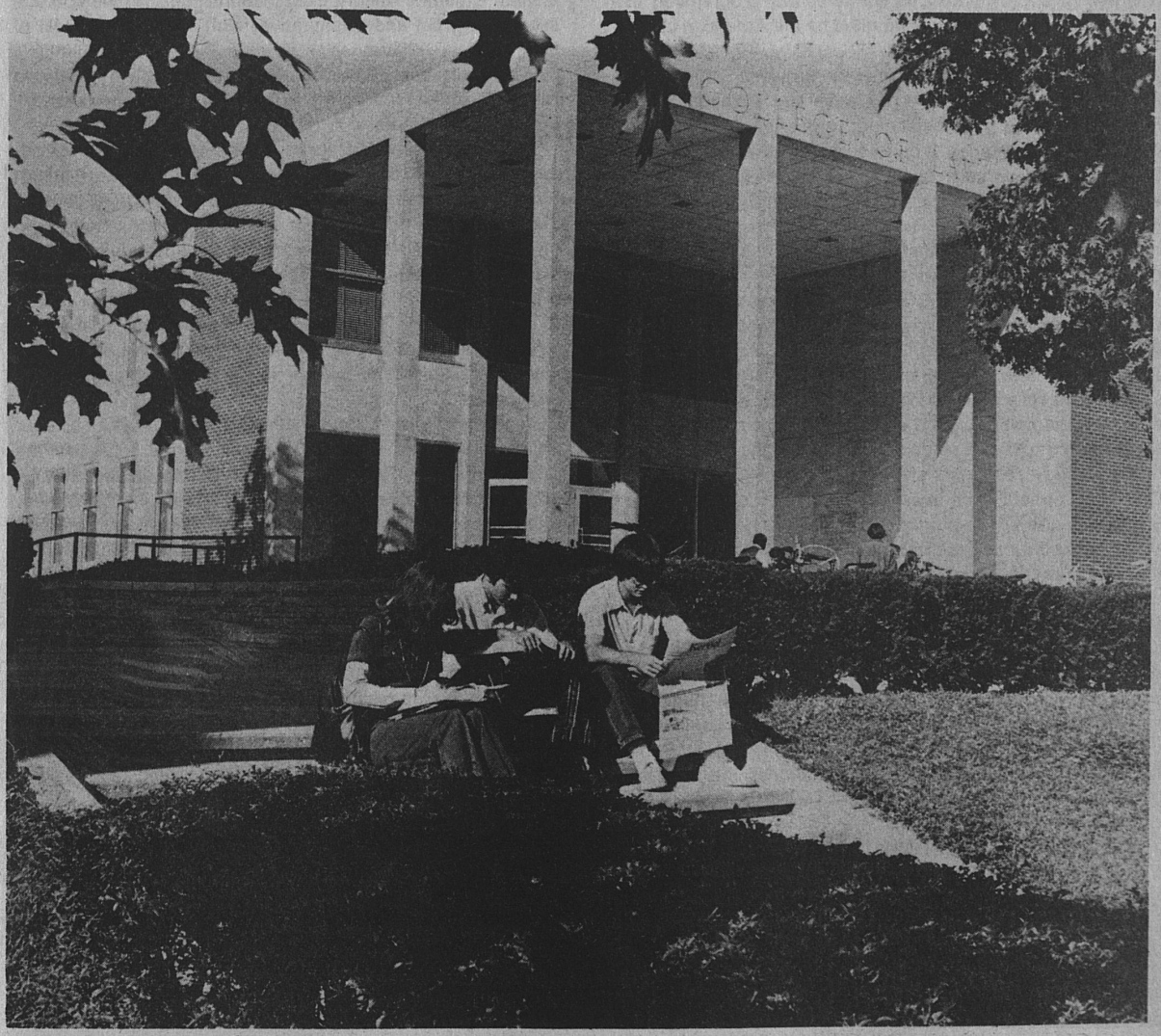
THE DEGREE OF JURIS DOCTOR

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 is a full-time pursuit, all law students are expected to carry a full academic program (15 semester hours).

For specific information about the courses and policies of the College of Law, see the College of Law booklet, **Information for Applicants**, or contact the 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 approximately 65 library school programs in the United States and Canada accredited by the American Library Association.

The College of Library Science provides students of librarianship with the basic knowledge and skills required to function effectively in beginning professional positions in various types of libraries. 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 library service.

The College of Library Service maintains flexibility and openness to change by means of participation of faculty, students, and administration in the decision-making process. The student body, numbering about 150 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. Students also elect a representative to the University Senate each year. 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 where 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 satisfactorily academic performance and who show promise of being able to function as competent and effective librarians. 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 we keep admission standards high, we do try to remain flexible to account for individual development differences, and needs.

There are no specific library science prerequisites for admission into the College of Library Science. You are urged not to major in Library Science as an undergraduate but to concentrate on other subject area majors and minors and obtain a broad liberal arts background. 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 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 also apply for readmission if they were not enrolled during the semester prior to that for which admittance is sought (or for a summer session, the previous summer session).

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.

Other Students in Library Science

Students who have an undergraduate degree and wish to take additional courses for school library certification *only* (not to work towards a graduate degree) may do so by registering as an undergraduate *non-degree* student. These students must apply for admission through the Admission Office, 201 Administration Annex.

Any student interested in certification as a school librarian in Kentucky should check with both the College of Education and the College of Library Science for requirements. Unclassified students taking courses in Library Science should maintain close correspondence with the Admissions Office of the College.

Students who wish to take post-Master's courses, either for certification or to update their knowledge in a particular area, should apply for admission to The Graduate School Admissions Office, 304 Patterson Office Tower, and to the College of Library Science, 420 Patterson Office Tower. In addition, up to 12 hours may be taken as an "unclassified" graduate student.

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 post-doctoral and research fellows. The University Hospital offers accredited post-doctoral 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 two or 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 out-of-state candidates may apply, since a few non-residents 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.

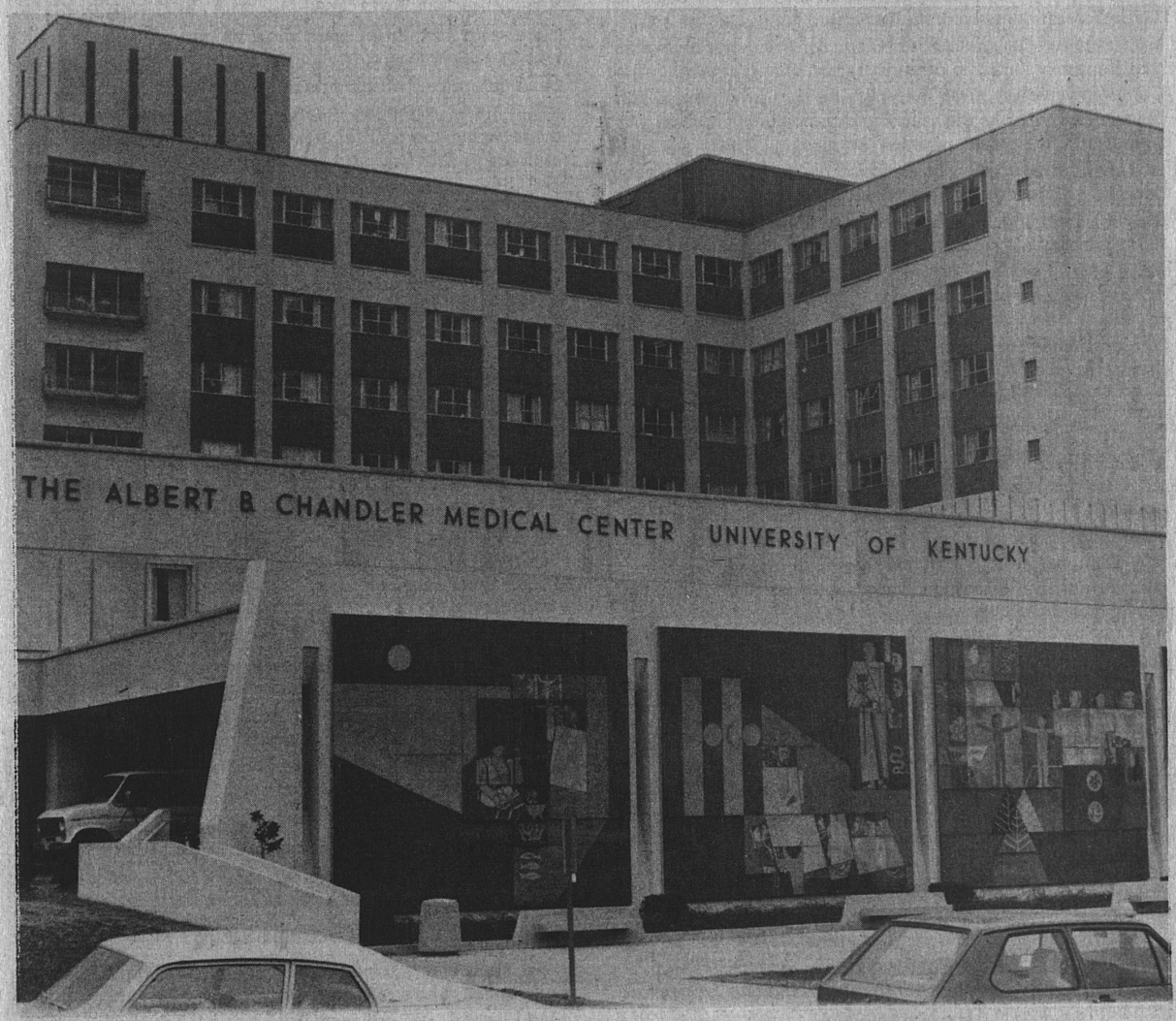
COURSE DESCRIPTIONS

Course listings for the College of Medicine may be found under the College according to departmental headings: anatomy, anesthesiology, behavioral science, biochemistry, cell biology, community medicine, diagnostic radiology, family practice, neurology, obstetrics and gynecology, ophthalmology, pathology, pediatrics, pharmacology, physiology and biophysics, psychiatry, radiation medicine, rehabilitation 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 (masters or doctorate) 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; Frances J. Thomas, Ph.D., Associate Dean; Juanita Fleming, Ph.D., Assistant Dean for Graduate Education; Marilyn-Lu Jacobsen, Ph.D., Assistant Dean for Undergraduate Education; Irma Bolte, M.S.N., Assistant Dean for Continuing Education.

A new undergraduate professional program in nursing, consisting of junior and senior year work only, will begin in 1978. Only students who are Registered Nurses will be admitted to the new program. The reason for this major change is that Kentucky students presently have 18 options within the Commonwealth to enter two-year nursing programs which prepare them to take the licensing examination in nursing and to perform the basic practice of nursing. There are also several four-year programs which lead to baccalaureate degrees in nursing. The University of Kentucky College of Nursing is the first college in Kentucky to facilitate the educational mobility of the registered nurse as we attempt to meet the changing health needs of the Commonwealth. The new nursing program will provide a true continuation of education for those who are already Registered Nurses, through expanded electives and deepened scientific and clinical content of the curriculum.

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.

Applications for admission will be accepted after the beginning of the Fall 1977 semester. The general admission requirements of the University must be met, in addition to the requirements of the College of Nursing, all of which have not been determined at the time of printing this bulletin. Specific information regarding admission requirements will be available by August 1977. The following have been approved in principle, but are not final and should in no way be interpreted as binding on the part of the University.

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:

English	- 6 semester credits
Natural Sciences	- 10 semester credits
Behavioral Sciences	- 6 semester credits
Nursing	- 28 semester credits
Electives	- 10 semester credits

*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 they 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 abtain a tuberculin test or X-ray as appropriate.

APPLICATION FOR ADMISSION

All applications for admission to the College of Nursing must be received by the University Admissions Office no later than March 1. All applicants will be notified regarding admission by April 1. 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.

CURRICULUM

The following example is presented simply to give students an idea of how the new program will operate.

CURRICULUM EXAMPLE

Junior Year

Semester One

Biology of Disease	5
Nursing Assessment	4
Introduction to Philosophy and Concepts of Nursing	2
Concepts and Principles of Teaching/Learning in Nursing	2
Cultural Diversity and Implications for Nursing	2
Elective/General Studies	3
	18 credits

Semester Two

Behavioral Science	3
Community Health Nursing	6
Statistics: A Force in Human Judgment	3
Management of Nursing Care	2
Elective/General Studies	3
	17 credits

Senior Year

Semester One

Primary Care Nursing or Nursing in a Secondary Care Setting or	6
Tertiary Care Nursing	7
Implications for Drug Therapy for Nurses	7
Electives/General Studies	3
	3 or 6
	13 or 16 credits

Semester Two

Clinical Practicum	8
Issues in Nursing	3
Electives/General Studies	3 or 6
	14 or 17 credits

With this curriculum design, a student would have a minimum of 50 credits in upper division courses. Students will be required to complete the area requirements of the University. This sample schedule provides an example of when these courses could be taken.

PHARMACY

Joseph V. Swintosky, Ph.D., is Dean of the College of Pharmacy.

The dynamic changes affecting pharmacy demand a curriculum that will not only allow but will insure 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, 1973. Organized as an outgrowth of the preceptorial system, it was operated as a non-profit 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 of the health, welfare, and safety of the public. Such dedication is not acquired through accident; it is the result of systematic inculcation of the highest ethical and moral standards throughout 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.

Admission

All admissions to the College of Pharmacy are made through the office of the University Registrar. New students, readmission students and transfer students must file applications and transcripts of all previous college work with that office. Those who take their pre-pharmacy courses in other institutions must furnish an additional transcript of all previous college work to the Dean of the College of Pharmacy.

In addition to meeting the general requirements for admission to the University, the applicant must have achieved a grade-point average of at least 2.0 in at least 66 credit hours of specified study areas and electives. These 66 credit hours shall include the pre-pharmacy 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 pre-pharmacy year. Requests for application materials to the College of Pharmacy may be made after October 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.

Admission to the University does not guarantee admission to the College of Pharmacy. The number of students admitted to the College of Pharmacy each year is dependent upon the availability of resources (faculty, clinical facilities, space) for implementation of a quality educational program. Consideration for admission to the College of Pharmacy will be based on: academic record and potential for academic achievement; an assessment of integrity, commitment, dedication, maturity and emotional stability.

Any student may be denied permission to continue enrollment in the College of Pharmacy if, in the opinion of the faculty, his knowledge, character or mental or physical fitness casts grave doubt upon his potential capabilities as a pharmacist.

Applications are reviewed and evaluated by a College committee on admissions which considers the applicant's PCAT score and the grade-point average of the applicant's pre-pharmacy course work. Also considered are letters of recommendations and the applicant's formal motivation letter. This letter must state the applicant's reasons for selecting pharmacy as a career and the applicant's tentative professional goals. Applicants who receive the highest ratings by the Admissions 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 motivation, industry and integrity 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 pre-pharmacy requisites by the end of the preceding spring semester or quarter.

Admission will be limited to exceptional non-resident applicants. Preference will be given to those non-residents who have completed their pre-pharmacy course work on the Lexington campus.

BACHELOR OF SCIENCE IN PHARMACY DEGREE (B.S. IN PHARMACY)

The degree of Bachelor of Science in Pharmacy is offered 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 pre-pharmacy 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.

Pre-Professional Requirements

The pre-professional course requirements for admission to the College of Pharmacy are as follows:

1 semester Mathematics (Analytics and Calculus I)
1 semester Microbiology or Bacteriology (with laboratory)
1 semester Principles of Economics
2 semesters Biology (with laboratory)
2 semesters Physics (with laboratory)
2 semesters General Chemistry (with laboratory) including qualitative analysis
2 semesters Organic Chemistry (with laboratory)
2 semesters English Composition

and

additional courses as needed to complete the University's General Area Studies requirement.

Applicants are to complete the General Studies Component requirements *prior to admission* to the College. Required courses in the pre-pharmacy 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 pre-pharmacy 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 80 of the 103 credit hours required for the total professional program.

Students demonstrating poor proficiency in pharmaceutical calculations at the end of the third year are required to take PHR 805 Pharmaceutical Calculations in the first semester of the fourth year.

PHR 330	Pharmacognosy	3 hrs
PHR 334	Physiology and Pharmacodynamics	5 hrs
PHR 340	Principles of Medicinal Chemistry	3 hrs
PHR 342	Pharmacognosy	4 hrs
PHR 346	Physiology and Pharmacodynamics	5 hrs
PHR 400	Biochemistry	4 hrs
PHR 801	Pharmaceutics I	6 hrs
PHR 802	Pharmaceutics II	5 hrs
PHR 810	Pharmacy and the Health Care System	2 hrs
PHR 814	Patient Care Services and Clinical Pharmacy Practice	2 hrs
PHR 815	Introduction to Pharmaceutical Systems	4 hrs
PHR 820	Prescription Compounding and Dispensing	4 hrs
PHR 824	Human Pathology	4 hrs
PHR 830	Pharmacy Administration	3 hrs
PHR 835	Pharmaceutical Law	2 hrs
PHR 862	Pharmacotherapeutics I	7 hrs
PHR 863	Pharmacotherapeutics II	7 hrs
PHR 870	Clinical Orientation Clerkship	8 hrs
PHR 886	Poison Information and Control	2 hrs

ELECTIVES

A student must select a minimum of 23 credits to supplement the core curriculum; at least 12 credits must be chosen from the following courses:

ACC 201	Principles of Accounting	3 hrs
BSC 527	Society and Health	3 hrs
PHR 303	History and Ethics of Pharmacy	2 hrs
PHR 540	Industrial Pharmaceutical Technology	4 hrs
PHR 545	Sterile Parenterals and Devices	2-3 hrs
PHR 805	Pharmaceutical Calculations	3 hrs
PHR 838	Community Pharmacy Practice	3 hrs
PHR 850	Pharmaceutical Technology Clerkship	3 hrs
PHR 860	Animal Health Products	2 hrs
PHR 872	Non-prescription Pharmaceuticals and Supplies	3 hrs
PHR 874	Drug Literature Evaluation	3 hrs
PHR 880	Introduction to Institutional Practice	3 hrs
PHR 881	Pharmacy Practice Clerkship	12 hrs

GRADUATE PROGRAM

The College of Pharmacy 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.

Doctor of Pharmacy Degree (Pharm.D)

The Doctor of Pharmacy degree is offered on the completion of a minimum of 199 semester hours of credit with a Pharmacy standing of 2.0 out of a possible 4.0, and the recommendation of the supervisory committee.

For the University of Kentucky student who elects the six-year Doctor of Pharmacy program, the requirements for graduation will be the satisfactory completion of two years of pre-professional work, 66 semester hours, followed by four years of professional training with 133 semester hours of credit as shown. Additionally, the general requirements of the University for all students must be met; among these are such requirements as those relating to work in residence, general studies, and grade-point average.

Admission into this program is limited. For complete information see the College of Pharmacy Bulletin.

SOCIAL PROFESSIONS

Ronda S. Connaway, D.S.W., is Dean of the College of Social Professions.

The term social profession has been recently used to describe those helping services concerned with the social and developmental needs of people. These services are restorative and preventive services and social planning and policy development. The Social Professions prepare the student to meet the needs of individuals and groups with social and related problems.

The Social Services

Social work is one of the major social services within the social professions concerned with man's well-being, whether the help provided is in 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; and/or in seeing that needed resources are made 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 the social professions 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. Freshmen and transfer students who elect social work as a major should arrange to register in the College of Social Professions. 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 insure 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 for graduate professional education in the social services.
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.).

For information about the Master's degree in Social Work, see the Social Professions Bulletin or The Graduate School Bulletin.

Degree Requirements

The College of Social Professions requires students to earn a minimum of 120 hours for the B.A. degree in Social Work with a minimum grade-point average of C. Students may take additional credits in accordance with stated University policy.

For University requirements and General Studies Areas: See Academic Program section.

Pre-Major Requirements: (27 hours)

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 151, PS 152, PS 200, PS 201, PS 280, PS 290

Psychology—three 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
Other Preferred Areas—Community Health: CH 210, Geography: GEO 210, GEO 252; Philosophy: PHI 100, PHI 120, PHI 130

Pre-Professional Requirements: (8-10 hours)

SW 124 Introduction to the Social Services
SW 222 Development of Social Welfare
SW 225 Skills in Social Work
SW 322 The Social Work Profession and Social Welfare (for junior transfers only; substitutes for SW 124, SW 222)

Professional Requirements: (32 hours)

SW 444 Educational Practicum I	8 hrs
SW 445 Educational Practicum II	8 hrs
SW 501 Social Welfare Policy: Theory and Implementation	3 hrs
SW 511 Human Behavior and the Social Environment	3 hrs
SW 516 Social Work Research	3 hrs
SW 520 Interventive Methods in Social Work	4 hrs
SW 527 Senior Seminar	3 hrs

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

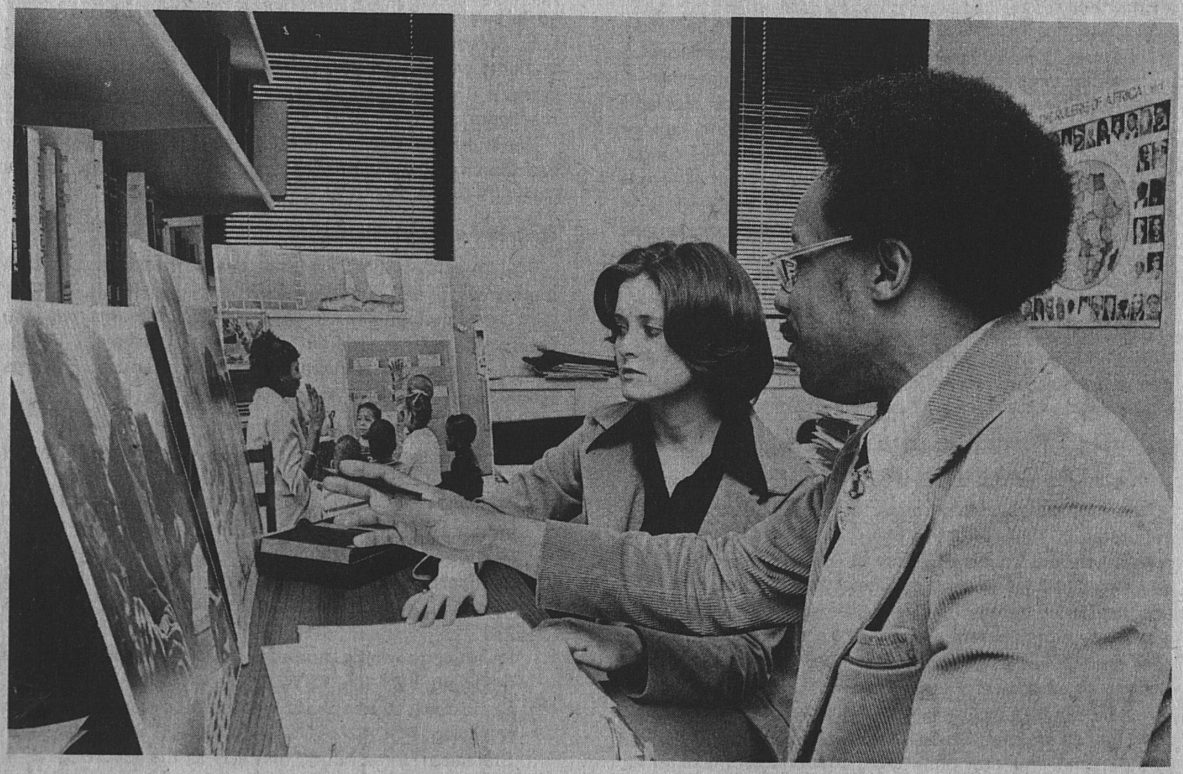
Complete at least 12 hours of upper-division elective courses, and as many other elective courses as required to bring the total hours to 120 for graduation. Electives may be chosen from courses offered by any department, school and/or college, including undergraduate social work electives and up to six hours of graduate social work electives.

COURSES FOR NON-MAJORS

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 Non-Majors, 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 Professions 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 Professions Bulletin.



COMMUNITY COLLEGES

Stanley Wall, Ed.D., is vice president for the Community College System.

COMMUNITY COLLEGE ADMINISTRATIVE STAFF

Stanley Wall, vice president
Ed.D., Kentucky 1956

Charles T. Wethington, Jr., Ph.D., Kentucky, 1965; 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., Pennsylvania State, 1978; coordinator, faculty and instructional development
Keith Stephens, J.D., Kentucky, 1970; coordinator, federal programs
Dan Tudor, M.A., Kentucky, 1960; coordinator, student services

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 have been charged with three functions:

1. To offer curricula for the first two years of a baccalaureate program. Courses parallel University offerings and are transferable to the 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 in-service, 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 semi-professional nature, leading to an Associate Degree in Applied Science.

The community colleges also offer a variety of non-credit 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 in-service, reeducation 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 is Acting Dean of University Extension; Cornelius R. Hager, LL.D., Assistant Dean.

University Extension is responsible for the extension 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 is composed of the Evening Class program, the Off-Campus Class program; the Independent Study program, the Conferences and Institutes division, the Council on Aging, and the division of Continuing Education.

OFF-CAMPUS CLASS PROGRAM

James W. Brown, M.A., director

The University Off-campus Class Program offers classes and programs off campus when enrollment justifies and approved staff can be secured.

Credit classes are offered to members of business and industry, agency and institutional personnel, teachers and administrators, community college faculty and other groups who need University of Kentucky classes and find it impossible or impractical to come to the campus.

Credit earned from Off-campus Classes is regular University credit and is taught by regular University staff or by instructors approved by the appropriate department chairpersons and deans.

Class Organization: Classes are organized on the basis of needs as indicated by individuals or groups from a given community. Persons interested in organizing an off-campus class should contact the director of the Off-campus Class Program, University Extension, University of Kentucky.

Transfer of Credit: Credit earned off campus may be transferred to another institution at the request of the student. Each student is responsible for checking with the institution where he is taking his degree to be sure the credit will be accepted.

Auditor: Any student may be admitted to a class as an auditor by payment of the required fee. No credit can be given for a course audited.

Withdrawal and Refund of Fees: You may withdraw from an organized class and be refunded one-half of your tuition. Requests for refunds should be made at the Office of Off-campus Class Program, University Extension. No refund will be made after mid-semester.

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 and non-credit classes in many fields taught by University staff members and qualified business and professional leaders of the community. Credit courses are offered under the same conditions as similar day-time campus classes. Non-credit classes are designed to meet all persons desiring to broaden their intellectual and cultural horizons.

Enrolling as a Non-credit Student: Non-credit classes are open to anyone desiring to enroll in them. Any person may enroll as a non-credit student in a credit class. However, the work in some credit classes, especially those numbered 300 through 599, is of an advanced nature, and non-credit students should consult with the instructor before enrolling.

Non-degree Students: Any person over 21 may enroll as a non-degree student provided he is not currently enrolled as a degree candidate and is eligible for admission. Non-degree 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 non-degree 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. Generally speaking, the typical evening class student should enroll as a non-degree student.

Full-time University Students: Full-time University students who have paid the full fee may enroll in an evening class which carries University credit provided they have the permission of their dean and adviser. Full-time students may enroll in classes listed as "non-credit" by paying the stated fee.

Academic Standing of Evening Students: Evening Class non-degree students are subject to University regulations concerning academic standing (grade-point averages), academic probation and dropping for low scholarship. Each student is responsible for familiarizing himself with these regulations and maintaining the proper grade-point average.

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 conditions for admission. These include good standing in every respect in the institution last attended and a grade-point average of 2.0, or C, in all previous college work.

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.

Library Privileges: Evening class students are entitled to use the University Library while they are officially enrolled, by

presenting their part-time student identification card at the main desk on the second floor of the Margaret I. King Library.

Fees: The fee for college credit evening classes is $23 per semester hour for undergraduates and $35 per semester hour for graduates. The fee for non-credit classes is on a proportional basis. Some courses will require a laboratory fee based on the type of materials required.

Non-Resident Fees: Generally, students who graduate from a Kentucky high school, or if emancipated, who have lived in the state as non-students for at least one academic year before enrolling in a state-supported school, are considered residents for fee-payment purposes. If a student's parents or spouse are residents of Kentucky and living in the state, the student is normally considered a resident. All others will be assessed non-resident fees; $63 per semester hour for undergraduate credit, and $89 per semester hour for graduate credit.

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, as well as numerous non-credit courses oriented toward particular vocations.

Independent study also offers 40 courses at the high school level. These are in areas of English, social studies, mathematics, business education, health, and foreign languages.

The Independent Study Program also offers non-credit courses that are designed to meet specific vocational needs. Courses are offered in the following areas:

Basic Technology of Diesel Engines (five courses)
Agricultural Economics
Basic Refrigeration and Air Conditioning
LP Gas Service Training (four courses)
Highway Engineering (12 courses)
Photography (two courses)

Detailed information concerning these courses may be found in the current Independent Study Program Catalog.

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.

Some of the regulations governing independent study are as follows:

1. Not more than 25 percent or 32 semester hours of the requirements for a baccalaureate degree at the University of Kentucky may be earned by independent study.
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 Univesity of Kentucky must have the permission of his dean to register for an independent study course.
4. Credits earned by independent study will be credited in the term in which the course is completed.
5. Graduate 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.

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 202	ACC 408	
Agriculture		
GEN 102	GEN 104	GEN 106
Agronomy		
AGR 366	AGR 206	
Allied Health		
CH 210		
Animal Science		
ASC 380		
Biology		
BIO 103	BIO 108	BIO 404
BIO 104	BIO 110	BIO 465
BIO 106	BIO 219	BIO 508
Business Administration		
BA 330	BA 345	BA 340
BA 335	BA 446	BA 341
Business and Office Education		
BOE 112	BOE 117	BOE 445
BOE 113	BOE 118	
Classical Languages and Literatures		
CLA 101	CLA 131	CLA 236
CLA 102	CLA 151	CLA 235
Economics		
ECO 260	ECO 261	ECO 485
Education		
EDV 210	EDC 544	
EDV 512	EDP 548	
Engineering		
ME 105	ME 350	
English		
ENG 101	ENG 221	ENG 271
ENG 102	ENG 222	ENG 425
ENG 161	ENG 261	ENG 451
ENG 203	ENG 262	ENG 452
ENG 205	ENG 270	
Forestry		
FOR 100		
French		
FR 101	FR 201	
FR 102	FR 202	
Geography		
GEO 151	GEO 251	GEO 252
GEO 152	GEO 210	GEO 522
German		
GER 123	GER 202	GER 222
GER 124	GER 221	
GER 201		
History		
HIS 104	HIS 203	HIS 572
HIS 105	HIS 240	HIS 573

HIS 108	HIS 260	HIS 578
HIS 109	HIS 558	HIS 579
HIS 202	HIS 566	
Home Economics		
HE 100	HET 220	HET 439
HF 153	HET 337	HET 537
FHR 101		
Journalism		
JOU 201	JOU 203	
Mathematics		
MA 108	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	PHI 260	
Physics and Astronomy		
AST 191	AST 192	
Political Science		
PS 151	PS 280	PS 552
PS 570		
Psychology		
PSY 100	PSY 503	
PSY 223	PSY 502	
Social Work		
SW 222	SW 322	
Sociology		
SOC 101	SOC 436	SOC 547
SOC 152	SOC 437	
SOC 220	SOC 542	
SOC 409	SOC 538	
Spanish		
SPI 141	SPI 241	SPI 242
SPI 142		
Statistics		
STA 292		
STA 293		
STA 294		
Theatre Arts		
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

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

C. R. Hager, M.A., LL.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 the University Extension.

The Council on Aging is a multiple discipline agency 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. Notable among these are:

The Herman L. Donovan Senior Citizens Fellowship program which is described below.

The Writing Workshop for People Over 57 is an annual program of the Council co-sponsored by the departments of University Extension. The Writing Workshop attracts famous writers who teach in such genres as fiction, non-fiction, poetry, and special areas. The workshop produces an annual publication, *Second Spring.*

Several special interest seminars are offered by the Council on Aging. All entering Donovan Fellows are expected to enroll in the Vestibule Seminar which is an orientation to the scholarly life and the procedures of the University. Adults who are interested in traveling to other countries may elect the Study-Travel Seminar. Of special interest to graduate

students as well as older adults is the seminar: The Sciences and Aging—this is one in a series entitled, "Great Issues."

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.

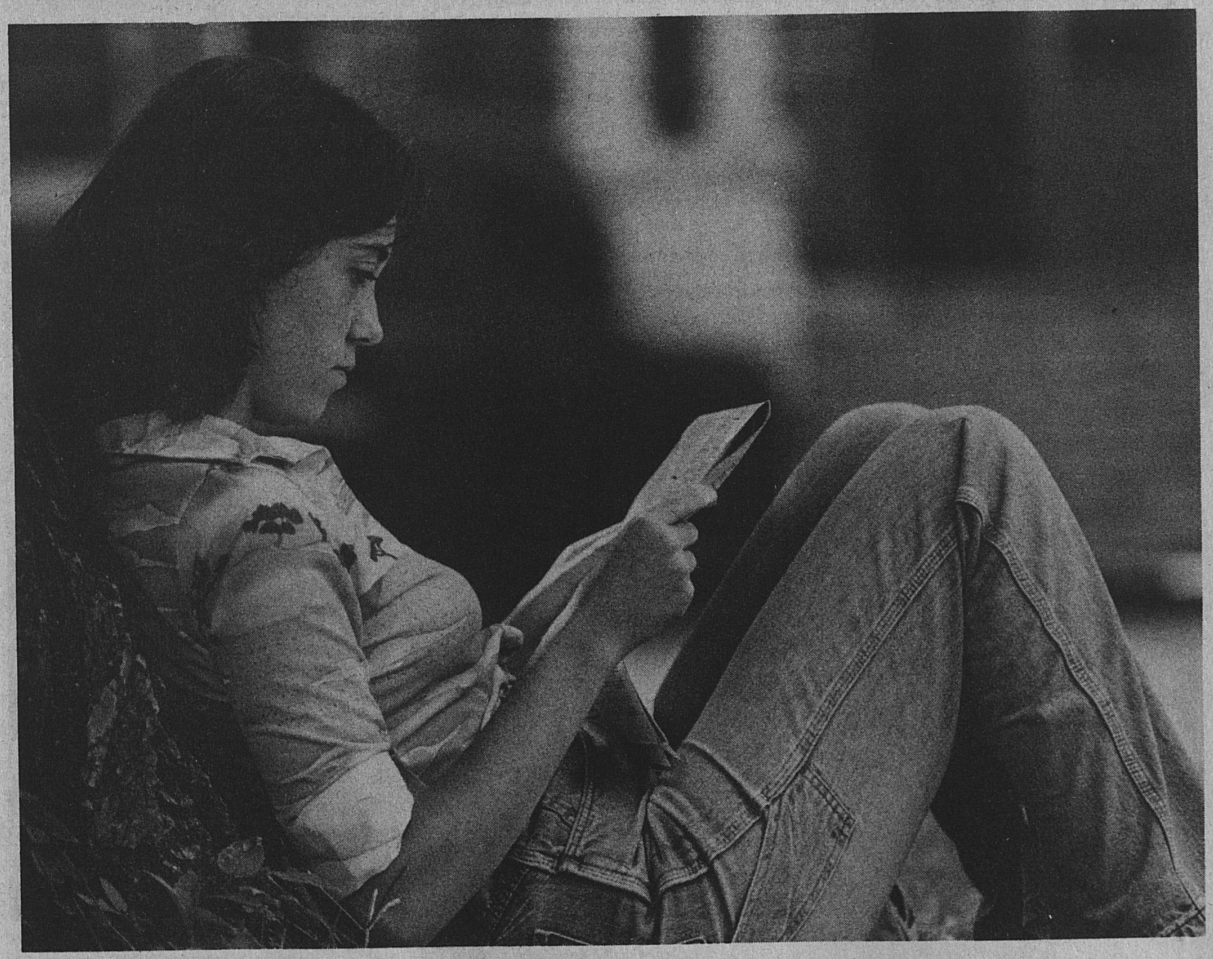
Inquiries about the Donovan Fellowship should be addressed to the Council on Aging, Frazee Hall, University of Kentucky, Lexington, Kentucky 40506.

CONTINUING EDUCATION

Cornelius R. Hager, M.A., LL.D., director

Continuing Education is the newest program in University Extension, but with one of the greatest opportunities. Classes for adults may be organized on either a credit or non-credit basis, but the interested groups are predominantly informal classes involving lectures and discussions for a specific number of sessions. The rapid changes taking place in the country, especially the technical changes, necessitate a program of continuing education with many aspects.

It is our major role to organize creative learning programs for adults on a broad scale in various sections of the state. The cost for a non-credit course to each individual is determined by the number of sessions necessary to complete the course. Certificates are awarded at the completion of the course. A record is made in the office of University Extension of all registrants for non-credit courses. The cost for credit courses in Continuing Education is the same as any other course in University Extension.



COURSE NUMBERING SYSTEM

001 to 099—Non-credit and/or non-degree 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 non-majors 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 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:

Freshman 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

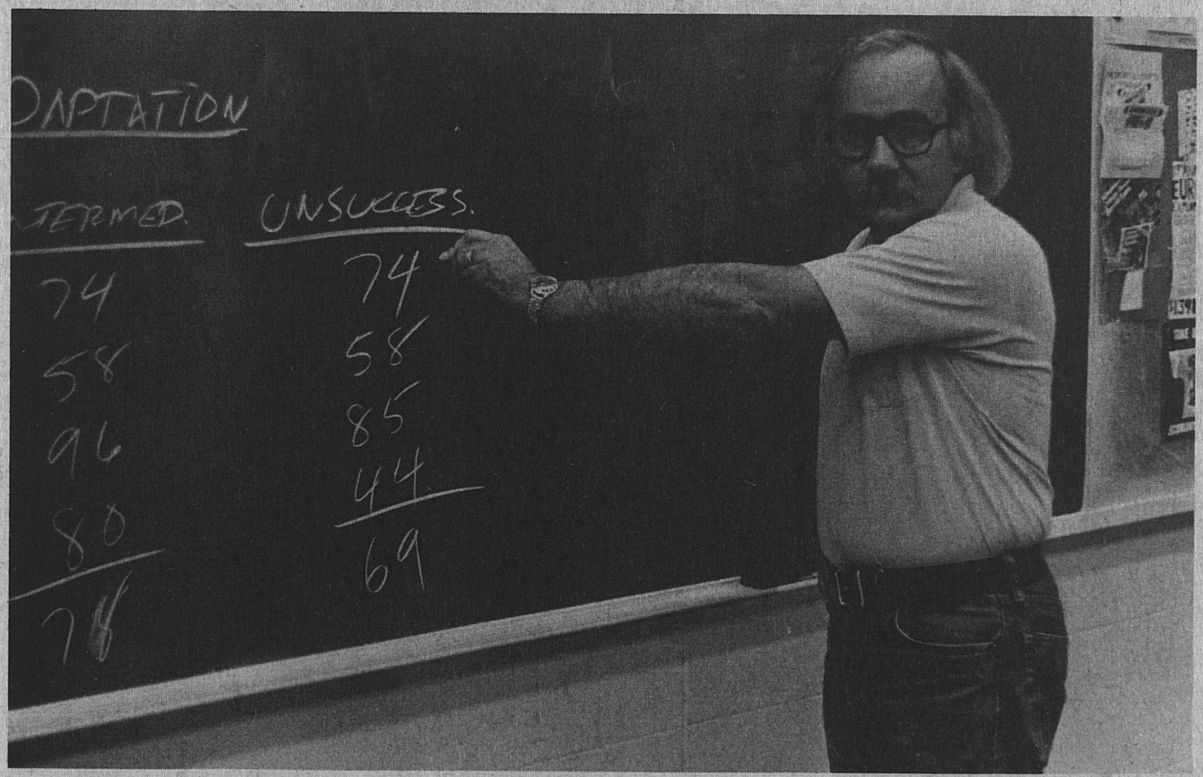
The University of Kentucky has established the following set of standarized alphabetized abbreviations for its academic departments. These abbreviations should be used in making out class schedule cards and at other times when referring to specific course offerings.

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
ARC—Architecture
ART—Art
A&S—Arts and Sciences
AS—Aerospace Science
A-S—Art Studio
ASC—Animal Sciences
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
EDV—Vocational Education
EE—Electrical Engineering
EM—Engineering Mechanics
END—Endodontics
ENG—English
ENT—Entomology
EXP—Experiential Education
FHR—Family Studies: Human Development and Resource Management
FOR—Forestry
FP—Family Practice
FR—French Language and Literature
FS—Freshman Seminar
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
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 and Astronomy
PLA—Planning
PPA—Plant Pathology
PRO—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PT—Physical Therapy
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 Arts
TEL—Telecommunications
TOX—Toxicology
UK—University Wide
VS—Veterinary Science
ZOO—Zoology

CROSS INDEX OF ABBREVIATIONS WITH COLLEGES AND DEPARTMENTS

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
Planning	PLA
College of Arts and Sciences	
Arts and Sciences	A and S
Aerospace Studies (Air Force ROTC)	AS
Anthropology	ANT
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 Scandinavian	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
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
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

Music	MUC
	MUP
	MUS
Theatre Arts	TA
College of Home Economics	HE
Human Environment: Design and Textiles	HED and HET
Family Studies: Human Development and Resource Management	FHR
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	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
Toxicology	TOX
College of Nursing	NUR
College of Pharmacy	PHR
College of Social Professions	
Social Work	SW
Human Services Administration	HSA
Graduate School	GS
Public Administration	PA
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. (5)
An in-depth study of valuation theory for balance sheet accounts and the related effect on income determination. Other topics included are price level accounting, fixed asset revaluation, and ratios and financial statement analysis. Prereq: ACC 202.

ACC 302 ADVANCED ACCOUNTING. (3)
A comprehensive treatment of selected accounting problems, including statements from incomplete data, cash and funds flow, price level adjustments, partnership accounting, consignments, installment sales and home office-branch 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. May be repeated to a maximum of six credits. Class hours and laboratory hours by appointment. Prereq: Consent of instructor.

ACC 401 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 403 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 408 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 410 ACCOUNTING FOR INSTITUTIONS AND REGULATED INDUSTRIES. (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 416 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 417 INCOME TAXATION. (4)
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 422 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 416.

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 417 or consent of instructor.

ACC 518 CONTROLLERSHIP. (3)
A comprehensive study of the controller's objectives, responsibilites, functions, organizational roles, etc. Prereq: ACC 408 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 417 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 417 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 417 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 403 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 408.

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 417 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 102, 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 102, 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 102, 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 102 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, 3 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: 3 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, 3 hours per week for on 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.(2)
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 102.

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 102, 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 (1/3 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 (1/3 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 classifies risks into those which are insurable with a formal insurance contract and those where only informal insurance strategies are available. Subsequently insurance strategies are designed. Three hours lecture per week (1/3 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 (1/3 semster). 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 (1/3 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 441 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 445 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, 323.

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 3-4 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 488; 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 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 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 473 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 488 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 once. 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 200 AGRICULTURAL ENGINEERING PROBLEMS. (1)
An introduction to agricultural engineering and the professional method of solving engineering problems encountered in agriculture.

AEN 212 TRACTOR AND FIELD MACHINERY. (3)
Principles governing the selection and application of tractors and power-driven machines. Operating principles of engines, including valves, carburetion, ignition and lubrication. Mechanical principles of machines and preventive maintenance. Lecture, two hours; laboratory, two hours.

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 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 400 FARMSTEAD PLANNING AND MECHANIZATION. (3)
Analysis of systems for handling of feed, water, and waste products in agriculture. The processing and storage of farm products. Farmstead layout and design. Structural and environmental design. 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 406 PHYSICS OF PLANT AND ANIMAL ENVIRONMENT. (3)
A study of the thermal, moisture, light, and gaseous components of plant and animal environment with emphasis on interactions between these biological systems and their environment. Lecture, two hours; laboratory, two hours. Prereq: AEN 405 or consent of instructor.

AEN 410 FARM POWER AND MACHINERY. (3)
A study of farm tractors and implements. Operating principles of valves, carburetion, ignition, and lubrication of the engine. Use and care of selected tractor-mounted implements. Emphasis on maintenance. Class and laboratory work on tractors and implements. Lecture, two hours; laboratory, two hours.

AEN 417 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 427 DESIGN OF AGRICULTURAL STRUCTURES. (3)
Psychrometrics, physical environment for plant and animal life, design of environmental and structural systems. Lecture, 2 hours; laboratory, 2 hours. Prereq: ME 220, ME 325, EM 302.

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 431 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 437 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 447 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, EE 305, 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 427 or consent of instructor.

AEN 535 ADVANCED SOIL AND WATER CONSERVATION ENGINEERING. (3)
Consideration of elements of hydrology related to agriculture; functional analysis, economic analysis and design of more complex systems for soil and water control and management. Prereq: AEN 437 or consent of instructor.

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 447.

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: 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 417 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, 423, 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 INSTRUMENTATION IN AGRICULTURAL ENGINEERING RESEARCH. (3)
The principles and applications of measuring instruments and devices for obtaining experimental data. Prereq: Consent of instructor.

AEN 660 SIMILITUDE IN ENGINEERING. (3)
An advanced approach to engineering problems through the theory of similitude and its application to models. The use of geometrically similar, distorted and dissimilar models will be discussed. Prereq: Graduate standing.

AEN 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.

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 102 AGRICULTURAL SOCIAL SCIENCE. (2)
A lecture and problems course involving the major concepts of the social sciences and their usefulness in agriculture.

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 FIELD BASED/COMMUNITY BASED EDUCATION. (1-15)
A community-based or field-based experience in agronomy, under the supervision of a faculty member. May be repeated for a maximum of 18 credits but with only 10 credits charged to "Departmental Major" requirements. Prereq: Consent of instructor and department chairman and completion of a departmental learning agreement 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 400, CHE 230 or 236, AGR 404, PPA 575. (Same as ENT 401 and PPA 401.)

AGR 515 TURF MANAGEMENT. (3)
A study of the selection, culture, and management of certain turf species used for home lawns, golf courses, athletic fields, and highway slopes. Lecture, two hours; laboratory, two hours. Prereq: One botany and one soils course. (Same as HOR 515).

AGR 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 206 and BIO 530 or consent of instructor.

AGR 556 SEED TECHNOLOGY. (3)
Advanced study of seed formation, development, viability and longevity; laboratory techniques of seed quality determination; principles of producing, processing and storage of varietally pure crop seeds. Lecture, two hours; laboratory, two hours. Prereq: AGR 406 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 470 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 620 GENETIC STRUCTURE OF POPULATIONS. (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor. (Same as BIO 620.)

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 406, STA 670, 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 BIO 620 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 once.

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 pathology. 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 206 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 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 206 or consent of instructor.

AGR 406 PLANT BREEDING. (3)
The application of genetic principles to the improvement of crop plants. Methods and techniques used in breeding self- and cross-pollinated species. Release, distribution and the maintenance of genetic purity of improved varieties. Lecture, two hours; laboratory, two hours. Prereq: AGR 206, 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 206 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 206 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 206 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, 233, or consent of instructor. (Same as BIO 630.)

AGR 730 GRASSLAND RESEARCH. (3)
The conduct and interpretation of grassland experiments with emphasis on pasture research and the plant-animal complex. Prereq: Consent of instructor.

AGR 732 MINERAL NUTRITION OF PLANTS. (3)
Discussion of accumulation, translocation, and utilization of mineral elements by higher plants. Emphasis will be placed on the relationships between these processes and plant metabolism. Prereq: BIO 735 or BCH 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 406, 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 108 or equivalent, 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 468 SOIL USE AND MANAGEMENT. (3)
The application of principles related to soils and their management in planning the utilization of land and associated resources. Prereq: AGR 366 or consent of instructor. Lecture and discussion.

AGR 470 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 206 and 366 or consent of instructor.

AGR 473 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, 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. Lecture, 2 hours; laboratory, 2 hours. Prereq: AGR 366, BIO 276, or consent of instructor.

AGR 575 SOIL PHYSICS. (4)
Physical properties of soils and their relationship to chemical, mineralogical, and biological soil properties and to plant growth. Lecture and discussion, three hours; laboratory, two hours. Prereq: AGR 366 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, 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 473, 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 470, 581; CHE 442, 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, discussion, one hour; laboratory, four hours. Prereq: AGR 581 or equivalent or consent of instructor. (Same as GLY 681.)

AGR 690 TOPICS OF SOIL CHEMISTRY. (1-4)
The soil chemistry of plant nutrients, with special emphasis on reactions of nitrogen, phosphorus and potassium in the soil. Soil acidity and alkalinity also are studied in detail. May be repeated for a maximum of six credits. Prereq: Consent of instructor.

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, 3 hours. Prereq: GLY 460 and 562, AGR 581, 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 clinical or observational teams. Required for allied health professions baccalaureate students. Pass/Fail only. 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 PHYSICAL DIAGNOSIS. (6)
This course is designed to provide the general principles of obtaining medical histories and performing physical examinations. 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 COMMON OFFICE LABORATORY PROCEDURES FOR CLINICAL ASSOCIATES. (4)
This course will be taught by the medical technology department under the direction and administration of the Clinical Associate Program: (1) 15 hours per week for four weeks or until the student reaches mastery of veni-puncture, (2) nine hours per week (three, three-hour sessions) for eight weeks' didactic and laboratory experience, (3) total credit for the eight-week summer intersession is four hours. Laboratory, 16 1/2 hours per week. Prereq: Enrollment in the Clinical Associate Program.

AHE 858 COMMON OFFICE PROBLEMS. (5)
Lecture format with much audio-visual and self-instructional enrichment. Those problems which have been shown to fall within the province of the class A paramedic will be dealt with in depth. Algorithm will be introduced for all appropriate conditions. Lecture: 8 hours per week. Prereq: Enrollment in the Clinical Associate Program.

AHE 859 INTRODUCTION TO RADIOLOGY FOR CLINICAL ASSOCIATES. (1)
This course provides the student with the information needed to take x-rays of the extremities, chest and abdomen. Lecture, two hours per week. Prereq: Enrollment in the Clinical Associate Program.

AHE 860 FAMILY PRACTICE PRACTICUM. (8)
Clinical rotation through the Family Practice Out-Patient Department where the student will function as a class A paramedic under direct supervision of attending M.D.'s and resident M.D.'s. Prereq: Enrollment in the Clinical Associate Program.

AHE 861 CLINICAL PEDIATRICS FOR CLINICAL ASSOCIATES. (4)
This course provides the student with an experience in evaluating the pediatric patient and helping in the medical care of children. May be repeated to a maximum of eight credits. Prereq: Enrollment in the Clinical Associate Program.

AHE 862 CLINICAL OBSTETRICS AND GYNECOLOGY FOR CLINICAL ASSOCIATES. (4)
This course provides the student training and experience in the office management of gynecology problems and prenatal care of the obstetrical patient. May be repeated to a maximum of eight credits. Lecture, two hours; laboratory, 38 hours. Prereq: Enrollment in the Clinical Associate Program.

AHE 863 CLINICAL SURGERY FOR CLINICAL ASSOCIATES. (4)
This course provides the student training in evaluating and in assisting with the management of patients with surgical problems. May be repeated to a maximum of eight credits. Lecture, five hours; laboratory, 35 hours. 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 course provides the student an experience in taking chest, abdominal, and extremity x-rays. 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. (6)
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. (6)
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. (4)
This course provides the student with an experience in evaluating the adult patient with the variety of acute and chronic problems seen in an out-patient setting. Prereq: Enrollment in the Clinical Associate Program.

AHE 870 CLINICAL EMERGENCY ROOM FOR CLINICAL ASSOCIATES. (4)
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. (4)
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 6 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 converences 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)
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 HPR 108.)

ASC 109 INTERMEDIATE EQUITATION. (1)
Emphasis on speed- and guide-control. Individual practice in cross-country with rating of speed in preparation for hunting, eventing and show. Prereq: ASC 108 or equivalent level of horsemanship and consent of instructor. (Same as HPR 109.)

ASC 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 HPR 286.)

ASC 287 JUMPING (HORSEBACK). (1)
Practice in jumping different obstacles used in hunting, eventing and show. Prereq: ASC 286 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, cut-out, pricing, cooking, preserving, and composition as each relates to the wholesomeness, economy and palatability of meat. Anatomical study of the location and structure of muscles, organs and glands and physiological functions of organs and glands will be included in laboratory exercises. Lecture, two hours; laboratory, four hours. Prereq: GEN 106.

ASC 306 SELECTION, EVALUATION AND USE OF ANIMAL FOOD PRODUCTS. (4)
History and growth of dairy, meat and poultry processing; physical and chemical composition and nutritive value of dairy meat and poultry products; identification, selection, evaluation and use of meat, dairy and poultry products; grading, processing and freezing methods; wholesale and retail sales methods. Lecture, three hours; laboratory, two hours.

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 ANIMAL FOOD PRODUCTS. (3)
Purpose, principles, technique and interpretation of results of chemical testing procedures essential to the control of animal food processing operations. Laboratory, six hours. Prereq: CHE 108 or consent of instructor.

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 non-majors only.

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 399 FIELD BASED/COMMUNITY BASED EDUCATION. (1-12)
A community-based or field-based experience in Animal Sciences, under the supervision of a faculty member. May be repeated for a maximum of 12 credits but is to be taken as an elective on a pass/fail basis. Prereq: Permission of faculty member and department chairman and completion of a departmental learning agreement before registration.

ASC 404 SHEEP SCIENCE. (3)
History and importance of the sheep industry; application of the principles of selection, breeding, feeding and management of sheep for efficient lamb and wool production. Lecture, one hour; laboratory, four hours. Prereq: ASC 300, ASC 362, ASC 364 and ASC 380.

ASC 406 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 408 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 410 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 412 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 410.

ASC 420 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 430 SENSORY EVALUATION OF FOODS. (3)
An intensive study of methods of sensory evaluation of foods by taste, smell, feel and sight. Physiological and psychological problems involved. Research and commercial implications. Statistical handling of data. Lecture, one hour; laboratory, four hours. Prereq: STA 370 or consent of instructor.

ASC 442 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 462 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. (4)
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, two hours; laboratory, six 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 food-born 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, eletrolytic dissociation, OX-Red potential, surface tension, viscosity, emulsification, and colloidal dispersion will be discussed. Lecture, three hours; laboratory, two hours. Prereq: CHE 332, MA 123, PHY 201, 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 476, 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 670 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 460.

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 670 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 670; 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 equivalent, BCH 502 or equivalent or consent of instructor.

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 once.

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)
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, industri 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.

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. (Same as SOC 253.) 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 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 402 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 421 NORTH AMERICAN INDIANS. (3)
A survey of North American Indian cultures. Both historical and contemporary cultures will be duscussed.

ANT 428 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 430 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 438 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 442 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)
Application of anthropological methods to contemporary practical problems such as acculturation, colonial administration, intercultural education, and race relations. 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.

ANT 529 SURVEY OF MEDICAL ANTHROPOLOGY. (3)
A cross-cultural survey of behavioral factors in the recognition, prevention and treatment of disease in primitive, folk, and modern cultures, with an emphasis on the solution of world health problems. Topics to be covered include non-western medical systems, health behavior as a projective system, transcultural medicine and psychiatry, and health behavior and culture change. Prereq: ANT 120, 121. (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 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 PREHSITORIC 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 442 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. Possible topics include Cultural Ecology, Urban Anthropology, Culture Roles of Women, Ethnohistory, etc. 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 SEMINAR IN METHOD AND THEORY IN ANTHROPOLOGY. (3)
Seminar discussion and individual student research covering current trends in theory and method in anthropological inquiry. Prereq: 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 once.

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.

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, 2 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 960 ARCHITECTURAL PHOTOGRAPHIC MEDIA IN DESIGN I. (2)
Development of creative capacity and visual awareness of architectural phenomena through photography. Exercises in visual organization and observation of three-dimensional form and space. Correlation of photographic analysis with architectural design, space and time concepts, aspects of light and color. Study of architectural models through photographic technique. Six hours per week. Prereq: Enrollment in College of Architecture and consent of instructor.

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

Rather extensive curriculum changes submitted by the Department of Art should become effective during the 1978-79 academic year. Students are encouraged to check in the Dean's Office, 206B Fine Arts Building, for current and accurate curriculum requirements.

ART 001-008 ART PROFESSIONS. (0)
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. Required of all art majors (art-education, art history, and art studio).

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 501 BASIC MUSEUM TRAINING: HISTORICAL ART. (3)
Theory and practice of curatorship; care and handling of art objects, conservation, connoisseurship, registration, research, publication, exhibition, public relations. Lectures, demonstrations, visits to galleries and museums, and practical experience in the University Art Gallery. Lecture, discussion, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of instructor.

ART 502 BASIC MUSEUM TRAINING: CONTEMPORARY ART. (3)
Introduction to the special problems of handling and displaying works of contemporary art with consideration of various functions of contemporary art exhibitions and their organization. Lectures, demonstrations, visits to galleries, and practical experience in the University Art Gallery and the Center for Contemporary Art. Lecture/discussion, three hours; laboratory, six hours. Prereq: Nine credits in art history and consent of instructor.

ART 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated once.

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 A&S 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 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 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 100 INTRODUCTION TO ART HISTORY. (3)
An introduction to the field of art history, and methods of study, and interpretation in selected periods, including an examination of sources and documents.

A-H 210 ANCIENT ART. (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. (Same as CLA 210.)

A-H 220 MEDIEVAL ART. (3)
With special emphasis on Western Europe, the developments in architecture, sculpture, painting and related arts are surveyed from the rise of Christianity to the beginnings of the Renaissance.

A-H 230 RENAISSANCE ART. (3)
A survey of art in Europe from the 14th century to the 18th century with emphasis on the major styles, artists, and developments from the early Renaissance through the age of the Baroque.

A-H 240 MODERN ART. (3)
Survey of the visual arts from the 18th through the 20th centuries with primary emphasis on Europe and the United States. Lectures, discussions, gallery visits, and field trips.

A-H 450 SEMINAR IN ART HISTORY. (3)
An intensive study of a particular work or group of works in the history of the visual arts, with special emphasis on interpretation of sources and the handling of visual and bibliographical materials. Primarily for art history majors. May be repeated to a maximum of six credits. Prereq: Two art-history courses at the 200 level or above and consent of instructor.

A-H 510 STUDIES IN ANCIENT ART. (3)
A specialized study of either a single site, a related group of sites, or the development of a form of art usually selected from ancient Greece, the Roman Empire, or Egypt. Emphasis on archaeology and cultural interpretation. May be repeated to a maximum of nine credits. Prereq: A-H 210 or HIS 229 or consent of instructor.

A-H 520 STUDIES IN MEDIEVAL ART. (3)
Individual studies of a specialized nature covering the period between 300 and 1400. Primary emphasis on the arts of Europe. May be repeated to a maximum of nine credits. Prereq: One art history course at the 200 level or above or consent of instructor.

A-H 530 STUDIES IN RENAISSANCE ART. (3)
A selected area, style, or period usually in European art from the 14th century through the age of the Baroque. Lecture presentation. May be repeated to a maximum of nine credits. Prereq: One art history course at the 200 level or above 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 18th 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 the instructor.

A-H 550 SELECTED TOPICS IN THE HISTORY OF PHOTOGRAPHY. (3)
An intensive investigation into a particular aspect of the development of photography as a fine art form and phenomenon related to 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 consent of instructor. (Same as ARC 962.)

A-H 590 TOPICAL STUDIES IN ART HISTORY. (3)
A topic or area not covered in the series of 500-589 courses; especially studies in media, forms, styles, iconography and in theoretical or critical studies. Readings, lectures, discussions. May be repeated to a maximum of nine credits. Prereq: Two art history courses or consent of the instructor.

A-H 592 AESTHETICS. (3)
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts, in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. (Same as PHI 592.)

A-H 594 CRITICISM OF ART. (3)
History and theory of criticism in the visual arts. A survey of major types of critical theory, historical and contemporary. Required of majors in art history; open to majors in philosophy, literature, and the arts.

A-H 599 INDEPENDENT WORK ART HISTORY. (3)
Supervised and sustained individual research in the history of art leading to the discovery and demonstration of new knowledge. May be repeated to a maximum of nine credits. Prereq: One art history course at the 500 level or above; major and a standing of 3.0 or higher in the department.

A-H 610 PROBLEMS IN ANCIENT ART. (3)
Intensive study of a single typological or archaeological problem with emphasis on cross-cultural interrelationships. Reading, research and oral presentations. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of the instructor.

A-H 620 PROBLEMS IN MEDIEVAL ART. (3)
Sustained individual research and visual analysis resulting in a paper of publishable form. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of instructor.

A-H 630 PROBLEMS IN RENAISSANCE ART. (3)
Problems in areas of topics of art history from the 14th century through the age of the Baroque which are not treated extensively in standard texts or monographs. Readings, presentations, discussions. May be repeated to a maximum of nine credits. Prereq: Twelve 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 of form and content crossing the customary period divisions of art history. Lectures, discussion, original research, and critiques. May be repeated to a maximum of nine credits. Prereq: Twelve credits in art history or consent of instructor.

A-H 750 GRADUATE ART HISTORY SEMINAR. (3)
An intensive study of a particular work or group of works in the history of the visual arts, with special emphasis on interpretation of sources and the handling of visual and bibliographical materials. Primarily for graduate students in art history. May be repeated to a maximum of six credits. Prereq: Graduate standing in the department or consent of instructor.

A-H 799 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. May be repeated to a maximum of nine credits. Prereq: Graduate standing in the department 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 drawing processes, such as charcoal, pencil, pen, paint and printed collage materials. Nine studio hours per week.

A-S 103 VISUAL EXPLORATION II. (3)
Continuation of the investigative process in drawing. Exploration of media. Nine studio hours per week. Prereq: A-S 102.

A-S 180 ART STUDIO. (2)
Training in basic design skills. Creative construction in common materials; logical development of unified forms.

A-S 215 ART STUDIO II. (3)
Introduction to technical and aesthetic problems in painting, color, and two-dimensional visual organization. Nine studio hours per week. Prereq: A-S 102, 103, 180.

A-S 220 GRAPHIC DESIGN. (2)
Basic training in the design of printing, lettering, layouts, and presentation. Studio, six hours. Prereq: A-S 102.

A-S 255 STUDIO III. (3)
Continued experience in three dimensional expression, emphasizing design and technical development, including modelling, mold making, fabrication and assemblage in a variety of matierals. Nine studio hours per week. Prereq: A-S 103.

A-S 302 INTERMEDIATE DRAWING. (3)
Development of draftmanship at an advanced level stressed. Formal and conceptual problems of drawing discussed in depth. Personal point of view encouraged. Nine laboratory hours per week. Prereq: A-S 102, 103, 180, 215, 255, and consent of instructor.

A-S 310 PAINTING I. (3)
Principles of pictorial structures and composition. Still life and landscape. Medium: oil. Prereq: A-S 103, and consent of instructor.

A-S 311 PAINTING II. (3)
A continuation of 310. Prereq: A-S 310, and consent of instructor.

A-S 320 PRINTMAKING I. (3)
Investigation and use of existing and/or invention of new 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 340 FIBER: WEAVING I. (3)
Design of textiles, emphasis on structure, color, texture. Techniques of drafting, warping and weaving on various types of looms. Nine studio hours per week. Prereq: A-S 102, 180, and consent of instructor.

A-S 341 FIBER: WEAVING II. (3)
Continuation of A-S 340; emphasis concerned with developing technical skill as well as increased aesthetic values. Weaving on four or multiple harness looms. Nine laboratory hours per week. Prereq: A-S 340, and consent of instructor.

A-S 342 FIBER: NON-WOVEN I. (3)
Exploration of the designing and execution of wall hangings and other fabrics using stitchery and applique techniques. Intensive work in color and textures, threads and natural materials. Nine laboratory hours per week. Prereq: A-S 102, 180, and consent of instructor.

A-S 343 FIBER: NON-WOVEN II. (3)
Continuation of A-S 342. Emphasis concerned with developing technical skill as well as increased aesthetic value in stitchery, rug knotting, macrame. Nine laboratory hours per week. Prereq: A-S 342, and consent of instructor.

A-S 350 SCULPTURE I. (3)
Individual investigation of expression in a variety of sculptural media. 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)
The design, construction, glazing and firing of pottery. Studio, nine hours. Prereq: A-S 103.

A-S 371 CERAMICS II. (3)
A continuation of A-S 370. Prereq: A-S 370 and consent of instructor.

A-S 502 ADVANCED DRAWING. (3)
Introduction and exploration into experimental materials and media. Relation of traditional and contemporary drawing attitudes to other areas investigated. Independent projects encouraged. Nine laboratory hours per week. Prereq: A-S 302 and consent of instructor.

A-S 510 PAINTING III. (3)
Individual development in creative painting. May be repeated to a maximum of nine credits. Prereq: A-S 311 and consent of instructor.

A-S 520 PRINTMAKING III. (3)
Individual development in printmaking. Nine hours per week. Prereq: A-S 321 consent of instructor. May be repeated to a maximum of nine credits.

A-S 540 ADVANCED FIBER. (3)
Woven and non-woven techniques combined in creating fabrics in relation to architectural demands. Aesthetic exploration in depth of materials, color and texture. Nine laboratory hours per week. Prereq: A-S 340, 342 and consent of instructor. May be repeated to a maximum of nine credits.

A-S 550 SCULPTURE III. (3)
Individual development in creative sculpture. Nine studio hours per week. May be repeated to a maximum of nine credits. Prereq: A-S 351 and consent of instructor.

A-S 570 CERAMICS III. (3)
Theory and application in calculation of low and high fire glazes and clay bodies. Studying the properties of raw materials, and exploring the possibilities of various firing ranges. Original development of clay and glazes is encouraged and results analyzed. Nine laboratory hours per week. Prereq: A-S 371 and consent of instructor.

A-S 571 CERAMICS IV. (3)
In addition to doing advanced wheel problems, students concentrate on the creation of "new" functional forms and the problems of one-man production methods. Personal development of clay and glazes is encouraged. Nine laboratory hours per week. May be repeated to a maximum of nine hours. Prereq: A-S 570 and consent of instructor.

A-S 595 INDEPENDENT WORK: PAINTING, PRINTMAKING. (3)
Individual work in drawing, painting, and printmaking. May be repeated to a maximum of nine credits. Prereq: Major and a standing of 3.0 in the department and consent of instructor.

A-S 596 WORKSHOP. (1-6)
Summer workshops in sculpture or ceramics dealing with advanced problems. Prereq: Consent of instructor.

A-S 597 INDEPENDENT WORK: ADVANCED SCULPTURE AND OTHER THREE-DIMENSIONAL MEDIA. (3)
May be repeated to a maximum of nine credits. Individual research and experimental work. Prereq: Major and a standing of 3.0 in the department; any course in the 300 sequence and 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 in-

tegration 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 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.

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 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 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 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 491 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 492 GALACTIC ASTRONOMY II. (3)
Study of content, organization, and evolution of our own and other galaxies. Prereq: AST 292 or consent of instructor.

AST 495 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 496 ELEMENTARY ASTROPHYSICS II. (3)
Applications of the principles of elementary physics to the problems of stellar atmospheres and interstellar matter. Prereq: AST 495; 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

(See also courses listed under Botany, Microbiology and Zoology.)

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 210 NATURE STUDY. (4)
Get acquainted studies of animals and plants and their relationships to human culture. Elementary materials for use of schools, nature clubs, scouts, etc. Lecture, laboratory, field work.

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 104 or 112. (This course is a prerequisite to a significant number of courses in this area of study.)

BIO 290 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 476 and CHE 112.

BIO 295 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 476 and CHE 112.

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 semester 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 110-112.

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 404 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 411 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 411.)

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 451 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 465 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 476 GENERAL BACTERIOLOGY. (4)
Microorganisms; their morphology, classification, physiology, relation to certain fermentations, to food, to soil fertility, and to disease. Lecture and recitation, two hours; laboratory, four hours. Prereq: CHE 104 or 112.

BIO 490 APPLIED BACTERIOLOGY. (2)
A course in bacteriological analysis to supplement courses 276 and 476. Laboratory, four hours. Prereq: BIO 276 or 476, and CHE 112.

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 401 or equivalent and consent of instructor. (Same as MMI 515.)

BIO 516 PLANT CYTOLOGY. (4)
The structure of plant cells; mitosis and meiosis. Lecture, three hours; laboratory, two hours. Prereq: Three credits in the biological sciences.

BIO 517 PLANT MICROTECHNIQUE. (3)
The principle methods used in the preservation and preparation of plant materials for microscopic examination; basic microscopy; histo-chemistry; techniques for measurements and illustration. Laboratory, six hours.

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: 3 hours per week; laboratory: 4 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 112.

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 451 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 110, 112, 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 569 HELMINTHOLOGY. (4)
The etiology, epidemiology, pathology, diagnosis, prophylaxis and control of trematode, cestode and nematode parasites of vertebrates, with special emphasis on those of veterinary and medical importance. Given alternate years. Prereq: BIO 563 or consent of instructor.

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-hours. 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, one hour. 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 404 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 476 and CHE 112.

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 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 404 or equivalent; BCH 401 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.

BIO 620 GENETIC STRUCTURE OF POPULATIONS. (3)
A discussion of the development, theory and practice of experimental and theoretical population genetics, including the basic dynamics and integrating properties of populations, factors which produce changes in populations and their effects on population structure and evolution. Prereq: An introductory course in genetics and in statistics, and consent of instructor. (Same as AGR 620.)

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 632 PLANT MORPHOGENESIS. (5)
Culture of isolated plant organs in test tubes containing synthetic media. Study the effect of auxins, vitamins, amino acids and many other chemicals on the physiology and development of single cells, tissues and organs. Lecture, two hours; laboratory, six hours. Prereq: BIO 530, 574 or 517, or consent of instructor.

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 401.

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 678 STATISTICAL GENETICS. (3)
Statistical approaches to the analysis of quantitative inheritance; definition and estimation of genetic parameters relating to selection; inbreeding theory; randommating and inbred populations; testing and planning in genetic experiments. Prereq: STA 672 and BIO 620 or consent of instructor. (Same as STA 678 and AGR 678.)

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 476; and CHE 112.

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 476 and BIO 108; CHE 112.

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 401 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 476 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 six credits equivalence.

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 once.

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 once.

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 once.

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 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 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 INDUSTRIAL RELATIONS. (3)
Historical development of industrial relations; labor organizations; analysis of labor management relationships from social, economic and political perspectives; manpower; supervision and leadership; introduction to recruitment, selection, job evaluation, training; wages, hours, promotion, health policies; current problems. Prereq: BA 335 or consent of instructor.

BA 340 THE LEGAL ENVIRONMENT OF BUSINESS. (3)
An interdisciplinary approach to the legal environment of business. Primary focus on the nature and development of law as an expression of social and economic policy. Historical and contemporary analyses of a number of specific legal questions involving the corporate organization. Prereq: Junior standing and consent of instructor.

BA 341 BUSINESS LAW I. (3)
A survey of the principles of contracts, sales, bills, notes, and that portion of the law of torts applicable to business practices. Prereq: Junior standing or consent of instructor.

BA 345 CORPORATE 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 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 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. May be repeated to a maximum of six credits. Class hours and laboratory hours by appointment. Prereq: Consent of instructor.

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 434 RESEARCH IN MARKETING. (3)
Training in the application of scientific method to research in fields of marketing. A major marketing investigation will be conducted by the class. Prereq: BA 330, ECO 91 or equivalent.

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 439 BUSINESS POLICY. (3)
Analysis of management problems, formulation of alternative courses of action, determination of policy decisions. Prereq: Senior standing or consent of instructor.

BA 441 BUSINESS LAW II. (3)
A continuation of BA 341. Prereq: BA 341 or consent of instructor.

BA 445 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. (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.

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 450 QUANTITATIVE ANALYSIS IN MANAGEMENT. (3)
An introduction to quantitative techniques in management decisions. Includes basic linear programming, Monte Carlo, and waiting line theory. Prereq: BA 335 and ECO 391, or consent of instructor.

BA 456 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 the problems, theories and techniques used in recruitment, job analysis, selection decisions, interviewing, performance evaluation, and training in organizations. Prereq: BA 335, ECO 391, or consent of instructor.

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 481 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 450.

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 471.

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 485.

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 485 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: A course in marketing 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.

BA 636 RESEARCH AND REPORT WRITING. (3)
An introduction to business research and formal report writing. Emphasis is placed on methodology, research desigh, techniques of analysis, and data sources. The actual writing of research reports is stressed.

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.

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.

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: A course in business finance or consent 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, incremenetal analysis, and other phases of operations research. Prereq: MA 113.

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.

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 methodlogies. 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.

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.

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 and BA 650 or equivalent, or consent of instructor.

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 once.

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.

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. (4)
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 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 795 SPECIAL TOPICS IN PUBLIC ADMINISTRATION. (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.

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)
Lecture 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 200 PROCESS PRINCIPLES. (3)
Material and energy balances using the first law of thermodynamics, thermophysics and thermochemistry. Physical and chemical process analysis. Prereq or concur: MA 114, PHY 231.

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 108 or CHE 112, 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 200.

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, 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. (1)
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, three hours. Prereq: ME 325, ME 330, CME 422; and prereq or concur: CME 550.

CME 432 CHEMICAL ENGINEERING LABORATORY II. (3)
Continuation of CME 431, including diffusional operations such as distillation, absorption, and drying. Lecture, one hour; laboratory, six hours. Prereq: CME 422, 431.

CME 455 CHEMICAL ENGINEERING PROCESS DESIGN I. (2)
A lecture and problem-solving course devoted to the study of chemical engineering economics as it applies to the design of chemical process units and systems. Prereq: ME 325, CME 422.

CME 456 CHEMICAL ENGINEERING PROCESS DESIGN II. (2)
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. Prereq: CME 455.

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 432 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 440 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 440, 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: CME 455, 550 and CHE 440 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 CONTROLL 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 442, or consent of instructor.

CME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)

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 100 INTRODUCTORY CHEMISTRY. (4)
This course deals with those general principles of chemistry which give the necessary foundation for practical work in nutrition, materia medica, and other subjects. Lecture and recitation, three hours; laboratory, two hours.

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 103 CHEMISTRY A CULTURAL APPROACH II. (3)
This course 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 106 ELEMENTARY GENERAL CHEMISTRY I. (4)
This course is for science students who have not had high school chemistry or scored too low on entrance examinations to enter CHE 110. The approach is more elementary than CHE 110 and 112. Lecture, three hours; recitation, one hour. Prereq: Composite score above ACT 25 percentile (College Bound Norms), or one semester college work.

CHE 108 ELEMENTARY GENERAL CHEMISTRY II. (3)
This course is for science students who have not had high school chemistry or scored too low on entrance examinations to enter CHE 110. The approach is more elementary than CHE 110 and 112. Prereq: CHE 106.

CHE 110 GENERAL COLLEGE CHEMISTRY I.* (3)
The principles of chemistry and the properties and reactions of the more important elements and their compounds. Prereq: High school chemistry and composite score above ACT 50 percentile (College Bound Norms).

CHE 112 GENERAL COLLEGE CHEMISTRY II.* (3)
The principles of chemistry and the properties and reactions of the more important elements and their compounds. Prereq: CHE 110.

*This course is prerequisite to a significant number of courses in this and related areas of study.

CHE 115 GENERAL CHEMISTRY LABORATORY. (3)
Laboratory for science majors in CHE 106, 108 or 110, 112 sequence. Lecture, one hour; laboratory, four hours. Prereq or concur: CHE 108 or 112.

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 108 or 112, and 115.

CHE 230 ORGANIC CHEMISTRY. (3)
Fundamental principles and theories of organic chemistry. Prereq: CHE 108 or 112, 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 108, or 112, 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 440 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 108 or 112, and 115; MA 213; PHY 232.

CHE 441 PHYSICAL CHEMISTRY LABORATORY. (2)
Laboratory studies in physical chemistry to accompany CHE 440 or 444. Laboratory, six hours. Prereq or concur: CHE 440 or 444.

CHE 442 PHYSICAL CHEMISTRY. (3)
A continuation of CHE 440. Prereq: CHE 440.

CHE 443 PHYSICAL CHEMISTRY LABORATORY. (3)
A continuation of CHE 442. Laboratory studies in physical chemistry to accompany CHE 442 with emphasis upon the proper treatment of data. Laboratory, six hours; recitation, one hour. Prereq or concur: CHE 442.

CHE 444 PHYSICAL CHEMISTRY. (3)
For students in agriculture and in the biological sciences. Prereq: CHE 108 or 112, and 115; MA 113; PHY 213.

CHE 490 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 112 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 112, 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: CHE 442.

CHE 532 SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS. (1)
The application of nuclear magnetic resonance, ultraviolet and infrared spectroscopy and mass spectrometry to the solution of problems in organic structure determination. Prereq: CHE 233.

CHE 533 QUALITATIVE ORGANIC ANALYSIS. (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 442, 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 440.

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. (2)
A detailed investigation of a topic of current significance in chemistry. May be repeated to a maximum of six credits. Prereq: CHE 232 and 440 or 444, or consent of instructor.

CHE 582 CHEMICAL LITERATURE. (1)
Training in the use of chemical literature. Prereq: Junior or senior standing.

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 443 and 520.

CHE 625 OPTICAL METHODS OF ANALYSIS. (3)
An intensive study of the theory and applications of each of the following methods: emission spectroscopy, absorption spectrophotometry, colorimetry, refractometry, and polarimetry. Laboratory, six hours. 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 640 ELECTROCHEMISTRY. (2)
Absorption and potential distribution at the electrode surface. Mechanism and kinetics of electrode processes. Kinetic interpretation of such phenomena as reversibility and overvoltage. Prereq: CHE 442 or 548.

CHE 645 CHEMICAL THERMODYNAMICS. (3)
Principles and applications of chemical thermodynamics. Prereq: CHE 442.

CHE 646 CHEMICAL KINETICS. (3)
Studies of chemical reactions from the standpoint of velocity and mechanism. Prereq: CHE 442.

CHE 647 QUANTUM CHEMISTRY. (3)
An introduction to quantum mechanics with emphasis on the aspects closely related to chemistry. Prereq: CHE 547.

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 443.

CHE 720 ELECTROCHEMICAL METHODS OF ANALYSIS. (3)
Classification of methods. Inherent and practical limits of sensitivity. Polarographic, voltametric and pulse methods. Lecture and laboratory, seven hours. Prereq: CHE 522 and 640.

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 442. May be repeated to a maximum of 12 credits.

CHE 747 ADVANCED QUANTUM CHEMISTRY. (3)
An advanced treatment of quantum chemistry with emphasis on the methods and procedures used in its applications. Prereq: CHE 647.

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.

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. (1-5)
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 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 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 425 SOIL MECHANICS. (3)
A study of soil and its utilization in foundations for structures and subgrade for highways. Stabilization and improvement of bearing values. Lecture, two hours; laboratory, three hours. Prereq or concur: GLY 240, EM 302.

CE 485 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 ARC 831, or consent of instructor.

CE 487 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 489 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 487, CE 492.

CE 492 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. Prereq: MA 214 and CE 215.

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 425.

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, 425.

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)
Properties and performances of major materials used in civil engineering contruction—mineral aggregates, portland cement concrete, bituminous materials, structural steels and certain appurtenant materials. Economical and statistical considerations used in specifying, testing, and inspecting materials are stressed. Prereq: CE 301.

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 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 matehmatics. 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 425, 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 425 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 425 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, 421, 423, 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 489 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 492, 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)

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.

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: MIM 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 451 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 451 or consent of instructor.

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: 2 hours; laboratory: 3 hours per week. Prereq: MIN 332 and MIN 341.

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 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 482.

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 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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.

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 ANCIENT ART. (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. (Same as A-H 210.)

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 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 424 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 425 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 426 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 480 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 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 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 605 COMPARATIVE GREEK AND LATIN GRAMMAR. (3)
Studies or research in comparative linguistics, historical syntax, semantics, and other aspects of linguistics in the Greek and Latin area. Prereq: Necessary command of the languages involved.

CLA 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated once.

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: PGY 502, 503; BSC 421 (statistics). BCH 501 to be taken concurrently.

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.

CM 601 PRINCIPLES OF NUTRITION IN POPULATION GROUPS. (2)
Epidemiological aspects of nutrition. Factors affecting adequacy of dietary intake and assessment of nutritional status in population groups. Community programs in social welfare and public health, including city, state, federal and international programs. Field work four weeks. Course will be taught through lectures and discussions. Prereq: BCH 501; BSC 421 (statistics); PGY 502, 503; SOC 780; consent of instructor.

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)
Investigates the flow of information through information storage and retrieval system; abstracting, indexing, file organization, storage, search strategy, dissemination of information and its utilization. Consideration will also be given to special problems of vocabulary control, semantic and syntactic controls, determination of user requirements and the evaluation of system performance. Prereq: LS 605, or consent of instructor. (Same as LS 614.)

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: LS 614.

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: LS 605 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. (2)
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 once.

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 515 COMMUNICABLE DISEASES. (3)
Environmental sanitation and the effects of environment on the control of communicable diseases. Prereq: BIO 276 or 476 or equivalent.

CH 520 MENTAL HYGIENE. (3)
An introduction to mental hygiene including a consideration of the cause, treatment and prevention of mental disorders. Not open to students who have credit in PSY 520.

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 603 PUBLIC HEALTH RECORDS. (2)
General principles of recording, filing and use of public health data.

CH 604 MATERNAL AND CHILD HEALTH. (2)
A study of the principles of maternal, prenatal, infant and child care.

CH 612 PUBLIC HEALTH ADMINISTRATION. (3)
A consideration of the principles of public health administration.

CH 613 PUBLIC HEALTH ADMINISTRATION. (2)
A continuation of CH 612.

CH 618 VITAL STATISTICS. (3)
Application of the statistics of population, births, deaths, etc., in public health.

CH 619 VITAL STATISTICS. (2)
A continuation of CH 618.

CH 770 SEMINAR. (1)

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.

Comparative literature courses. See CLA 235, 236, 261, 262, 424, 425; ENG 261, 262, 361, 560, 561, 562, 563; FR 261, 414, 415, 460, 461, 462; GER 300, 412, 501, 505, 510, 511; SO 263, 264, 555, 556, 563; SPI 261, 315, 316, 318, 319, 420, 543, 544, 591.

COMPUTER SCIENCE

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 and an engineering major. 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 250 COMPUTER ORGANIZATION AND PROGRAMMING. (3)
Number bases, data and instruction representations, assembler language programming, principles of programming, computer operating systems, hardware components and their relation to software, input/output devices, and input/output programming. Prereq: CS 150.

CS 310 DATA PROCESSING FOR COMPUTER SCIENCE MAJORS. (3)
An introduction to important basic concepts in computing. Prereq: CS 250.

CS 340 DISCRETE STRUCTURES IN COMPUTER SCIENCE. (3)
An introduction to those algebraic and logical concepts fundamental to computer science and to their application in computer science. Including basic set algebra, groups, semigroups, elements of graph theory and Boolean algebra. Prereq: CS 150 or CS 221.

CS 370 DATA STRUCTURES. (3)
An introduction to structures of information sets covering syntactic or semantic relations. The generation, development and processing of structures and their interrelationships, machine instructions and storage hierarchies. Prereq: CS 250.

CS 396 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 415 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% of the course will be on general theory of graphs, 30% on algorithms and 15% on applications of these algorithms. Prereq: CS 150 or equivalent. (Same as MA 415.)

CS 416 PRINCIPLES OF OPERATIONS RESEARCH I. (3)
The course is an introduction to modern operations research and includes discussion of modeling, linear programming, dynamic programming, integer programming, scheduling and inventory problems and network algorithms. Prereq: MA 213 or equivalent. (Same as MA 416.)

CS 420 ALGORITHMIC LANGUAGES AND COMPILERS. (3)
This course acquaints the student with the formal description of procedure-oriented languages and the techniques useful in the translation of these languages into computer programs. Prereq: CS 250.

CS 421 ELEMENTARY NUMERICAL ANALYSIS I. (3)
Computer arithmetic. Discussion of the various types of errors. Solution of systems of linear algebraic equations—elementary discussion. Solution of a single nonlinear algebraic equation. Polynomial interpolation. Numerical differentiation and integration. (This course could serve as an introduction both for the specialist and the non-specialist.) Prereq: MA 214 plus CS 150, or CS 221, or consent of instructor. (Same as MA 421.)

CS 445 COMPUTING AND THE HUMANITIES. (3)
An introduction to the use and significance of computing for those who are interested in how to use a computer, but who are not necessarily interested in how to program it. The course will cover the history and social implications of computing but will concentrate more heavily on what results have been and can be obtained in the humanities through the use of well-planned digital computation.

CS 472 SEMINAR. (2)
Weekly report on current research papers. Discussion of new advances in computer science. May be repeated to a maximum of six credits. Prereq: CS 250 or 370 or consent of instructor.

CS 482 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 STA 482, MA 482.)

CS 502 USE AND MANAGEMENT OF MINI-COMPUTERS. (3)
Concepts and techniques employed by mini-computers are discussed. Topics include machine architecture, languages, and operation; utility programs; interrupts and input/output processing; file management; and applications. Prereq: Knowledge of FORTRAN and graduate standing 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 515 STUDY OF COMPUTER ARITHMETIC. (3)
Application of computers to problems in business, statistics, and number theory. Equation-solving, simulation of random processes. Exclusively for candidates for the MATM or for a Master's degree in education. Prereq: MA 214 or equivalent, and ability to program in FORTRAN.

CS 520 FUNDAMENTALS OF PROGRAMMING LANGUAGES. (3)
An intensive survey of fundamental programming concepts and higher level languages. The following languages will be presented in which the students will be required to complete programming assignments: ALGOL, PL/I, SNOBOL, COBOL and FORMAC. Prereq: CS 370 or consent of instructor.

CS 525 ANALOG AND HYBRID COMPUTER TECHNIQUES. (3)
Application of analog and hybrid computers in the solution of systems of integro-differential-difference equations. Prereq: MA 214 or consent of instructor.

CS 530 COMPUTATIONAL METHODS. (3)
A study of computational methods from the user's standpoint rather than from the designer's. Lecture, two hours; laboratory, two hours. Prereq: MA 421 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: MA/CS 421, CS 250.

CS 538 ELEMENTARY NUMERICAL ANALYSIS II. (3)
A continuation of CS/MA 421. Gaussian quadrature, orthogonal polynomials, least squares approximation by polynomials, Fourier methods, linear difference equations. Numerical methods for ordinary differential equations. This course is not available for credit to persons who have received credit in MA 521. Prereq: CS/MA 421. (Same as MA 538.)

CS 540 SYSTEMS SIMULATION. (3)
Computer simulation techniques including building and utilizing deterministic and stochastic models for digital and analog computers, Monte Carlo. Prereq: CS 150 or CS 221 and a course in statistics or probability.

CS 541 ADVANCED COMPILER DESIGN I. (3)
Lexical scan, data-directed parsing methods, mathematical analysis of syntactic analysis methods. Prereq: CS 420, or equivalent, or consent of instructor.

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 COMPUTERS AND PROGRAMMING SYSTEMS. (3)
Advanced concepts in software design, development, and implementation including priority, executive, and real time computer systems. Prereq: CS 420.

CS 575 FORMAL LANGUAGE THEORY. (3)
A study of various types of formal grammars and the languages they generate; phrase-structure grammars; context-sensitive, context-free, and regular grammars. Recognition of languages by various types of automata: Turing machines, pushdown automata, and finite automata. Decidability and undecidability of questions concerning languages. Prereq: LISP or SNOBOL programming or consent of instructor.

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 611 DISCRETE COMPUTER MATHEMATICS II. (3)
This course, a continuation of CS 510, will deal primarily with computer oriented applications of the various methods and techniques developed in CS 510, primarily to problems in graph theory and algebraic coding theory. Prereq: CS 510.

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 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 462 or MA 522 or equivalent.

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 433, 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 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 420.

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 480 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 480, 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 ADVANCED PROGRAMMING SYSTEMS I. (3)
Programming topics including list processing and recursion. Non-sequential processing including time-sharing system. Prereq: CS 570 or equivalent.

CS 691 ADVANCED PROGRAMMING SYSTEMS II. (3)
Non-sequential processing including time-sharing systems, virtual memory, input/output practices, and practices connected with operating systems. Prereq: CS 690.

CS 768 RESIDENCE CREDIT FOR MASTER'S DEGREE. (1-6)
May be repeated.

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 RESTORATIVE DENTISTRY (PLASTIC RESTORATIVE MATERIALS). (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 or extracted teeth in a laboratory setting. Concurrent: CDS 812, 818. (Same as RSD 810 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.

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 is an introductory course to freshman dental students. The purpose is to familiarize the student with the history and the profession of dentistry, its professional organization, moral obligation, code of ethics, and the variety of ways that dentistry can be practiced. Lectures, seminars, and office visitations are used to allow the students to see and discuss, as well as to hear about, the total environment in which dentistry is being practiced and what direction the profession is taking for the future.

CDE 830 THE COMMUNITY AND THE DELIVERY OF DENTAL SERVICES. (2)
This course is designed to allow students to participate in a five-day field experience (The Community Laboratory) in a small community in Kentucky. The students explore the political, social and demographic characteristics of the community. Attention is directed to health services provided by public agencies and the private sector of medical and dental practices. Finally, the students develop a plan for the effective delivery of dental health care to the population of the community.

CDE 841 DENTAL PRACTICE FIELD EXPERIENCE. (10)
Students will be provided a full-time, off-campus assignment to a dental practice environment for a period of 10 weeks. Students will spend an average of 32 hours each week participating in practice management and patient treatment activities under the supervision of a dentist. Approximately 8 hours a week will be 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. Lecture: 20 hours; laboratory: 10 week extramural experience. Prereq: Completion of three years of dental school.

(See Conjoint Dental Sciences for electives.)

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 presenting basic concepts on communication, history taking, physical diagnosis, soft an hard tissue examination, treatment planning and case presentation. Includes lectures, hospital rounds, and clinical activities. Prereq: Admission to the College of Dentistry or consent of instructor.

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 director.

CDS 816 PRINCIPLES OF PATIENT MANAGEMENT I. (1)
This course presents the basic principles of Phase I 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 the clinic. Lecture, 35 hours. Prereq: CDS 811 or consent of instructor.

CDS 818 PRECLINICAL DENTAL PHYSICAL SCIENCES. (2)
This course is coordinated with preclinical and clinical dentistry courses and is interspersed with them over the first two years of the curriculum. The course introduces the student to fundamental mechanisms and theories responsible for the behavior of materials and emphasizes the basic principles underlying their application to dentistry. It is concerned with the physical and chemical properties of materials used in the laboratory and those used during patient treatment. Prereq: Admission to the College of Dentistry or consent of instructor.

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 ANESTHESIOLOGY. (1)
Techniques for administration of local anesthetics in dental practice are covered. Methods of patient evaluation and emergency techniques for cardiac and respiratory resuscitation are taught. The role of general anesthetics in dental practice is described. Lecture, 23 hours.

CDS 822 DIAGNOSIS AND TREATMENT OF OCCLUSAL PATHOLOGY. (2)
Directed toward the examination, diagnosis and treatment of occlusal disharmonies of the natural dentition associated with mandibular dysfunction and periodontal occlusal trauma. Theory and practice of occlusal adjustment includes clinical and laboratory experiences in selective grinding and biteguard fabrication. Prereq: CDS 811, CDS 812.

CDS 824 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 816.

CDS 825 INHALATION SEDATION. (1)
This course is designed to teach the principles of safe administration of nitrous-oxide oxygen inhalation sedation in dentistry. Lectures, demonstration, and clinical participation are the teaching methods used. Prereq: OBI 820, CDS 821.

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 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, 2 hours per week for 10 weeks. Prereq: PDO 820 or consent of instructor.

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 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 DENTAL AUXILIARY UTILIZATION. (5)
A dental assistant will be assigned to each student for a period of six weeks for the purpose of teaching the student how to utilize the assistant. Lecture, one hour; laboratory, 24 hours a week for six weeks. Prereq: CDS 846.

CDS 848 TRAINING EXPANDED AUXILIARY MANAGEMENT. (2)
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. Prereq: CDS 846.

CDS 849 CLINICAL TRAINING EXPANDED AUXILIARY MANAGEMENT. (5)
This course is designed to provide clinical management experience for all fifth-level students. The student will actively manage a team dental practice. Through clinical and seminar teaching the student will learn the basic skills needed to effectively manage a dental practice. Prereq: CDS 847, CDS 848.

CDS 851 FIRST-YEAR ELECTIVE. (1-10)
Elective courses of a didactic, clinical or research nature are offered by the various departments of the College of Dentistry to provide for in-depth study of or experience in selected topics. Topics will be announced and any course prerequisite stated. Prereq: First-year standing or higher and consent of instructor.

CDS 852 SECOND-YEAR ELECTIVE. (1-15)
Elective courses of a didactic, clinical or research nature are offered by the various departments of the College of Dentistry to provide for in-depth study of or experience in selected topics. Topics will be announced and any course prerequisites stated. Prereq: Second-year standing or higher and consent of instructor.

CDS 853 THIRD-YEAR ELECTIVE. (1-20)
Elective courses of a didactic, clinical or research nature are offered by the various departments of the College of Dentistry to provide for in-depth study of or experience in selected topics. Topics will be announced and any course prerequisites stated. Prereq: Third-year standing or higher and consent of instructor.

CDS 854 FOURTH-YEAR ELECTIVE. (1-20)
Elective courses of a didactic, clinical or research nature are offered by the various departments of the College of Dentistry to provide for in-depth study of or experience in selected topics. Topics will be announced and any course prerequisites stated. Prereq: Fourth-year standing and consent of instructor.

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: CDS 812 and RSD 810, or consent of instructor.

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 831 ENDODONTICS II. (2)
This course consists of a lecture series relating to a detailed consideration of the theory of endodontic therapy including surgical endodontic procedures. The students are examined on their diagnostic ability by means of clinical endodontic problem solving. The student also treats a variety of clinical cases. Lecture, 20 hours; clinic, 40 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.

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 CELL BIOLOGY FOR DENTAL STUDENTS. (3)
The study of the cell as the basic unit of biological structure and function is specifically tailored for dental students. An analysis of procaryotic and eucaryotic cell theory, including nutrition, growth, and division provides the basis for understanding normal and pathologic human physiology in subsequent courses. Microbiology and infectious disease are integrated to enable design and implementation of a practical program of dental operatory disinfection and sterilization. Instructional methods may include self-instruction, formal lectures and/or discussion periods. Lecture/discussion, four hours plus self-instruction. Prereq: Admission to the College of Dentistry or consent of instructor.

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. Instruction methods may include self-instruction, formal lectures, and/or discussion periods. Lecture/discussion, four hours plus self-instruction. Prereq: Enrollment in the College of Dentistry and successful completion of OBI 810 or consent of instructor.

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/discussion, four hours plus self-instruction. Prereq: Enrollment in the College of Dentistry and successful completion of OBI 812, or consent of instructor.

OBI 816 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 the following specialized tissues are discussed: conducting and contracting tissues, connective tissues, lining and secretory tissues, and other specialized tissues. Instructional methods may include self-instruction, formal lectures, and/or discussion periods. Lecture/discussion, four hours plus self-instruction. Prereq: Enrollment in the College of Dentistry and successful completion of OBI 814, or consent of instructor.

OBI 820 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/discussion, four hours plus self-instruction.

Prereq: Enrollment in the College of Dentistry and successful completion of OBI 816, or consent of instructor.

OBI 822 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/discussion, four hours plus self-instruction. Prereq: Enrollment in the College of Dentistry and successful completion of OBI 820 or consent of instructor.

OBI 830 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: Enrollment in the College of Dentistry and successful completion of OBI 822, or consent of instructor.

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 816 or consent of instructor.

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: CDS 824, ODM 821.

ODM 832 PRINCIPLES OF MEDICINE AND PATHOLOGY. (2)
This course is designed to give the student an integrated exposure to the related fields of oral medicine, radiation biology, internal medicine, and psychiatry. The incorporation of the diverse material into a unified activity should result in an effective correlation between basic sciences and the relation of physical and emotional diseases to the management of dental patients. Prereq: OPT 820 or consent of instructor.

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.

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. (6)
A general survey of human diseases, with special attention to diseases with dental and oral implications. Topics discussed include immunology and immunologic disease, inflammation and healing, principles of neoplasia, injury due to physical, chemical and microbial agents, nutritional and developmental disorders and diseases involving the major systems of the body. Instructional methods may include self-instruction, lectures and/or discussion. Prereq: Enrollment in the College of Dentistry and successful completion of ANA 530 and 532, or consent of instructor.

OPT 830 ORAL PATHOLOGY. (2)
Programmed instruction and computer assisted instruction formats are utilized. The student learns salient features of the pathology and patient management of commonly encountered diseases of the head and neck regions. With the individualized approach to instruction, the student has the option to progress at his own rate. Prereq: Parts I and II of OPT 820.

ORAL 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. The course is taught by self-instructional methods and seminar sessions. Prereq: CDS 811 or consent of instructor.

OSG 830 ORAL SURGERY II. (2)
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 the head and neck cancer patients. The diagnosis and management of facial fractures also are presented, particularly as they relate to the general practitioner. Prereq: OSG 820 or consent of instructor.

OSG 831 ORAL SURGERY HOSPITAL ROTATION I. (2)
An introduction to the management of oral surgical patients in a hospital and in an outpatient clinic. Instruction is given in writing hospital orders and ordering laboratory tests. The student assists in patient care and carries out oral surgical procedures such as exodontia and biopsy. The student participates in a rotation on the oral surgery hospital service, including standing in-hospital night call with the oral surgery house staff. Oral surgical management of comprehensive care patients is also included. Two weeks clinical rotation. Prereq: CDS 821 and OSG 820 or consent of instructor.

OSG 841 ORAL SURGERY HOSPITAL ROTATION II. (2)
This course follows the format of OSG 831, but a higher level of performance is expected. It includes another full-time rotation on the oral surgery hospital service, with further experience in performing oral surgical procedures. Oral surgical management of comprehensive care patients is also included in this course. Two week clinical rotation. Prereq: OSG 831 or consent of instructor.

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 CHILDREN'S ORTHODONTICS. (1)
This course introduces the student to the principles of orthodontic data collection and analysis, diagnostic procedures, and treatment planning. Laboratory procedures equip the student with the technical skills necessary to treat minor tooth irregularities in the primary and/or mixed dentitions. Prereq: CDS 828 or permission of the course director.

ORT 822 ADVANCED CHILD AND ADULT ORTHODONTICS. (1)
This course is designed to develop the cognitive and clinical skills necessary to manage preventive and adjunctive orthodontic problems. Emphasized are the methods for evaluating occlusal problems and identifying those conditions treatable by the general dental practitioner. Laboratory procedures provide the technical skills for appliance fabrication and activation. Lecture/discussion, 18 hours; laboratory, 12 hours. Prereq: ORT 820 or consent of instructor.

ORT 831 CLINICAL ORTHODONTICS I. (1)
In this clinical course the dental student must provide orthodontic therapy to those assigned patients who required 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 822 or consent of instructor.

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.

PEDODONTICS

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. (1)
A combined lecture, programmed, seminar, technique course designed to introduce basic modern concepts in dentistry for children. Emphasis is placed on principles of child management and basic restorative dentistry techniques. Lecture/programmed instruction, 25 hours. Prereq: CDS 828 or consent of course director.

PDO 821 BASIC CLINICAL CHILDREN'S DENTISTRY. (1)
A basic clinical course designed to teach management

of the normal child with minimal dental treatment needs in a clinic environment and using current techniques. Clinic, 45 hours. Prereq: PDO 820 or consent of instructor.

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. Programmed instruction—total course time 11 hours. Prereq: PDO 821 or consent of course director.

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. Prereq: PDO 830 or consent of instructor.

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.

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, 26 hours; laboratory, 24 hours. Prereq: Admission to the College of Dentistry or consent of instructor.

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; laboratory, three hours. Prereq: PER 810 or consent of instructor.

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. Prereq: PER 820 or consent of instructor.

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.

PROSTHODONTICS

PRO 820 PRECLINICAL COMPLETE DENTURE PROSTHODONTICS. (2)
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 situation. Lecture/discussion, 20 hours; laboratory, 52 hours. Prereq: ANA 530, 534; CDS 818.

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 822 PRECLINICAL REMOVABLE PARTIAL DENTURE PROSTHODONTICS. (2)
An introductory course in the basic fundamentals of removable partial denture fabrication for the general dentist. The course emphasizes the associated biologic and technical procedures in a removable partial denture service. Special attention is devoted to diagnosis and treatment planning for the partial denture patient. Biomechanical principles involved in the design of component parts of the partial dentures are examined from the standpoint of their relationship to the entire prosthesis. The student is introduced to the dental cast surveyor and its several uses and ultimately designs removable partial dentures for several selected situations in the laboratory. Lecture, 17 hours; laboratory, 23 hours. Prereq: PRO 820.

PRO 830 ADVANCED REMOVABLE PROSTHODONTICS. (1)
A lecture course which introduces the student to advanced clinical and laboratory procedures involved in complete and removable partial denture treatment situations such as the immediate denture, relining of dentures, and denture repairs. Lecture/discussion, 15 hours. Prereq: PRO 822.

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 830.

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.

RESTORATIVE DENTISTRY

RSD 810 RESTORATIVE DENTISTRY (PLASTIC RESTORATIVE MATERIALS). (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 is presented. Procedures are done on manikins or extracted teeth in a laboratory setting. Coreq: CDS 812, CDS 818. (Same as DH 930.)

RSD 812 PRINCIPLES OF OCCLUSION AND TOOTH MORPHOLOGY. (5)
Detailed study of the teeth, individually and collectively. Includes relationships of teeth, and the significance of tooth form to function is emphasized as is the practical relationship 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. Prereq: Admission to College of Dentistry or consent of instructor.

RSD 820 RESTORATIVE DENTISTRY (CAST GOLD). (3)
This is a preclinical course with specific emphasis placed on dental hard tissue surgery for single-tooth posterior restorations. The various types of posterior gold inlays and onlays and their relationship to the patient's biologic needs are included. Inlay preparations and restorations are performed using manikins and extracted teeth. Knowledge gained in dental morphology, occlusion, and dental physical sciences is applied in this course. Prereq: CDS 822 and RSD 810;coreq: RSD 821.

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 810; coreq: RSD 820.

RSD 830 FIXED ANTERIOR AND POSTERIOR PROSTHODONTICS. (5)
Continuation of RSD 820. The course builds upon the technical skills and understanding gained in that course. Prereq: RSD 820; coreq: RSD 831.

RSD 831 CLINICAL RESTORATIVE DENTISTRY II. (4)
A continuation of RSD 821 as well as some clinical application of principles taught in RSD 820. 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 820 and RSD 821; coreq: RSD 830.

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, 831.

DIPLOMACY AND INTERNATIONAL COMMERCE

(PATTERSON SCHOOL OF DIPLOMACY)

DIP 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated.

DIP 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

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. (3)
An introductory course. The theory of income and employment and values theory. Not open to freshmen.

ECO 261 PRINCIPLES OF ECONOMICS. (3)
The major emphasis is on distribution theory and public policy. Prereq: ECO 260.

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 being urban sprawl, the vanishing urban tax base, and urban poverty. Prereq: ECO 261 or consent of instructor.

ECO 391 ECONOMIC AND BUSINESS STATISTICS. (3)
Distributions of means, proportions, and variances. Introduction to non-parametric tests, analysis of variance, non-linear regression and correlation, multiple regression, statistical decision theory, and time series and index numbers. Emphasis on application to economic and business problems. Prereq: STA 291 or or equivalent.

ECO 395 INDIVIDUAL WORK IN ECONOMICS. (1-6)
Students confer individually with the instructor. May be repeated to a maximum of six credits.

ECO 396 TUTORIAL WORK IN ECONOMICS. (1)
Open only to Arts and Sciences majors.

ECO 460 MANAGERIAL ECONOMICS. (3)
A treatment of topics and applications germane to the decision maker in business and the public sector. Operational aspects of demand analysis, product and cost theory, market structure, and public regulation. Graduate credit will not be given for both ECO 460 and BA 635. Prereq: ECO 261.

ECO 461 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 462 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 487 and 488, and senior level standing.

ECO 463 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 464 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 465 COMPARATIVE ECONOMIC SYSTEMS. (3)
A study of capitalism, socialism, fascism, communism, and cooperation, with attention to current experiments in economic planning. 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 465.

ECO 467 THE ECONOMIC HISTORY OF THE UNITED STATES AND WESTERN EUROPE: ECONOMIST VIEW. (3)
The related development of the European and American economies will be examined within the general framework of economic theory. Major emphasis will be given to the long-run process of economic growth with the period of analysis beginning from the 16th to the beginning of the 19th century. Prereq: ECO 260 and 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 467.

ECO 469 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 471 INTERNATIONAL ECONOMICS. (3)
An analysis of the determinants of the pattern of international trade and the behavior of the international financial system, with careful attention to the problems of government policy in both the highly developed and the less developed countries. Prereq: ECO 260 and 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 471.

ECO 473 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 473.

ECO 477 LABOR ECONOMICS. (3)
Insecurity, wages and income, substandard workers, industrial conflict; wage theories; the economics of collective bargaining; unionism in its structural and functional aspects; recent developments. 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 477 or consent of instructor.

ECO 479 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 479.

ECO 481 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 477 or consent of instructor.

ECO 483 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 483.

ECO 485 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 485.

ECO 487 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. Credit will not be given for this course for students who have received credit in ECO 360. Prereq: ECO 260, 261.

ECO 488 INTERMEDIATE MICROECONOMIC THEORY. (3)
An analysis of the behavior of consumers and firms irice determination, various market structures, and income distribution. No credit will be given for this course for students who have received credit for ECO 361. Prereq: ECO 260, 261.

ECO 491 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 493 SOCIAL AND CULTURAL DETERMINANTS OF ECONOMIC GROWTH AND DEVELOPMENT. (3)
The first part of the course deals with economic variables determining growth and development. The second part deals with the social and cultural forces having a predominant impact upon the variables discussed in part one. The purpose is to emphasize that economic development is a long-run concept and depends heavily upon the impact of the social and cultural forces on the economic variables. Prereq: SOC 101; ECO 261. (Same as SOC 493.)

ECO 494 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 488; 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 487 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 422 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 488 or consent of instructor.

ECO 661 ADVANCED MACROECONOMIC THEORY. (3)
National income and employment theory, theories of inflation, and problems of economic growth. Prereq: ECO 487 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 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 487 and 488, 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 471, 485.

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 471.

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 473 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 473 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 487 and 488 or consent of instructor.

ECO 679 SEMINAR IN PUBLIC FINANCE I. (3)
Reading and discussion of current and standard literature on public finance problems and the theory of the public economy. Individual research reports. Prereq: ECO 479 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 488 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 487 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 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 BA 651.)

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 465 or consent of instructor.

ECO 760 SEMINAR IN MICROECONOMIC THEORY. (3)
Recent developments and major issues in contemporary microeconomic theory. Prereq: ECO 660 or consent of instructor.

ECO 761 SEMINAR IN MACROECONOMIC THEORY. (3)
Recent developments and major issues in contemporary macroeconomic theory. Prereq: ECO 661 or consent of instructor.

ECO 762 WELFARE ECONOMICS. (3)
An intensive study of advanced topics in economic theory as it pertains to human welfare. Prereq: ECO 660 or consent of instructor.

ECO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated.

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 471.

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 473.

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 relations and economic security legislation. Prereq: ECO 676 or consent of instructor.

ECO 779 SEMINAR IN PUBLIC FINANCE II. (3)
Essentially a continuation of ECO 679. Individual research reports. Prereq: ECO 479, 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—MACRO THEORY. (3)
Selected aggregative models treated mathematically. Emphasis on maximization problems for linear systems. Leontief input-output models. Prereq: ECO 487, MA 113 or equivalent.

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 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 502 THE ADMINISTRATION OF PUPIL PERSONNEL. (3)
Administrative problems relating to child accounting, including school census, attendance records and reports, social and economic factors affecting school attendance, and duties and responsibilities of school and non-school personnel and agencies.

EDA 601 ADMINISTRATION OF EDUCATIONAL ORGANIZATIONS. (3)
A study of the historical development of educational administration, administrative processes, the application of theory and values in decision making and an introduction to modern management methods applied to education.

EDA 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 772 SEMINAR IN EDUCATION. (1)
A course planned for graduate students majoring in education, given under the direction of the faculty of the College of Education. May be repeated to a maximum of two credits.

EDA 785 INDEPENDENT WORK IN SCHOOL ADMININSTRATION. (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 120 ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL. (3)
Designed to give experiences with materials for arts and crafts related to classroom activities such as the playhouse, panoramas, dioramas, puppet shows, friezes, mural painting, map making, booklets, and colonial crafts.

EDC 305 FUNDAMENTALS OF SECONDARY EDUCATION. (2-3)
A consideration of problems which develop in connection with student teaching at the secondary level. This course is to be taken during the same semester in which the student is engaged in student teaching.

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.

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, HF 255, or equivalent; or consent of instructor.

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.

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.

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.

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, HF 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 implmentation experiences in a laboratory setting. One laboratory hour per week. Lecture: 4 hours per week. Prereq: EDP 202, HF 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

EDC 411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION.* (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 FHR 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.

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.

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.

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.

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.

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.

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.

EDC 539 THE ELEMENTARY CURRICULUM. (3)
The philosophy and techniques of curriculum construction and some practical work in construction.

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 572 MODERN EDUCATIONAL PROBLEMS. (VOCATIONAL EDUCATION). (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 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 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 735 THE CORE PROGRAM IN THE SECONDARY SCHOOL. (3)
Deals with the philosophical and psychological basis of the core program and gives major emphasis to problems of teaching in the core class. A course designed for teachers, principals, supervisors.

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 750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC. (3)
A study of current trends in school music, curricula, testing programs, and other supervisory procedures. Offered either as an education course or as a music course using same number. (Same as MUS 750.)

EDC 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. (Same as MUS 751.)

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 once.

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, inter-institutional 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 once.

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 203 PSYCHOLOGY OF TEACHING. (3)
Theories and concepts of individual differences and the basis for student exceptionality, the psychology of classroom management and instruction, and the assessment of student learning and achievement are presented to students who must apply this knowledge in their field experience and project work to the age level and content area in which they plan to teach. A field experience in a school or other educational agency is a required and basic part of the course. Lecture, three hours; laboratory, two hours for a minimum of six weeks. Prereq: Successful completion of EDP 202 with an earned grade of C or higher.

EDP 518 MENTAL HYGIENE. (3)
A general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed. Not open to students who have had CH 520. Prereq: PSY 100 or 215, or EDP 202.

EDP 519 THE ELEMENTARY SCHOOL PUPIL. (2)
The psychology of the child in the primary and intermediate grades. Prereq: One course in psychology.

EDP 520 THE SECONDARY SCHOOL PUPIL. (3)
The psychology of the pupil in junior and senior high school. Prereq: One course in psychology.

EDP 521 INTRODUCTION TO VOCATIONAL REHABILITATION (COUNSELING AND GUIDANCE). (3)
Survey of vocational rehabilitation: historical, legal, and administrative aspects of rehabilitation services; survey

of rehabilitation services; and the role of the counselor in rehabilitation process.

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 600 HUMAN DEVELOPMENT AND BEHAVIOR. (3)
Child and adolescent study as related to the physiological, social and psychological bases of human behavior. Critical evaluation of current theories of human development.

EDP 601 HUMAN SOCIAL DEVELOPMENT. (3)
Survey of current research and theory regarding motor skills, social development, initiation, 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 PRACTICE IN TESTING: INTELLIGENCE TESTS. (4)
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, three hours; laboratory, two hours. Prereq: PSY 535 or EDP 653 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. (Same as PSY 650.)

EDP 652 THEORIES OF COUNSELING. (3)
A survey of theories and methods in facilitating personality growth, character maturations, problem solving, decision making, crisis resolutions, and behavior change, through interviewing. Prereq or concur: PSY 501 and a course in child psychology or human development.

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 657 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 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 or consent of instructor.

EDP 664 PSYCHO-SOCIAL ASPECTS OF DISABILITY. (3)
Investigation of psychological and social reactions to the onset of disability and adjustments as related to personality variables and minority group membership. Implications for job placement and vocational adjustment counseling. Lecture, two hours; laboratory, three hours. Prereq: EDP 521.

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 675 PRACTICUM IN SCHOOL PSYCHOLOGY. (5)
Supervised experience in the application of psycho-educational diagnostic, and remediation techniques, and consultation skills in a school psychology setting. Requires one full day per week or two half days in actual on-site assessment and consultation plus a minimum of two hours weekly in a seminar. Lecture, two hours; laboratory, eight hours. May be repeated to a maximum of 10 credits. Prereq: EDP 640 and EDP 759.

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 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 759 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, and of ways that have proved effective in meeting individual needs, especially in secondary schools.

EDP 762 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES. (3)
A study of the problems of staffing, supervision, finances, interpersonal relationships, community participation, in-service education and evaluation of guidance programs. Prereq: Twelve hours of guidance and counseling work and 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 once.

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 98 PLANNING A CAREER IN EDUCATION.(0)
A general orientation program for freshman students who expect to enter the teaching profession. It is in this course that information is supplied to students about the different programs in teaching, and information is secured from the student as to his ability, interest in and aptitude for teaching.

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 historical foundations of education to and in modern times. To be offered by correspondence **only**.

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 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 599 FOUNDATIONS OF MULTI—CULTURAL AND INTERNATIONAL EDUCATION. (3)
Examination of the educational implications of cultural pluralism in our society and interdependence among nations; special topics include bilingual/bicultural programs, world order education, and area studies.

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 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 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 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 724 EPISTEMOLOGICAL PROBLEMS IN EDUCATION. (3)
A study of knowledge and inquiry as they relate to problems of formulating educational policy and curriculum design. Prereq: EDF 640.

EDF 725 ANALYSIS OF VALUE QUESTIONS IN EDUCATION. (3)
A study of the nature of value as it relates to formulating and justifying aims and policies, curriculum design and the teaching-learning process. Materials in ethics, value theory, and aesthetics are used in the appraisal of educational theory. Prereq: EDF 640 or equivalent.

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 once.

EDF 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDF 773 SEMINAR IN FOUNDATIONS OF EDUCATION. (3)
A critical study of selected problems in the foundations of education areas.

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.

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.

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.

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.

EDS 379 FUNDAMENTALS OF HEARING. (3)
Investigation of the anatomical, physiological, and neurological bases of hearing; physics of sound; and elementary psychoacoustics.

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.

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.

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 377 and EDS 381: SP/A majors only.

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.

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 588 and EDS 381; SP/A majors only.

EDS 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 SP 500.)

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 consent of instructor.

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.

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.

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.

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.

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.

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.

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.

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 524 PROGRAMS FOR THE ADOLESCENT MENTALLY RETARDED. (3)
A study of the philosophy, organization, and principles of education and rehabilitation programs for the adolescent mentally retarded. Emphasis is placed on the respective roles of educational and rehabilitation agencies and their interaction in the preparation of retarded youth for successful post-school adjustment. Prereq: EDS 530.

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.

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 579 STUTTERING. (3)
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: EDS 577.

EDS 587 AUDIOMETRY. (3)
Basic clinical techniques for assessing hearing acuity. Topics include identification audiometry, methods of puretone threshold determination, interpretation of audiograms and speech audiometry. Prereq: EDS 584 or consent of instructor.

EDS 591 AURAL REHABILITATION. (3)
Principles and methods of speech and hearing therapy including speech reading, auditory training, speech conservation and hearing aid counseling for children and adults. Prereq: EDS 584 or consent of instructor.

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: Consent of instructor.

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 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 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 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 613 ARTICULATION AND ARTICULATION DISORDERS. (3)
Research and clinical findings on articulation and articulation disorders. Topics include articulation testing and prediction, variables related to articulation performance and articulation programming (therapy).

EDS 614 VOICE AND VOICE DISORDERS. (3)
Research on voice and voice disorders. Topics include a review of voice physiology and organic and functional voice disorders.

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 617 CLEFT PALATE AND CEREBRAL PALSY. (3)
Description, assessment and interdisciplinary management of organic speech disorders, particularly those associated with orofacial anomalies and dysarthria. Review of relevant research.

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 627 PRACTICUM IN SPEECH THERAPY. (3)
Practical case work in speech therapy in speech clinic, hospitals, and public schools. Training in diagnostic examinations, case history methods, and group therapy. Prereq: EDS 577, 578. May be repeated to a maximum of six credits.

EDS 630 EDUCATION MODELS IN SEVERE DEVELOPMENTAL DISABILITIES. (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. To be taken concurrently with EDS 631. Laboratory: Nine hours last ten weeks of semester. Lecture: Three hours. Prereq: Course in applied behavior analysis and consent of instructor.

EDS 631 INSTRUCTIONAL PROGRAMMING WITH SEVERELY DEVELOPMENTALLY DISABLED. (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 ten 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 RESEARCH PRACTICES IN THE EDUCATION OF THE SEVERELY DEVELOPMENTALLY DISABLED. (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 DISORDERS OF LANGUAGE. (3)
Emphasis on adult aphasia and developmental language disabilities, theories, research findings, assessment procedures, and therapy approaches. (Same as PSY 647.)

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 672 THEORIES OF EDUCATING EMOTIONALLY DISTURBED CHILDREN. (3)
A systematic review of various teaching philosophies related to the education of emotionally disturbed children. Observation and participation in educational settings reflecting these philosophies will be provided. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

EDS 702 SEMINAR IN SPEECH PATHOLOGY. (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. (2)
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. (2)
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. (2)
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. (2)
Study of the design and implementation of special education teacher preparation programs, including syllabus development, organization of class presentations, instructional alternatives, scheduling, student assessment, professor-student interactions, student advising, resource identification and utilization and program evaluation. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 721 PRACTICUM IN SPECIAL EDUCATION PERSONNEL PREPARATION. (1-9)
Supervised practicum experiences related to the preparation of special education teachers, including practice in delivering lectures, conducting class discussions, leading seminars, directing independent studies, guiding student research projects, demonstrating instructional methods and materials, supervising special education student teachers and advising. Laboratory, three-nine hours. May be repeated to a maximum of nine credits. Prereq: Admission to the Ed.S. or Ed.D. program in special education or consent of instructor.

EDS 730 SEMINAR IN SPECIAL EDUCATION ADMINISTRATION. (2)
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 once.

EDS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

EDS 779 SEMINAR IN SPECIAL EDUCATION (VARIABLE TOPIC). (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 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. Offered on a pass-fail basis only.

EDV 580 MATERIALS AND METHODS 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.

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.

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.

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 673 PROGRAM DEVELOPMENT IN VOCATIONAL AGRICULTURE. (3)
A course in program and curriculum development for the specialized vocational areas in agriculture; a study of the occupational opportunities and the training needs for specific areas (farm operation, agricultural business, agricultural mechanics, horticulture, forestry, park management, etc.). Each student makes a study of local or area needs and works out a one or two year course of study for a senior high or post-high school program. Prereq: EDV 580 or consent of instructor.

EDV 675 MODERN PROBLEMS IN AGRICULTURAL EDUCATION. (3)
Class work (not individual-problem work) on modern problems in agricultural education. May be repeated to a maximum of nine credits.

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.

EDV 682 EDUCATION IN AGRICULTURE FOR YOUNG ADULTS. (3)
Preparation for teaching young people who are becoming established in an agricultural occupation, including farming, farm service operators and agricultural employees. Curriculum content and method of teaching applicable to each group is emphasized.

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.

EDV 511 TEACHING SECRETARIAL SUBJECTS. (3)
A study of effective teaching in shorthand, transcription, business communication, and secretarial office practice.

EDV 512 TEACHING BOOKKEEPING AND ACCOUNTING. (3)
Methods, materials, and techniques used in the teaching of bookkeeping and accounting. Required of business education majors.

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.

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.

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. 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.

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.

EDV 526 ORGANIZATION AND OPERATION OF ADULT PROGRAMS IN DISTRIBUTIVE EDUCATION. (3)
The organization and administration of adult classes; development of curriculum, personnel, instructional materials, and methods of teaching. Prereq: EDV 516 or 528, or consent 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.

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. 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.

EDV 588 ADULT EDUCATION IN HOME ECONOMICS. (3)
Problems in teaching vocational homemaking in day, part time, and evening schools. Prereq: EDV 586; concur: EDV 362.

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.

EDV 610 SIMULATED OCCUPATIONAL EXPERIENCE PROGRAM IN DISTRIBUTIVE EDUCATION. (2-4)
Designed primarily for teachers interested in developing programs utilizing simulated occupational experience. Demonstration teaching and use of actual facilities and equipment in business and industry by the students will be stressed. Instruction will be provided in the selection of equipment and teaching aids utilized in a simulated program. Lecture, two-four hours; laboratory, three. Prereq: EDV 517 or 528, or consent of instructor.

EDV 683 CURRENT PROBLEMS IN HOME ECONOMICS EDUCATION. (3)
Recent developments in home economics education. Prereq: EDV 586 and 362; experience in teaching.

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, 9-30 hours.

IND 222 OCCUPATIONAL INTERNSHIP FOR INDUSTRIAL TEACHERS. (1-3)
Coordinated occupational experience in an industrial environment for persons desiring to become industrial teachers. Emphasis is given to the development of occupational competence, trade theory, meeting production schedules, employer-employee relations and industrial safety. 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.

EDV 524 MODERN INDUSTRIAL ANALYSIS. (2)
Modern industrial organizations; trends in industrial educational policies; the proper approach to and analysis of these problems as they affect the industrial vocational teacher.

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 534 ORGANIZATION AND OPERATION OF PART-TIME AND EVENING CLASSES. (2)
A course for administrators, coordinators, and teachers in part-time and evening industrial education. Covers the duties of a coordinator in cooperative training programs.

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 once.

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 402 ELECTRONIC ADMINISTRATION 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. Prereq: EE 305 or PHY 242 or consent of instructor. (Same as PHY 402.)

EE 403 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 415 ELECTROMECHANICS I. (3)
Study of idealized electromechanical systems and rotary energy converters with emphasis on their dynamical behavior. Prereq: EE 221, EE 467.

EE 416 ELECTRICAL ENGINEERING LABORATORY III. (2)
Laboratory practice and experimental studies related to EE 415. Lecture, one hour; laboratory, three hours. Prereq or concur: EE 415.

EE 420 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 461 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 462 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 461.

EE 467 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 468 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 467.

EE 471 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 420.

EE 480 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 403 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 420.

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 420 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 415.

EE 520 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 420.

EE 528 ELECTROMAGNETIC RADIATION AND WAVE PROPAGATION. (3)
Review of basic electromagnetic theory, electromagnetic potentials, Hertz potential; waveguide theory, circular waveguides; theory of simple linear antennas, antenna arrays, slot antennas, electromagnetic horns, principle of broadband antennas; introduction to plasma dynamics, wave propagation in plasmas, introduction to ionospheric physics, wave propagation in the ionosphere. Prereq: EE 468.

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 461 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 420, 467.

EE 562 ELECTRONIC CIRCUITS II. (3)
Feedback amplifiers, tuned and untuned amplifiers, oscillators, AM and FM transmitters. Prereq: EE 461.

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 562.

EE 564 ELECTRONIC CIRCUITS III. (3)
Timing, scanning, trigger, logic and pulse circuits; video and broadband RF amplifiers. Prereq: EE 461.

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 471.

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 480.

EE 582 DIGITAL SYSTEMS LABORATORY. (3)
A laboratory course on the design of digital systems. Experiments in digital logic include basic gates, encoders, decoders, multiplexers, flip-flops, counters, shift-registers, and arithmetic processors. Experiments in computer interfacing include machine-language programming, electrical access to the accumulator and memory-buffer, interaction of bus-signals with external devices, and analog/digital conversion. Lecture, one hour; laboratory, six hours. Prereq or concur: EE 581.

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 461, CS 221; prereq or concur: EE 471.

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.

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 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 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 EE 599 number.

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 SYSTEM ANALYSIS I. (3)
Fundamental properties of linear systems, time domain techniques, singularity functions, convolution and superposition integrals, the Fourier integral, two-sided Laplace transforms, Z-transforms, difference equations and discrete time systems. Prereq: EE 520.

EE 612 LINEAR SYSTEM ANALYSIS II. (3)
Concepts of state, natural modes of linear systems. State variable methods in linear systems with an introduction to non-linear and time-varying systems, concepts of controllability, observability, and Lyapunov stability. 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 SAMPLE-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 520 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 621 INTRODUCTION TO ANTENNAS. (3)
Fundamental antenna concepts, array theory, linear radiators, loops, helices, mutual coupling, reflectors, measurement theory. Prereq: EE 468.

EE 625 ELECTROMAGNETIC PROPAGATION AND SCATTERING. (3)
Theory of electromagnetic wave propagation in anisotropic and inhomogeneous media; ionospheric radio propagation; waves in plasmas. Prereq: EE 468 or consent of instructor.

EE 626 MICROWAVE ENGINEERING. (3)
Generation, detection, and measurement of microwave energy; vacuum tubes at ultra high frequencies; the klystron, the magnetron, travelling wave tubes; solid state microwave devices. Prereq or concur: EE 468.

EE 627 ELECTROMAGNETIC FIELDS. (3)
Advanced studies in electromagnetic fields; radiation and propagation of electromagnetic waves; propagation in anisotropic media; diffration theory; electrodynamics of moving media. Prereq: EE 468.

EE 631 DISCRETE INFORMATION THEORY I. (3)
Entropy, Markov sources, algebra of codes, classification of codes, Shannon's theorems, compact codes, linear codes, error detection and error correction, syndrome vectors. Prereq: Consent of instructor.

EE 632 DISCRETE INFORMATION THEORY II. (3)
Plotkin, Gilbert and other bounds, Hamming codes, Reed-Muller and other linear codes, cyclic codes, Bose-Chandhurl codes, sequential decoding, convolution encoding. Prereq: EE 631.

EE 635 PATTERN RECOGNITION. (3)
Introduction to and equivalence of approaches to pattern recognition, matched filtering, decision theoretic methods, sequential approach and learning machines. Prereq: Consent of instructor.

EE 640 CONTINUOUS STOCHASTIC PROCESSES I. (3)
Random variables, stochastic processes, stationary processes, correlation and power spectrum, mean-square estimation, filter design, decision theory, Markoff processes, simulation. Prereq: STA 523.

EE 641 CONTINUOUS STOCHASTIC PROCESSES II. (3)
Continuation of EE 640. Prereq: EE 640.

EE 645 COMMUNICATION SYSTEMS I. (3)
The formulation, optimization, and implementation of digital and analog communication systems. Topics include signal representation and design, optimal detection methods, modulation, channel modeling, and diversity techniques. Prereq: EE 511 or consent of instructor.

EE 646 COMMUNICATION SYSTEMS II. (3)
Communication channel capacity and the formulation and implementation of systems that approach the channel capacity. The design and optimization of analog modulation and demodulation systems. Prereq: EE 645.

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 653 OPTICAL PROCESSING. (3)
Emphasis on both the mathematical modeling and the use of optical equipment in the solution of diverse physical problems which lend themselves to a "photographic" type output. Lecture, two hours; laboratory, three hours. Prereq: Consent of instructor.

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 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 461 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 480 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 480, MA 561. (Same as CS 683.)

EE 711 NETWORK SYNTHESIS I. (3)
The first of a two-semester sequence of courses giving

a comprehensive treatment of modern network synthesis. Prereq: EE 611.

EE 712 NETWORK SYNTHESIS II. (3)
The second of a two-semester sequence of courses giving a comprehensive treatment of modern network synthesis. Prereq: EE 711.

EE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 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.

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 432 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.

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 432 or equivalent. (Same as MA 485.)

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 432 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)
Generalized rigid body kinematics, concept of reference frames, generalized forces for holonomic and nonholonomic systems, inertia properties of rigid bodies, and energy functions. Lagrange's form of D'Alembert's principle for holonomic and non-holonomic systems. Prereq: EM 313, MA 432 or consent of instructor.

EM 646 ADVANCED DYNAMICS II. (3)
Continuation of EM 645. Application of Lagrange's equations in deriving equations of motion; first integrals and conservation theorems; Hamiltonian formalism. Applications to engineering systems. 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 432 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 432 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 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated.

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 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 106 ADVANCED FRESHMAN COMPOSITION. (3)
A continuation of ENG 105. The reading matter is largely imaginative: poetry, drama, fiction. Excellence in ENG 101 or 105 and recommendation of the instructor required for admission.

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.

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 203 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. Prereq: ENG 101 or 102, or 105 and sophomore or junior standing.

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.

ENG 207 IMAGINATIVE WRITING. (3)
Exercise in imaginative writing; description, character study, narrative. Prereq: Consent of instructor; ENG 101 and 102 normally required. 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.

ENG 221 SURVEY OF ENGLISH LITERATURE. (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. (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. Prereq: Sophomore standing.

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. Open to freshmen with consent of instructor and dean.

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. Open to freshmen with consent of instructor and dean.

ENG 261 SURVEY OF WESTERN LITERATURE FROM THE GREEKS THROUGH THE RENAISSANCE. (3)
A study of major continental writers and their works, using anthology selections and one complete work.

ENG 262 SURVEY OF WESTERN LITERATURE FROM 1660 TO THE PRESENT. (3)
A study of major continental writers and their works, using anthology selections and one complete work.

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 TESTMANET. (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 film. Emphasis on film types, the film as a fine art form, and the aesthetics of film.

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. Prereq: Background in some foreign language recommended. (Same as LIN 301.)

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 the 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 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. Prereq: Junior standing.

ENG 380 FILM CRITICISM. (3)
Primary consideration will be given to the poetics of different types of film—silent, documentary, mystery, expressionistic, and so on. Consideration will also be given to the film as a visual art form, but criticism will be directed mainly toward the aesthetics of the film. Lecture, three hours; laboratory, two hours.

ENG 381 HISTORY OF FILM. (3)
The history of film from the invention of the moving picture to the present. Emphasis on film movements and early directors.

ENG 390 JUNIOR 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: Junior standing and 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. May be repeated to a maximum of six credits. Prereq: Major, standing of 3.0 in the department, and permission of the chairman.

ENG 401 ADVANCED PROFESSIONAL WRITING. (3)
Instruction and practice in the writing of expository and research papers. Credit for this course may not be counted toward any graduate degree. Prereq: Freshman English requirements; junior standing.

ENG 414 INTRODUCTION TO MODERN ENGLISH LINGUISTICS. (3)
A study of phonemics, morphemics, and syntax. Special attention will be given in laboratory sessions to practical applications. Prereq: Junior standing.

ENG 421 CHAUCER. (3)
Extensive readings in the principal works of Chaucer, with particular attention to *The Canterbury Tales.*

ENG 422 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 423 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 425 SHAKESPEARE SURVEY. (3)
A study of ten to twelve of the major plays of Shakespeare, including comedies, tragedies, and histories. The student may receive credit for this course and for either ENG 526 or ENG 527, but not both; and only one of these three courses may count toward fulfillment of the requirements for the English major.

ENG 426 SHAKESPEARE STUDIES I. (3)
A selection of Shakespeare's works through *Hamlet* (1601) will be studied in detail.

ENG 427 SHAKESPEARE STUDIES II. (3)
A selection of Shakespeare's works after *Hamlet* will be studied in detail.

ENG 428 MILTON. (3)
Extensive readings in Milton's poetry and prose.

ENG 430 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 431 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 435 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 436 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 438 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 439 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 440 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 441 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 442 THE 20th CENTURY ENGLISH NOVEL. (3)
A study of the English novel and its backgrounds from Conrad and the Age of Transition to the present. Emphasis on the major figures of the pre-World War II era such as Joyce, Lawrence, Forster, and Virginia Woolf.

ENG 451 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 452 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 453 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 454 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 455 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 473 GENERAL INTRODUCTION TO FOLKLORE. (3)
An introduction on a world-wide scope to the 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 474 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 477 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 478 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 490 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 491 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.

500 LEVEL COURSES

500 level courses: Many courses on the 500 level are basically survey courses whose purpose is to give an intensive overview of the literature and literary history of the period as a whole.

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.

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 414.

ENG 512 MODERN ENGLISH GRAMMAR. (3)
Contemporary approaches to grammatical analysis; the interrelationships of phonology, morphology, and syntax. Prereq: ENG 414.

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 culture. Chief emphasis is on *Beowulf*; some works will be read in translation.

ENG 520 BEOWULF. (3)
Translation and study of *Beowulf.* Prereq: ENG 519 recommended.

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 541 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 542 TWENTIETH CENTURY BRITISH LITERATURE. (3)
British literature of the 20th century, with particular attention to the poetry, to literary movements, and to critical theory.

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 I. (3)
A study of Greek and Latin literature from Homer to the Middle Ages.

ENG 561 COMPARATIVE LITERATURE II. (3)
Study in English of major works of continental European literature. Late medieval period to mid-17th century.

ENG 562 COMPARATIVE LITERATURE III. (3)
Study in English of major works of continental European literature written in modern languages, especially French, German, Spanish, Italian, Russian, mid-17th century to end of 19th century.

ENG 563 COMPARATIVE LITERATURE IV. (3)
Masterpieces and examples of 20th century Western World literature, 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.

ENG 566 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 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. May be repeated to a maximum of six credits. Prereq: Junior standing or consent of instructor.

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 474 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.

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 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 425, 426, 427 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.

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 once.

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 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 400 ECONOMIC ENTOMOLOGY. (3)
For those interested in agricultural teaching and extension work. Life history, control, and identification of

economic insects of Kentucky are considered.

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 400, CHE 230 or 236, AGR 404, PPA 575. (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 541 or equivalent. (Same as BIO 564.)

ENT 606 INSECTICIDE CHEMISTRY AND TOXICOLOGY. (3)
Toxic action of insecticides; preparation, use, and analysis of insecticides; residues; analytical methods in insect toxicology. Lecture, two hours; laboratory, two hours. Prereq: Consent of instructor.

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 650 ADVANCED APPLIED ENTOMOLOGY. (3)
Bionomics of insects; representative insecticides, their characteristics, formulation, scope of use, safety factors, and methods of application. Lecture, two hours; laboratory, two hours. Prereq: ENT 100 or 400.

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 entomplogical 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 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 BIO 672.)

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 once.

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.

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. (3)
Classification, nomenclature, identification and silvical characteristics of trees and other woody plants based on their morphological, phylogenetic and ecological relationships. Lecture, two hours; laboratory, two hours. Prereq: One semester of botany or equivalent. (Same as BIO 265.)

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. (2)
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. Lecture, one hour; laboratory, two hours. 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 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 445 FOREST FIRE: CONTROL AND USE. (2)
Study of fire ecology, behavior, weather, fuels, prevention, detection, suppression, and control; use and effect of prescribed burning in forest ecosystems. Lecture, two hours with occasional extended field trips. Prereq: FOR 350.

FOR 450 SENIOR SEMINAR IN FORESTRY (PROSEMINAR). (2)
Professional seminar in forestry. Discussion of current issues and the application of current forestry principles to actual practice. Prereq: Full senior standing in forestry.

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. Lecture, two hours; laboratory, two hours with occasional extended field trips. 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 612 FOREST ECOSYSTEM ANALYSIS. (4)
A detailed analysis of the climatological, physiographic and biological parameters of the mixed-mesophytic forest and an evaluation of the effects of forest management practices within this region on site factors, off-site factors, and on other related uses of the forest. Lecture, two hours; laboratory, four hours. Prereq: FOR 350, FOR 460, and 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 or one year of high school French.

FR 106 ELEMENTARY FRENCH REVIEW. (4)
A course designed to give remedial work to students who enter with two units of high school French but do not qualify for FR 201. Prereq: Two years of high school French.

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 221 BEGINNING FRENCH I. (3)
Beginning French for undergraduates taking French as a second foreign language. Emphasis on reading skills and oral comprehension. Students completing the FR 221-222 sequence will be prepared to take courses in French literature. Prereq: Four semesters of another foreign language, or equivalent.

FR 222 BEGINNING FRENCH II. (3)
Continuation of FR 221. Prereq: FR 221.

FR 261 SURVEY OF FRENCH LITERATURE IN TRANSLATION. (3)
A broad survey course of masterpieces of French literature from the Middle Ages to the present, in English translation. 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 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 417 LINGUISTIC SURVEY OF FRENCH. (3)
The place of French and its dialects among the languages of the world, and an introduction to current linguistic theories as they bear on the structure and development of French. Prereq: FR 304, 305, or consent of instructor.

FR 421 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 422 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 423 FRENCH LITERATURE IN TRANSLATION: 20th CENTURY. (3)
A study of selected prose and poetry (in English transla-

tion) representative of the major trends in modern French literature. No knowledge of French required. Not open to French majors.

FR 435 A SURVEY OF FRENCH LITERATURE OF THE MIDDLE AGES*. (3)
Readings in modern translation with some analysis of original texts. Prereq: FR 304 and 305.

FR 436 A SURVEY OF FRENCH LITERATURE OF THE RENAISSANCE.* (3)
A study of the French Renaissance and its artistic expression from Marot to Montaigne. Prereq: FR 304 and 305.

FR 437 A SURVEY IN FRENCH LITERATURE OF THE 17th CENTURY.* (3)
A study of the representative writers of the 17th century and the major literary movements. Prereq: FR 304 and 305.

FR 438 A SURVEY OF FRENCH LITERATURE OF THE 18th CENTURY.* (3)
A study of the representative writers of the 18th century and the major literary movements. Prereq: FR 304 and 305.

FR 439 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 440 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 460 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 435, 437, 439, 462 will normally be offered in the fall; FR 436, 438, 440, 461 in the spring.

FR 461 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 462 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 507 TRANSLATION AND INTERPRETATION.(3)
Contrastive study of French and English style with attention to written and oral expression. Taught in French.

FR 516 INTRODUCTION TO OLD FRENCH. (3)
An introduction to the study of early French, especially the 11th through the 13th centuries. Emphasis will be on understanding the language, with readings from selected literary works and discussion of Old French phonology and grammar. Prereq: FR 304 and 305.

FR 517 INTRODUCTION TO THE PHONOLOGICAL STRUCTURE OF FRENCH. (3)
A study of the sound system and its functioning in the morphological system of French from the point of view of current phonological theory, with special attention to "classical" phonemics and to generative grammar.

FR 550 CONTEMPORARY FRENCH CULTURE. (3)
A survey of French culture in the 20th century with emphasis on the period following World War II. Conducted in French. Prereq: FR 306 and consent of instructor.

FR 553 THE TEACHING OF MODERN FOREIGN LANGUAGES. (3)
A course for teachers and prospective teachers of French, Spanish, or German. (Required of graduate students in French.)

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 607 SYNTACTIC STRUCTURE OF FRENCH. (3)
An introduction to the study of French syntax in the light of current theoretical models.

FR 610 ROMANCE PHILOLOGY. (3)
A study of the historical development of the various Romance languages with reading of texts chiefly from the medieval period. Special attention will be given to historical phonology and morphology. Prereq: FR 603 or equivalent.

FR 611 OLD PROVENCAL. (3)
An introduction to the study of Provencal, especially of the 11th through the 13th centuries. Emphasis will be on understanding the language, with readings from selected literary works. Discussion of Provencal phonology and grammar.

FR 612 MEDIEVAL NARRATIVE I: THE EARLY TRADITION. (3)
A study of early narrative forms, the saint's life and the *chanson de geste.* Prereq: Consent of instructor.

FR 613 MEDIEVAL NARRATIVE II: THE ROMANCE. (3)
A study of later developments in the narrative tradition, the courtly romance and related forms: *roman antique, roman breton, lai,* prose romance. Prereq: Consent of instructor.

FR 616 THE DIDACTIC TRADITION. (3)
A study of allegorical and moralistic literature from the early 12th through the 15th centuries with particular emphasis on the *Roman de la Rose* and its influence. Prereq: Consent of instructor.

FR 619 THE MEDIEVAL LYRIC. (3)
A survey of Old Provencal and French lyric poetry from William IX through Villon. Prereq: Consent of instructor.

FR 621 FRENCH RENAISSANCE LITERATURE I.(3)
A study of French Renaissance literature of the first half of the 16th century. Prereq: Consent of instructor.

FR 622 FRENCH RENAISSANCE LITERATURE II. (3)
A study of French Renaissance literature of the second half of the 16th century. Prereq: Consent of instructor.

FR 623 RABELAIS AND THE CONTEURS. (3)
An intensive study of the works of Rabelais and the major *conteurs*. Prereq: Consent of instructor.

FR 624 MONTAIGNE. (3)
Intensive study of the *Essais* of Montaigne. Prereq: Consent of instructor.

FR 630 CORNEILLE AND THE PRE-CLASSICAL DRAMA. (3)
A study of the theater of the first part of the 17th century with particular emphasis on Corneille. Prereq: Consent of instructor.

FR 631 RACINE AND THE TRAGIC THEATER. (3)
A study of the tragic theater of the second part of the 17th century with particular emphasis on Racine. Prereq: Consent of instructor.

FR 632 MOLIERE AND THE COMIC THEATER. (3)
A study of the theater of Moliere and of other comic authors of the period. Prereq: Consent of instructor.

FR 633 17th-CENTURY FRENCH PROSE. (3)
A study of the main currents of French prose in the 17th century with special emphasis on the novel.

FR 635 HISTORY OF IDEAS IN THE 17th-CENTURY. (3)
From Montaigne to Gassendi, including the French moralists.

FR 636 17th-CENTURY POETRY. (3)
A study of poetic theory and practice from Malherbe to Boileau and La Fontaine. Prereq: Consent of instructor.

FR 640 18th-CENTURY PROSE LITERATURE I. (3)
A study of prose writings in the first part of the period with emphasis on the literary and philosophical works of Montesquieu and Voltaire. Prereq: Consent of instructor.

FR 641 18th-CENTURY PROSE LITERATURE II. (3)
A study of prose writings of the second part of the period with emphasis on the works of Rousseau and Diderot. Prereq: Consent of instructor.

FR 643 THE 18th-CENTURY FRENCH NOVEL. (3)
A critical analysis of the novels of Lesage, Marivaux, L'abbé Prévost, Bernardin de Saint-Pierre, Restif de la Bretonne and Choderlos de Lacios.

FR 645 HISTORY OF IDEAS IN THE 18th CENTURY. (3)
Critical examination of the major philosophical, social, and political currents of the period. Prereq: Graduate standing.

FR 651 FRENCH ROMANTICISM I: PROSE. (3)
A study of the Romantic novel and story from Chateaubriand to Villiers de L'Isle-Adam. Prereq: Consent of instructor.

FR 652 FRENCH ROMANTICISM II: POETRY AND THEATER. (3)
A comprehensive review of French Romantic verse from Lamartine to Verlaine with some attention given to Romantic theater. Prereq: Consent of instructor.

FR 653 BAUDELAIRE, RIMBAUD, MALLARME. (3)
Representative works from three major poets of the late 19th century. Prereq: Consent of instructor.

FR 654 REALISM. (3)
The prose writings of Balzac and Flaubert; structure, themes, style. Prereq: Consent of instructor.

FR 656 NATURALISM. (3)
The prose writings of Zola, Stendhal, Maupassant, and les Goncourt: structure, themes, style. Prereq: Consent of instructor.

FR 661 CONTEMPORARY PROSE I. (3)
A study of major French writers from 1900 to World War II, with special emphasis on Proust and Gide. Prereq: Consent of instructor.

FR 662 CONTEMPORARY PROSE II. (3)
A study of the major French writers from World War II to the present.

FR 666 CONTEMPORARY FRENCH THEATER. (3)
A study of modern French theater from its beginnings to the present including such writers as Jarry, Giraudoux, Anouilh, Ionesco, Beckett, Genet, and Pinget. Prereq: Consent of instructor.

FR 672 CONTEMPORARY POETRY. (3)
A critical study of the major modern French poets. Prereq: Consent of instructor.

FR 714 SEMINAR IN THE HISTORY OF THE FRENCH LANGUAGE. (3)
Intensive study of a particular aspect of the development of modern French. Prereq: FR 603 or equivalent.

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. Prereq: Any two graduate courses in medieval literature.

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. Prereq: Any two graduate Renaissance courses.

FR 717 SEMINAR IN 17th-CENTURY FRENCH LITERATURE. (3)
Intensive study of a special problem in 17th-century French literature. 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. Prereq: Any two graduate 18th-century courses.

FR 719 SEMINAR IN 19th-CENTURY FRENCH LITERATURE. (3)
Intensive study of a special topic in 19th-century French literature. 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.

FR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

FR 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

FR 780 SPECIAL STUDIES IN FRENCH. (3)
Selected studies and investigations in the French

language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated to a maximum of six hours. Prereq: Consent of instructor.

GEOGRAPHY

GEO 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 205 ELEMENTS AND TECHNIQUES OF MAP MAKING. (3)
Fundamental training in projections, scales, lettering and symbolization, simple map drafting and map reproduction including emphasis on the conceptual planning and designing of maps as a medium for communication.

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 GEOGRAPHY OF ECONOMIC ACTIVITY. (3)
The interaction of economic and geographic factors on the locational patterns of man's activities.

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 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 CARTOGRAPHY. (3)
A course in the construction and interpretation of maps. Prereq: GEO 205.

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.

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.

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: One geography course.

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.

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.

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.

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.

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: One geography course.

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.

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 550 GEOGRAPHY OF NATURAL RESOURCES. (3)
A study of the characteristics of resources, their management and mismanagement. Implications o 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 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 GEOGRAPHY. (3)
Conceptual and descriptive study of transport facilities and patterns of movement with special reference to the influence of geographic factors in the creation, transformation and maintenance of transportation forms and functions; the bearings of transportation on urban and regional development and on industrial location; its role as an "organizing force" in economic geography, interaction of transportation, and regional development in different areas of the world. Prereq: GEO 255 or equivalent, 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 473, 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 once.

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 140 GENERAL PHYSICAL GEOLOGY. (4)
A first course in the principles of physical geology, including topics from mineralogy, geochemistry, and geophysics. High school chemistry recommended. Lecture, three hours; laboratory, two hours.

GLY 142 GENERAL HISTORICAL GEOLOGY. (4)
A first course in historical geology, including a study of the development of earth's fundamental features and a review of the history of life. Lecture, three hours; laboratory, two hours. Prereq: GLY 140 or 144.

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 425. 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 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 360 THE MINERAL WORLD. (3)
A first course in mineralogy emphasizing the relation of minerals to specific geologic environments. About 60 minerals and mineral groups will be studied. High school chemistry highly recommended. Lecture, two hours; laboratory, two hours a week with two additional hours of laboratory substituted for each of up to seven lectures. Prereq: GLY 140 or GLY 144.

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 420 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. (6)
Geological mapping in the field in Colorado. Offered only during the eight-week summer session. Special fee. forty hours/week field work. Prereq: Geology major with Junior standing.

GLY 424 FIELD WORK AND REPORT IN REGIONAL GEOLOGY. (7)
Geological mapping in the field in Colorado and preparation of report. Offered only during the eight-week summer session. Special fee. Prereq: Geology major with junior standing.

GLY 450 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 360.

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, 450.

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 360.

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 450.

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 450.

GLY 560 OPTICAL MINERALOGY. (3)
A study of the optical properties of minerals by means of the petrographic microscope. Prereq: GLY 360, PHY 203.

GLY 561 STRUCTURAL MINERALOGY. (3)
Principles of morphological crystallography, crystal chemistry, and structural mineralogy. The structure and physical properties of major mineral groups. Introduction to X-ray diffraction methods. Prereq: CHE 108 or 112; GLY 360.

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; one hour per week.

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 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 420.

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 420.

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 450.

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 450.

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 450.

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 461, 561, PHY 203 or PHY 213 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. (3)
Discussion and study of advanced topics in paleoecology and related fields. 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 440, 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 460 and 562, AGR 581, 681, or equivalent, or consent of instructor. (Same as AGR 741.)

GLY 760 PETROLOGY SEMINAR. (2)
Review of classic works and recent developments in important and controversial aspects of igneous and metamorphic petrology. Prereq: GLY 665 or consent of instructor.

GLY 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 021 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 121 BASIC GERMAN. (4)
Fundamentals of German with development of the four basic skills.

GER 122 BASIC GERMAN. (4)
Continuation of GER 121. Prereq: GER 121, or one year of high school German, or equivalent.

GER 123 ELEMENTARY GERMAN. (3)
The essentials of grammar with practice in reading and writing German.

GER 124 ELEMENTARY GERMAN. (3)
Continuation of GER 123. Prereq: GER 123 or one year of high school German.

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 121, 122, 127 or 128 if credit has been received in GER 125. Prereq: Two years of high school German.

GER 127 ORAL GERMAN. (2)
An audio-visual elementary course in which films are used as the medium of instruction. Development of the listening and speaking skills exclusively. Prepares the student for oral communication with native speakers. GER 127 does not fulfill the languages requirement for one semester of German unless taken in conjunction with GER 129.

GER 128 ORAL GERMAN. (2)
Continuation of GER 127. GER 128 does not fulfill the language requirement for one semester of German unless taken in conjunction with GER 130. Prereq: GER 127 or equivalent.

GER 129 GERMAN GRAMMAR. (2)
A companion course to GER 127, limited to the teaching of grammar, reading, and writing. Recommended but not mandatory for GER 127 students. Enrollment, however, is restricted to students taking GER 127. Prereq: Concurrent enrollment in GER 127.

GER 130 GERMAN GRAMMAR. (2)
A companion course to GER 128, limited to teaching of grammar, reading and writing. Recommended but not mandatory for GER 128 students. Enrollment, however, is restricted to students taking GER 128. Prereq: GER 129 and concurrent enrollment in GER 128.

GER 201 TECHNICAL 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 221. Prereq: GER 122 or two years high school German, or equivalent.

GER 202 TECHNICAL GERMAN. (3)
Continuation of GER 201. Prereq: GER 201, three years high school German, or equivalent.

GER 205 ORAL GERMAN. (3)
Emphasis upon increasing the student's command of spoken German. Required for German majors. Prereq: GER 122 or equivalent.

GER 206 GERMAN COMPOSITION. (3)
Emphasis upon increasing the student's command of written German. Required for German majors. Prereq: GER 122 or equivalent.

GER 221 INTERMEDIATE GERMAN. (3)
Review and furthering of oral and reading skills based upon cultural and literary materials. Prereq: GER 122 or two years high school German, or equivalent.

GER 222 INTERMEDIATE GERMAN. (3)
Continuation of GER 221. Prereq: GER 221 or three years high school German, or equivalent.

GER 261 A SURVEY OF GERMAN LITERATURE IN TRANSLATION. (3)
Using anthologies or special materials in English translation, the course surveys major German literary works and highlights them against their historical-cultural background.

GER 300 GERMAN LITERATURE TO THE REFORMATION. (3)
An introduction to German literature from the earliest times to the period of the Reformation with selections in modern German translation as required. Prereq: GER 222 or equivalent.

GER 302 GERMAN LITERATURE FROM BAROQUE TO ENLIGHTENMENT. (3)
An introduction to German literature highlighting the Baroque period and the Enlightenment. Prereq: GER 222 or equivalent.

GER 304 CLASSICAL GERMAN LITERATURE. (3)
An introduction to the classic period in German literature with some attention to the Sturm und Drang, but emphasizing Schiller and Goethe. Prereq: GER 222 or equivalent.

GER 306 GERMAN 19th CENTURY LITERATURE. (3)
An introduction to German literature of Romanticism and Realism of the 19th-century. Prereq: GER 222 or equivalent.

GER 308 MODERN GERMAN LITERATURE. (3)
An introduction to German literature of the 20th century. Prereq: GER 222 or equivalent.

GER 310 THE GERMAN LYRIC. (3)
An introduction to German lyric poetry. Prereq: GER 222 or equivalent.

GER 312 GERMAN CULTURE AND CIVILIZATION. (3)
An introduction to German culture and civilization from the beginning to modern times. Prereq: GER 222 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 338 INTERMEDIATE GERMAN CONVERSATION AND COMPOSITION. (3)
The course will improve and refine students' ability to speak and write German through work with textbooks, newspapers and magazines, translation exercises, stylistic practice. Prereq: GER 205 and 206, or equivalent.

GER 396 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 412 MODERN GERMAN LITERATURE IN TRANSLATION. (3)
A study in depth of the author's artistic development and of the structure and content of their major works. Authors treated are novelists Kafka, Hesse, and Mann or dramatists Brecht, Frisch, and Durrenmatt. The course is conducted in English. May be repeated to a maximum of six hours.

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 516 HISTORY OF GERMAN LITERATURE. (3)
A history of the development of German literature from the "Hildebrandslied" to Hauptmann, with attention to social, political and philosophical backgrounds. Prereq: Five semesters of German.

GER 520 GERMANIC PROSEMINAR. (3)
The proseminar is designed primarily to introduce graduate or advanced undergraduate students into the methods of scholarly research based upon the study of a specific area of Germanic language or literature. Topic will vary, and will be announced. Representative components which may be treated in this course are Lessing, Schiller, Goethe, Buchner, Kleist, Grillparzer, Hebbel, Hauptmann, 18th (19th, 20th) century prose narrative, 18th (19th, 20th) century drama, semantics, and expressionism. May be repeated to a maximum of 12 hours. Prereq: Six additional hours of German beyond GER 222, or consent of instructor.

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 532 THE GERMAN LYRIC. (3)
An intensive study of the German lyrical poem from the Age of the Baroque to the present. Prereq: Six semesters of German.

GER 534, 535 LIFE AND WORKS OF GOETHE. (3 ea.)
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 536 INTRODUCTION TO THE HISTORY OF THE GERMAN LANGUAGE. (3)
This course in Germanic philology acquaints the student with the position of German in the European language group and traces the development of the language to the present. Special emphasis is given to the relationship of German and English words. Prereq: Six semesters of German.

GER 537 INTRODUCTION TO MIDDLE HIGH GERMAN. (3)
This is a literary course with a necessary minimum of Middle High German grammar. Selections will be read from epic and lyric poetry of the period and reports will be given on assigned topics. 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 539 STRUCTURE OF THE GERMAN LANGUAGE. (3)
An introduction to the phonology, morphology and syntax of modern German by means of concepts and methods of linguistic science. Prereq: Six semesters of German or consent of instructor.

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 621 INTRODUCTION TO GERMAN BIBLIOGRAPHICAL STUDIES. (3)
An introduction to bibliography, original research, and textual criticism. Required of graduate students in German.

GER 622 THEORIES OF LITERATURE IN GERMAN. (3)
An introduction to theories of literature with emphasis upon those of Germany and continental Europe.

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 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 635 GOTHIC. (3)
Readings; phonology and morphology of Gothic. Prereq: Reading knowledge of German and GER 536, or consent of instructor.

GER 636 OLD HIGH GERMAN. (3)
Readings, phonology, morphology, and dialects of Old High German. Prereq: Reading knowledge of German and GER 536, or consent of instructor.

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 643 LONGER EPIC VERSE OF THE GERMAN MEDIEVAL PERIOD. (3)
A study of German medieval heroic verse, the courtly novel, or the so-called Spielmannsepik, with emphasis depending upon composition of the class.

GER 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 500 SWEDISH. (3)
Rapid coverage of morphology, phonology and syntax of modern Swedish and reading of selected literary texts. Prereq: Reading knowledge of German; consent of instructor.

GER 501 SWEDISH LITERATURE FROM BELLMAN TO THE PRESENT. (3)
Readings in Swedish literature of the period. Prereq: GER 500.

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)
Emphasis on speed- and guide-control. Individual practice in cross-country with rating of speed in preparation for hunting, eventing and show. Prereq: ASC 108 or equivalent level of horsemanship 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 1/2 semester or three laboratory hours per week per semester. Prereq: Department major or consent of instructor.

HPR 147 DANCE FOUNDATIONS I. (1)
Designed to familiarize the professional physical education student with the skills, practices, techniques, and theory of social, folk and square dancing. Development of at least an intermediate skill level is expected of the students. The primary goal of the course is to equip the student with the skills necessary to effectively teach social, folk, and square dance. Laboratory: Six hours per week for 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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 1/2 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)
An introduction to the basic techniques of creative dance including movement sequences leading to individual and group studies in initial compositional elements. Laboratory, four hours.

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 246 COACHING SPORTS FOR WOMEN. (2)
Theories and practice in coaching fundamentals of women's sports including tennis, field hockey. Lecture, one hour; laboratory, two hours. Prereq: Skills competence and/or consent of instructor.

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.

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 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 343 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION. (3)
Study of the historical development of physical education and an interpretation of the biological, psychological, and sociological principles of physical education.

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: A total of 10 credit hours successfully completed from the following: HPR 150-151, HPR 250-251, HPR 350, HPR 243, and HPR 152 or 252; or equivalent. 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 355 THE COACHING OF SWIMMING. (2)
Theory and practice of coaching competitive events in swimming, springboard diving, and synchronized swimming. Also includes direction of championship meets, water shows, demonstrations, and experience in leadership responsibilities in these areas. Lecture, two hours; laboratory, two hours. Prereq: HPR 252 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 357 SPORTS OFFICIATING FOR MEN. (1)
The theory and practice of officiating basketball, track, baseball, tennis, and other sports. Officiating in college intramurals and high school athletics will be required. Lecture, one hour; laboratory, two hours.

HPR 358 SPORTS OFFICIATING FOR WOMEN. (1)
Instruction, interpretation of rules, and practice in officiating field hockey, volleyball, and other sports. Preparation for Women's National Official's rating in athletics. Lecture, one hour; laboratory, two hours.

HPR 359 SPORTS OFFICIATING FOR WOMEN. (1)
Instruction, interpretation of rules, and practice in officiating basketball, softball, tennis, and other sports. Preparation for Women's National Official's rating in athletics. 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, 362 FIELD EXPERIENCES WITH ELEMENTARY SCHOOL CHILDREN. (1 ea.)
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 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.

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 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 491 DANCE IN EDUCATION. (3)
An introduction to the creative approach to folk, ethnic, square, and creative dance for elementary, secondary and college levels. The principles of kinesthetics and rhythmical forms applied to the practice of fundamental movement techniques. Lecture, two hours; laboratory, four hours.

HPR 540 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 546 PHYSICAL EDUCATION WORKSHOP. (2)
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. Lecture, one hour; laboratory, two hours.

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 physical education for atypical students, with emphasis upon specific postural faults and other abnormalities commonly found in a school population. To include training and experience in procedures, adapting the physical education program to accommodate these students. 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. (2)
Principles and standards for maintaining facilities, and planning construction; purchase and care of equipment. Prereq: HPR 540.

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 690 ORGANIZATION AND ADMINISTRATION OF THE DANCE IN EDUCATION. (3)
Special emphasis is placed upon the organization and administration of the program in dance to meet the needs of students from elementary through college levels. Some attention will be given to dance production, festivals and social dance functions in schools. Prereq: HPR 290, 491, 592, 595.

HPR 695 INDEPENDENT STUDY IN PHYSICAL EDUCATION. (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. (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 once.

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 RECREATION SERVICES. (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.

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 571 INTRODUCTION TO THERAPEUTIC RECREATION. (3)
A study of the principles and practices involved in providing recreation for the ill or disabled in hospital or community setting. Includes characteristics of disabilities, problems in programming, adaption, funding, interdisciplinary relations, etc. Prereq: 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 307 INTRODUCTION TO SAFETY EDUCATION. (2)
The history and philosophy of the accident prevention movement designed to acquaint the student with the underlying factors and theories of accident correction and prevention. Special emphasis is given to the administration and supervision of physical education, athletic, and recreation programs.

HPR 330 SCHOOL HEALTH EDUCATION. (3)
A study of personal health problems with emphasis upon student-teacher relationships.

HPR 430 METHODS OF TEACHING HEALTH EDUCATION. (3)
Basic organization and planning of elementary and secondary school health and safety programs for the classroom teacher. Major emphasis on curriculum development and teaching techniques. Prereq: HPR 330.

HPR 507 DRIVER AND TRAFFIC SAFETY EDUCATION. (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 509 WORKSHOP IN HEALTH AND SAFETY. (2)
Designed as a short course in current aspects of school health or safety education with emphasis upon the needs of teachers.

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 607 ADVANCED TOPICS IN SAFETY EDUCATION. (3)
Designed for safety education supervisors, school administrators and teachers. An in-depth study of the psychological and sociological aspects of safety and research in all aspects of safety education. Prereq: Background in safety education.

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 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

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.

HIS 201 INTRODUCTION TO LATIN AMERICA. (3)
An interdisciplinary approach to the history, culture, and development of the Latin American republics and their people. Same as LAS 201

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 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 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 240 HISTORY OF KENTUCKY. (3)
A general survey of the chief periods of Kentucky's growth and development from 1750 to the present.

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. Prereq: HIS 104, 105 or consent of instructor.

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, colapse of the Ottoman Empire, and emergence of modern political units. Prereq: HIS 105 or consent of instructor.

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.

HIS 260 AFRO-AMERICAN HISTORY. (3)
A study of the Black experience in America, involving an examination of the African heritage, slavery, the rise of segregation and the ghetto, and aspects of contemporary race relations. Prereq: HIS 108-109 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 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 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 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 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 NE 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 412 SCIENCE AND RELIGION IN THE AGE OF GALILEO. (3)
Magic, science, and religion in the 16th and 17 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 490 MODERN EUROPE.
This course is offered to meet a demand for a broader course which will equip students who are going to teach European history in the present high school curriculum. Prereq: HIS 104, 105.

1. EUROPEAN HISTORY

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 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 FO 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 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 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 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 though 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.)

HIS 519 THE ERA OF THE RENAISSANCE. (3)
A 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 534 RUSSIA IN THE 20th CENTURY I. (3)
A survey of the regin 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 and consent of instructor.

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 and consent of instructor.

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 538 THE EAST EUROPEAN WORLD FROM 1770-1920. (3)
An intensive analysis of the problems which favored or frustrated (1) the modernization and national self-assertion of the East European peoples, and (2) their consolidation into the Russian-led "Second World."

HIS 539 THE EAST EUROPEAN WORLD FROM 1920 TO THE PRESENT. (3)
Continuation of HIS 538.

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.

HIS 544 HISTORY OF ITALY 1789-1890. (3)
An examination of the developments leading to Italian unification and an analysis of the problems faced during the United States' first 20 years. Prereq: HIS 104, 105.

HIS 545 A HISTORY OF ITALY, 1890 TO THE PRESENT. (3)
A continuation of HIS 544, this course will deal with political, economic, social and cultural developments in Italy since 1890, including an examination of fascism and post-World War II Italy. Prereq: HIS 104, 105.

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 and 247, or consent of instructor.

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.

II. ENGLAND AND THE BRITISH EMPIRE

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 1860. (3)
Origin of the British Empire, 1783 to 1860; development of British sea power; the early growth and development of Canada, Australia, New Zealand, South Africa, and India.

HIS 557 THE BRITISH EMPIRE AND COMMONWEALTH. (3)
A continuation of HIS 556. Great Britain and the growth of the Dominions and the Commonwealth since 1860. Prereq: HIS 202, 203.

HIS 558 HISTORY OF CANADA. (3)
A brief survey of Canada under the French; the development under British control; evolution of the Dominion; relation with the United States and British Commonwealth of Nations. Prereq: One year of college history.

III. AMERICAN HISTORY

HIS 560 COLONIAL AMERICA TO 1748. (3)
A study of the origins and development of the English colonies; their relations with England and European states. Emphasis on imperial policies and colonial autonomy. Prereq: One year of American or European history.

HIS 561 COLONIAL AMERICA AND INDEPENDENCE, 1748-1789. (3)
This course deals with England's triumph over France in the New World, the drastic change in her colonial policy and the rise of opposition to it, the war for American independence, and the establishment of the United States under the Constitution. Prereq: One year of American or European history.

HIS 562 THE NEW NATION 1789-1828. (3)
An intensive study of the most significant men, events, and trends in the first generation of American national growth. Prereq: HIS 108.

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 American 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 580 U.S. URBAN HISTORY TO 1865. (3)
A study of urban America from colonial times to 1865, emphasizing origins and growth of cities and their impact upon the development of the United States.

HIS 581 U.S. URBAN HISTORY SINCE 1865. (3)
A continuation of HIS 580, tracing changes and developments which have occurred since 1865.

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 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 cirum-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.

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 preindustrial 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.

IV. THE FAR EAST

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.

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.

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 tenth 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 tenth 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 twelve 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 twelve 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 twelve credits. Prereq: A reading knowledge of Latin or of one European language or consent of instructor.

HIS 710 SEMINAR IN AMERICAN HISTORY, 1607-1783. (3)
May be repeated to a maximum of twelve credits.

HIS 711 SEMINAR IN AMERICAN HISTORY, 1783-1865. (3)
May be repeated to a maximum of twelve credits.

HIS 712 SEMINAR IN AMERICAN HISTORY, 1865 TO THE PRESENT. (3)
May be repeated to a maximum of twelve 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 twelve 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 twelve credits.

HIS 721 SEMINAR IN MODERN EUROPEAN HISTORY, 1714-1870. (3)
May be repeated to a maximum of twelve credits.

HIS 722 SEMINAR IN MODERN EUROPEAN HISTORY, 1870 TO THE PRESENT. (3)
May be repeated to a maximum of twelve credits.

HIS 730 SEMINAR IN MODERN BRITISH HISTORY. (3)
May be repeated to a maximum of twelve credits.

THESES

HIS 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 575 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. (Same as SOC 413 in Colleges of Arts and Sciences and Agriculture.)

HE 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

FAMILY STUDIES: HUMAN DEVELOPMENT AND RESOURCE MANAGEMENT

FHR 101 INTRODUCTION TO MANAGEMENT AND CONSUMER AND FAMILY ECONOMICS. (3)
A survey course to introduce students to the concepts of management and consumer and family economics. Emphasis is given to personal management through defining goals, money management prinicples and developing consumer skills.

FHR 153 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.

FHR 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: FHR 153 or consent of instructor.

FHR 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.)

FHR 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.

FHR 301 MANAGEMENT AND DECISION MAKING IN THE FAMILY. (3)
Principles and application of management releated to the family throughout the life cycle. Emphasis is given to the function of decision making in achieving values and goals through use of family resources. Prereq: Not open to students with credit in FHR 161.

FHR 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: FHR 255 or six hours in social or behavioral science or consent of instructor.

FHR 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: FHR 153 or equivalent or consent of instructor.

FHR 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.

FHR 358 HEALTH AND THE FAMILY. (3)
Stress is placed on planning and development of individual and family activities and programs for maintaining good health. Attention is given to community, state and national programs having significance for the health of individuals and families.

FHR 360 MANAGEMENT OF HUMAN RESOURCES. (3)
Application of managerial principles and procedures to the development and use of human resources. Emphasis given to the use of time, energy, and community resources to achieve family goals. Prereq: FHR 101.

FHR 362 CONSUMER PROBLEMS. (3)
Consumer buying, its social and economic aspects. Analysis of problems of manufacturer, merchant, and consumer in order to understand the needs and responsibilities of each group.

FHR 363 HOUSEHOLD EQUIPMENT. (3)
Electrical and gas household equipment and small appliances, their selection, maintenance, operation, and cost. Lecture, two hours; laboratory, two hours.

FHR 364 HOME MANAGEMENT AND FAMILY RELATIONSHIPS. (4)
One-half semester residence practicum focusing upon the application of managerial principles and practices to problems of family living and household operation in settings simulating a variety of home conditions. Prereq: FHR 101 and NFS 206.

FHR 368 MANAGING PROFESSIONAL PRESENTATIONS. (3)
Techniques of planning and presenting demonstrations relating to family use of resources (including equipment, food, clothing, housing, etc.). Emphasis upon presentation to live audiences as well as through media (video tape, T.V., etc.). Lecture, two hours; laboratory, two hours. Prereq: One of the following: FHR 363, NFS 204, HET 130, HED 101, FHR 350, or consent of instructor.

FHR 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 FHR and STA 370 or consent of instructor.

FHR 411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION. (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.)

FHR 462 PERSONAL AND FAMILY FINANCE. (3)
A study of individual and family financing as related to planning the use of credit, savings, investments, insurance, taxes, home ownership and estates.

FHR 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: FHR 255.

FHR 540 INTENSIVE STUDY OF THE CHILD AND THE FAMILY. (3)
Techniques in the study of the development of the individual child and individual families. Methods of assessing the developmental impact of the family and other social environments on development in addition to methods relevant to assessing how children operate in various ecologies. Prereq: Six hours in social or behavioral science or consent of instructor.

FHR 541 SUPERVISED TEACHING IN THE EARLY CHILDHOOD LABORATORY I. (3)
Supervised teaching experience with preschool groups in a laboratory school. Laboratory, seven hours. Prereq: FHR 350, 540, or equivalent or concurrent or consent of instructor.

FHR 542 SUPERVISED TEACHING IN THE EARLY CHILDHOOD LABORATORY II. (3)
Supervised teaching experience with preschool groups in a laboratory school. Laboratory, seven hours. Prereq: FHR 350, 540, or equivalent or concurrent or consent of instructor.

FHR 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.

FHR 552 ORGANIZATION AND ADMINISTRATION OF EARLY CHILDHOOD EDUCATION PROGRAMS. (3)
Organization and administration, including housing, equipment, program, records, parent cooperation. Field trips. Prereq: FHR 350 or consent of instructor.

FHR 553 THE CHILD IN HIS FAMILY. (3)
Preparation and presentation of research reports of studies of family influences on the personality and development of children. Prereq: FHR 153, and six credits in sociology and/or psychology.

FHR 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: FHR 350 and six hours of 300 level or above in social and behavioral sciences or consent of instructor.

FHR 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: FHR 255 or equivalent or consent of instructor.

FHR 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.

FHR 561 THE CONSUMER WITH LIMITED RESOURCES. (3)
Study of consumer problems of economically disadvantaged families. Examination of factors associated with family consumption problems in disadvantaged situations. Consideration of consumer education efforts to assist economically disadvantaged families. Prereq: FHR 101, 362; or consent of instructor.

FHR 562 FAMILY 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: FHR 161, FHR 153; or consent of instructor.

FHR 563 FAMILY CONSUMERS AND THE LAW. (3)
Survey of present and pending consumer laws of fundamental concern in the management of family resources. Examination of the family's reciprocal linkages with the marketing and legal systems with emphasis upon the family's development of successful linkages with nonfamily organizations, consumer rights and responsibilities, and upon existing and needed provisions for consumer protection and education. Prereq: FHR 101, ECO 260; or consent of instructor.

FHR 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: FHR 153 and 353 or consent of instructor.

FHR 586 FIELD INSTRUCTION IN MANAGEMENT AND FAMILY ECONOMICS. (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: FHR 161, nine credits in management and family economics and consent of the department chairman.

FHR 595 SPECIAL PROBLEMS IN CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS. (1-3)
Intensive work on specific problems. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FHR 596 SPECIAL PROBLEMS IN MANAGEMENT AND FAMILY ECONOMICS. (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.

FHR 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.

FHR 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; FHR 362, 462, or consent of instructor.

FHR 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 paraprofessionals. Lecture, three hours; laboratory, one hour. Prereq: An advanced undergraduate course in family or child development or consent of instructor.

FHR 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: FHR 541 or 542 or equivalent or consent of instructor.

FHR 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.

FHR 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 FHR 353 or SOC 409 or equivalent.

FHR 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: FHR 652 or consent of instructor. (Same as SOC 653.)

FHR 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.

FHR 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.

FHR 662 SOCIAL AND ECONOMIC DECISIONING IN THE FAMILY. (3)
Special study of social and economic decisions affecting family resource management. Prereq: FHR 364.

FHR 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: FHR 161, 360, 462; or consent of instructor.

FHR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

FHR 773 SEMINAR IN MANAGEMENT AND FAMILY ECONOMICS. (3)
Study of emerging critical issues and research in management and family economics. May be repeated to a maximum of six credits. Prereq: Graduate standing.

FHR 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.

FHR 785 SPECIAL PROBLEMS IN CHILD DEVELOPMENT AND FAMILY LIVING. (1-3)
Independent advanced work. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

FHR 786 SPECIAL PROBLEMS IN MANAGEMENT AND FAMILY ECONOMICS. (1-3)
Independent advanced work in management and family economics. May be repeated to a maximum of six credits. Graduate standing and consent of department chairman.

FHR 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: 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 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 401 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 402 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 once.

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 106 or CHE 110 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 430 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 106 or CHE 110.

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 once.

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.

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.

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 106; CHE 108. 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. (3)
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. Lecture, two hours; laboratory, two hours. Prereq: NFS 311 or consent of instructor.

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 512 NORMAL AND THERAPEUTIC NUTRITION. (5)
Application of elementary biochemistry to understanding the utilization and function of nutrients in the body. Correlating metabolic changes due to disease with diet therapy. Lecture, four hours; laboratory, two hours. Prereq: NFS 311, CHE 230 or 236.

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, FHR 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 equipment 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 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 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 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

NFS 771 SEMINAR IN NUTRITION. (2)
May be repeated to a maximum of six credits.

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)
Idnetification 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. (3)
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. Lecture, two hours; clinical, three hours. 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. Lecture, four hours; clinical, nine hours. Prereq: NFS 806.

NFS 813 FOOD SERVICE SYSTEMS II: ORGANIZATION, MANAGEMENT AND CONTROL. (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. Lecture, four hours; clinical, nine hours. Prereq: NFS 805.

NFS 814 FOOD SERVICE SYSTEMS III. (4)
Application of food service management 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 816.

HONORS

HON 101 FRESHMAN COLLOQUIUM. (3)
The Greek world view: an interdisciplinary course in history of ideas. Readings from Greek classics 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)
The Christian world view in the Middle Ages: an interdisciplinary course in history of ideas, continuing HON 101. 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) requirements.

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 requirements.

HON 201 SOPHOMORE COLLOQUIUM. (3)
The Premises of Modern Civilization. Renaissance through the 19th century: an interdisciplinary course in history of ideas. Readings at the discretion of the faculty. May be used to fulfill three hours of Area V requirement. Prereq: Sophomore standing or completion of HON 102.

HON 202 SOPHOMORE COLLOQUIUM. (3)
Dominant ideas of the 20th century: an interdisciplinary course in history of ideas, continuing HON 201. Readings at the discretion of the faculty. May be used to fulfill three hours of Area V requirement. Prereq: Sophomore standing.

HON 203 SOHPOMORE 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. (3-6)
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.

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.

The following Honors Program courses are described under the department indicated:

A-H 209-99	MA 116-99
ANT 120-99	MA 215-99
ANT 121-99	MA 216-99
CHE 110-99	MA 395-99
CHE 112-99	MA 396-99
CHE 115-99	NUR 899
CS 150-99	PHI 100-99
ECO 260-99	PHY 231-99
ECO 261-99	PHY 232-99
EDF 395-99	PS 151-99
GEO 152-99	PS 201-99
GLY 140-99	PSY 104-99
GLY 142-99	PSY 104-99
MA 115-99	SOC 101-99

HORTICULTURE AND LANDSCAPE ARCHITECTURE

HOR 200 PRINCIPLES OF HORTICULTURAL PRODUCTION AND PLANT USE. (3)
A course designed to familiarize students with basic fundamentals underlying the production of horticultural crops and how horticulture relates to man's environment. Lecture, two hours; laboratory, two hours. 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 fulfil 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 109, CHE 106 or equivalent.

HOR 340 FLORAL DESIGN. (2)
An adaptation of design principles to the art of floral decoration. Lecture, four hours. Prereq: Junior or senior standing and 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 seedage, cuttage, graftage and layerage and to provide the basic skills necessary for making cuttings and grafts. The interrelationship of plant growth, structure and the environment as they affect the ability to propagate plants by a specific method. Two hours lecture per week; two hours laboratory per week. Prereq: HOR 200, BIO 106 and BIO 107.

HOR 351 NURSERY PRODUCTION AND MANAGEMENT I. (3)
Principles and practices involved in propagating, growing, over-wintering, digging and readying both field grown and container grown nursery products for market. A study of efficient layout of fields and types of structures needed for different types of nursery enterprises. A 2-3 day field trip is required. Prereq: Consent of instructor, HOR 335 and HOR 327 (which may be taken concurrently). Lecture, two hours; laboratory, three hours.

HOR 352 NURSERY PRODUCTION AND MANAGEMENT II. (3)
The study of nursery management giving special consideration to management structure, record-keeping, cost-accounting, merchandising and mail order marketing of nursery products. A 2-3 day field trip is required. Lecture, two hours; laboratory, three hours. Prereq: HOR 351 and consent of instructor.

HOR 399 EXPERIENTIAL LEARNING IN HORTICULTURE. (1-15)
A supplement to classroom work which recognizes the educational potential of field experience. Up to three hours may be charged to the "departmental major" requirements; three hours may be used to satisfy the specialty support requirement; any additional hours

must be used as electives. May be repeated to a maximum of 15 credits. Prereq: Completion of a learning agreement prior to registration with a faculty member of the department.

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 and HOR 200.

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 OUTDOOR VEGETABLE PRODUCTION. (3)
A study of the fundamental principles underlying outdoor production of vegetables. Lecture, two hours; laboratory, two hours. Prereq: HOR 200. Offered in spring.

HOR 512 GREENHOUSE VEGETABLE CROPS. (2)
Principles of vegetable crop production in environmentally controlled growing structures. Lecture, one hour; 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 406.

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 406, or consent of instructor. (Same as AGR 736.)

HOR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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; laboratory, 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 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; laboratory, two hours. Prereq: LA 331 and HOR 327.

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, ten 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, ten 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.

JOURNALISM

JOU 201 ETYMOLOGY. (3)
A study of words and their fundamental values with reference to development of a writing vocabulary. (Same as ENG 201.)

JOU 203 PRINCIPLES OF NEWS WRITING. (3)
Lectures and readings on the development of the modern news style. Practice in effective writing. Designed for non-Communication School majors. Credit is not permitted for both JOU 203 and 204.

JOU 204 WRITING FOR THE MASS MEDIA. (3)
A course designed to introduce majors in the communications fields to practices and techniques in preparation of information materials for the printed and broadcast media. Designed for majors in the School of Communications. Credit is not permitted for both JOU 203 and 204. Lecture, two hours; lab, two hours.

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 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. 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 507 FEATURE WRITING. (3)
Instruction and practice in writing features. Lectures, readings, and reports directed toward discovering, gathering, organizing, writing, and marketing feature articles. Prereq: Senior standing or 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. (2)
A study of editorial columns, and editorial pages. Publication of copy encouraged.

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 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. 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 575 TYPOGRAPHY. (2)
Instruction and practice in typographic composition. Use of type faces in news editing. Study of typography in the make-up of American newspapers. Laboratory, four hours. Prereq: Consent of instructor.

JOU 599 ADVANCED WRITING FOR THE MASS MEDIA. (3)
A course designed to provide communications majors advanced training in reporting and writing articles on current events, public issues, personalities, culture and entertainment for newspapers, magazines and the broadcast media. Twice weekly seminars; laboratory and independent work by students as needed to complete assignments; individual consultation between instructor and students. Prereq: Consent of instructor.

LATIN AMERICAN STUDIES

LAS 201 INTRODUCTION TO LATIN AMERICA. (3)
An interdisciplinary approach to the history, culture and development of the Latin American republics and their people. Attention will be concentrated on significant aspects of the geography of Latin America, its history, society and values, politics, economics, and culture. Team-taught.

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.

LAW

FIRST-YEAR SUBJECTS

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 804 LAW AND LEGAL INSTITUTIONS. (2-3)
A perspectives course for first-year law students treating the function of law and the legal system in society rather than particular areas of substantive or adjective law. The court system and the legislative and administrative systems are studied and evaluated as to function and role with the purpose of understanding how the institutional parts relate and how the lawyer perceives their operation with particular emphasis on law as an instrument of social change.

LAW 805 TORTS. (4)
Intentional torts and defenses, negligence, causation, duties of occupants of land and manufacturers and vendors of chattels, contributory negligence, strict liability, deceit, defamation, malicious prosecution, interference with advantageous relations.

LAW 807 PROPERTY. (4)
Basic course in property: possession, gifts, bona fide purchasers of personalty. Estates, uses, easements, and rights incident to ownership.

LAW 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 818 REMEDIES. (3)
Nature of damages; nature of specific relief; personal interests; contractual interests; property interests; specific relief and the government.

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 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.

SECOND-YEAR SUBJECTS

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 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 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 825 LEGISLATION. (2-3)
Nature and scope of legislative power; organization of legislative bodies; legislative process; legislation and the courts; interpretation of statutes.

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 850 BUSINESS ASSOCIATIONS I. (3)
A study of traditional agency concepts (including the vicarious liability relationship in tort and contract); informal organizational relationships (joint enterprise, joint venture, voluntary unincorporated associations); organization, dissolution, and liquidation of partnerships; special problems pertaining to partnership property; limited partnerships.

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 852 BUSINESS ASSOCIATIONS II. (3)
A study of basic corporation law principles, including: organizing the corporation; defective incorporation; pre-incorporation transactions; control and management of the corporation (with emphasis on the special problems of the close corporation); the corporate entity concept; duties of directors and controlling shareholders; shareholders' derivative suits and right of inspection.

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 860 TAXATION I. (3)
Problems in federal and state income taxation.

LAW 870 OIL AND GAS. (2)
Oil and gas leases—infants, married women, life tenants, and others as parties; the granting clause—lessee's interest, lessee's right to ejectment; the habendum clause—duration of lease; etc.

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 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 879 COMMERCIAL LAW I. (3)
A study of problems involved in the sale of goods as governed by the Uniform Commercial Code. Attention is given to statutory methodology.

LAW 880 COMMERCIAL LAW II. (4)
A study of problems involved in secured transactions and the exchange of commercial paper as governed by the Uniform Commercial Code. Prereq: LAW 879.

LAW 883 CONSUMER DEBTOR-CREDITOR RELATIONS. (2-3)
Consumer installment credit agreements: creation, regulation, and enforcement; security interests; debt collection, small claims actions and wage garnishment; consumer bankruptcy and wage earner plans.

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 parol evidence rule.

LAW 891 DAMAGES. (2-3)
Nature of damages, voidable consequences, counsel fees, certainty, compensation, damages for non-pecuniary injuries, interest, damages for death, and eminent domain.

LAW 897 POVERTY LAW. (3)
An elective course for consideration of the kinds of legal problems shared by poor people, including their access to legal services and disadvantages in administrative and other legal processes; treating also the practice of poverty law as to ethical, professional and economic issues, with appraisal of the policy implications and challenges of the 'rule of law in the welfare state' and emphasis on interrelationships among lawyers and professionals working with poor people. Prereq: None directly, although completion of first-year law courses is expected for second- and third-year elective courses.

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 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.

THIRD-YEAR SUBJECTS

LAW 827 SOCIAL LEGISLATION (SOCIAL PROVISIONS FOR INDIVIDUAL WELFARE). (2-3)
This course will cover the law of state and federal programs for individual welfare and economic security (such as Social Security and Unemployment Compensation), emphasizing the securing of rights of recipients under the programs and the complying with corresponding liabilities of employers and others.

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 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 865 TAX PLANNING. (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 TAXATION III. (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 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 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 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 878 TRUSTS. (3)
Uses and Statute of Uses; trusts creation; elements; transfer of beneficiary's interest; administration, termination, and modification; charitable trusts; resulting and constructive trusts; powers. Types of future interests; construction problems; limitations to classes, rule against perpetuities, illegal restraints and conditions.

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 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 money, and furnishing services as to health, education, natural resources, transportation, and welfare.

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 RELATIONAL TORTS. (3)
An advanced study of relational interests and their injury as contrasted with injuries to personality and property; including examples of this in modern society relative to relations of trade, employment, family, neighbors, and citizens; treating also the equitable remedies and new theories of liability being used in litigation to enlarge the legal protection of relational interests.

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 950 SEMINAR. (2-3)
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 PUBLIC ASSISTANCE-CLINICAL. (1-3)
Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot

court and legal writing. May be repeated to a maximum of six credits.

LAW 967 NARCO-CLINICAL. (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 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.

LAW 970 LEGAL DOCUMENTS DRAFTING. (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.

LIBRARY SCIENCE

LS 500 LIBRARY ADMINISTRATION. (3)
An introduction to the administrative theory and principles as they apply to the organization and operation of libraries. Emphasis is placed on planning, organization, staffing, direction and control, public relations, and finance. Serves as a foundation for other more specialized courses in particular types of libraries. Prereq: Consent of instructor.

LS 501 INTRODUCTION TO CATALOGING AND CLASSIFICATION. (3)
An introduction to the principles and methods of cataloging and classifying library materials, bibliographical description, and subject anlaysis. Prereq: Consent of instructor.

LS 502 REFERENCE AND INFORMATION SERVICES. (3)
An introduction to reference services, activities, and functions. Emphasis will also be placed upon essential reference materials, including encyclopedias, dictionaries, atlases, yearbooks, indexes, and other guides to sources of information.

LS 503 SELECTION AND ACQUISITION OF LIBRARY MATERIALS. (3)
Principles governing the selection, procurement, and maintenance of library collections. Emphasis will be placed on selection aids for library materials, the publication and marketing of books and other media, the organization of acquisitions in libraries, and the use of national and trade bibliographies. Prereq: Consent of instructor.

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 509 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 510 CHILDREN'S LITERATURE AND RELATED MATERIALS. (3)
A survey of children's literature, traditional and modern. Reading and evaluation of books with emphasis on the relationship of the materials to the needs and interests of children. Covers various types of materials for use by and with children of grades 1-6.

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 LITERATURE AND RELATED MATERIALS FOR YOUNG PEOPLE. (3)
Covers types of materials for use by and with readers of grades 7-12. Emphasis upon materials for curricular and recreational reading. Attention is given to some types of adult materials suitable for more mature students. Practice in the use of standard book selection aids.

LS 516 SCHOOL MEDIA PRACTICUM. (3-9)
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 525 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 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 600 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 500.

LS 601 ADVANCED CATALOGING AND CLASSIFICATION. (3)
An advanced study of the principles and methods of cataloging and classification. Emphasis is placed on descriptive cataloging, subject cataloging, and classification. Provides practice in the use of the *Anglo-American Cataloging Rules* and the *Library of Congress Subject Headings*, and the unabridged Dewey Decimal Classification scheme. Prereq: LS 501.

LS 602 BIBLIOGRAPHY OF SOCIAL SCIENCES. (3)
Survey and evaluation of library materials in the social sciences with emphasis on reference and bibliographical sources in the following areas: anthropology, business, economics, education, geography, history, law, political science, psychology, sociology, and other closely related subjects. Prereq: LS 500.

LS 603 BIBLIOGRAPHY OF THE HUMANITIES. (3)
Survey and evaluation of library materials in the humanities, with emphasis on reference and bibliographical sources in the following areas: the arts, language, literature, music, philosophy, religion, and other closely related subjects. Prereq: LS 502.

LS 604 BIBLIOGRAPHY OF SCIENCE. (3)
A survey and evaluation of library materials in the sciences with emphasis on reference and bibliographical sources in the following areas: agriculture, astronomy, biology, chemistry, mathematics, natural resources, zoology, and other closely related material. Prereq: LS 502.

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 606 AUTOMATION AND THE LIBRARY. (3)
Introduction to the theory and practice of automation and its implication and application to libraries. A survey and evaluation of electronic and other automated systems for document processing in libraries. Prereq: LS 605, or consent of instructor.

LS 608 METHODS OF RESEARCH IN LIBRARIANSHIP. (3)
Basic tools, techniques and methods of library research. Consideration of the role and purpose of research in librarianship and relationship to research in other fields. Critical evaluation of current research reports in library literature and the development of a research proposal.

LS 609 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 500.

LS 610 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 500.

LS 611 SCIENTIFIC AND TECHNICAL LIBRARIES. (3)
A survey of the development, organization, and administration of scientific and technical libraries, information centers, information analysis centers and national systems which support scientific, business, and techological activities. Prereq: LS 500.

LS 613 LIBRARY SYSTEMS ANALYSIS. (3)
Role of systems analysis in libraries with emphasis on the analysis, design, and implementation of library systems. The application of tools and techniques used in systems analysis, such as flow charting, data gathering techniques. An introduction to electronic data processing and statistical evaluation methods. Prereq: LS 605.

LS 614 INFORMATION STORAGE AND RETRIEVAL SYSTEMS. (3)
Investigates the flow of information through information storage and retrieval systems; abstracting, indexing, file organization, storage, search strategy, dissemination of information and its utilization. Consideration will also be given to special problems of vocabulary control, semantic and syntactic controls, determination of user requirements and the evaluation of in system performance. Prereq: LS 605 or consent of instructor. (Same as COM 614.)

LS 617 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 618 READING INTERESTS OF ADULTS. (3)
A study of the research on adult reading interests and habits in relationship to organizing library services and materials for adults. Problems such as adult illiteracy and censorship are also discussed.

LS 619 COLLECTION DEVELOPMENT IN ACADEMIC LIBRARIES. (3)
This course deals with many phases of collection building ranging from the historical and theoretical to the very pragmatic. Topics covered include establishment of institutional policies, methods of evaluating collections, cooperative acqusitions plans, the international book trade, and problems of book selection and acqusition. Prereq: LS 502.

LS 620 RARE BOOKS BIBLIOGRAPHY. (3)
Introduction to descriptive bibliography and to a wide range of bibliographic reference works necessary for a modern special collections or rare book librarian. Topics include incunabula research, paper and watermarks, the canons of description, and recent trends in institutional collections. Prereq: LS 617.

LS 621 SPECIAL COLLECTIONS. (3)
The acquiring, processing and servicing of rare books, manuscripts and other special materials. Attention is given to the criteria for building a collection and for its interpretation through descriptive guides and catalogs, and to the relation of the special collection department to the research worker and the library as a whole. Prereq: LS 502 and either LS 620 or LS 603, or consent of instructor.

LS 623 SUBJECT BIBLIOGRAPHY. (3)
An evaluation of library resources in various subject fields with emphasis on characteristics of subject literatures, problems of use, and bibliographical control and organization. Subject areas may vary according to student interests. Prereq: LS 502 and either LS 602, LS 603 or consent of instructor. May be repeated to a maximum of six hours when topics vary.

LS 624 LIBRARY OF CONGRESS CLASSIFICATION. (3)
An intensive study of the development and application of the Library of Congress Classification system. Other

modern library classification schemes are included for comparative purposes. Prereq: LS 501, 601.

LS 625 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 will be considered as reflections of changing artistic fashion under such headings as Victorian medievalism, art nouveau, Dada, and "concrete poetry."

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 502 or equivalent.

LS 627 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.

LS 628 LIBRARY BUILDINGS. (3)
Relationship between physical structure and library function; problems in planning and building procedures, library equipment, acoustics, illumination, and materials of construction. Prereq: LS 500.

LS 630 CREATIVE LIBRARY PROGRAMS FOR CHILDREN. (3)
A study of the oral tradition and its place in the cultural heritage of today including an introduction to the principles of storytelling, selection of stories, program planning, and development of creative visual forms. Prereq: LS 510.

LS 635 CURRENT PROBLEMS IN SCHOOL LIBRARIES. (3)
An intensive study of the role of the library-media center in the modern school with emphasis upon research and contemporary problems in the field. Prereq: School library experience.

LS 637 ADVANCED LITERATURE FOR CHILDREN. (3)
Advanced study of book evaluation, literary criticism, children's book publishing, awards, and current trends in the field. Each student will present a project on a selected topic after wide and critical reading. Prereq: LS 510.

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 502 and LS 604 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 502 and LS 602 or consent of instructor.

LS 686 CATALOGING NON-PRINT MATERIALS. (3)
An introduction to the principles and methods of cataloging non-print materials including the principal audio-visual media and instructional aids. Emphasis is given to the descriptive cataloging of media forms commonly found in general collections of libraries. Prereq: LS 501 and 601.

LS 687 MULTI-MEDIA MATERIALS. (3)
The function, evaluation, selection, acquisition, preparation for use, and preservation of multi-media materials in a library program. Prereq: LS 501, 502 or equivalent.

LS 690 SPECIAL TOPICS IN LIBRARIANSHIP. (3)
Intensive study of one aspect of librarianship under the leadership of an authority in the area. Field work may be incorporated. May be repeated to a maximum of six hours when topics vary.

LS 695 INDEPENDENT STUDY IN LIBRARY 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 once.

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. 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 108-R 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 CALCULUS FOR MATHEMATICS MAJORS I. (4)
A course paralleling MA 113, but topics to be presented in such a way as to benefit persons wishing to major in mathematics. Prereq: An acquaintance with trigonometry.

MA 118 CALCULUS FOR MATHEMATICS MAJORS II. (4)
A course paralleling MA 114, but topics to be presented in such a way as to benefit mathematics majors. Prereq: MA 113 or 117.

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 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 FOR MATHEMATICS MAJORS III. (4)
A course paralleling MA 213, but topics to be presented in such a way as to benefit persons wishing to major in mathematics. Prereq: MA 114 or 118.

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 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)
Vectors, vector spaces, linear transformations, matrices and determinants. Prereq: Consent of instructor.

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 410 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 non-linear 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 411 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 BIO 411.)

MA 413 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 415 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. Prereq: CS 150 or equivalent. (Same as CS 415.)

MA 416 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. Prereq: MA 213 or equivalent. (Same as CS 416.)

MA 417 PRINCIPLES OF OPERATIONS RESEARCH II. (3)
A continuation of MA 416 with topics selected from stochastic models, decision making under uncertainty, inventory models with random demand, waiting time models and decision problems. Prereq: MA 416 or equivalent and MA 423. (Same as STA 417.)

MA 421 ELEMENTARY NUMERICAL ANALYSIS I. (3)
Computer arithmetic. Discussion of the various types of errors. Solution of systems of linear algebraic equations—elementary discussion. Solution of a single non-linear algebraic equation. Polynomial interpolation. Numerical differentiation and integration. (This course could serve as an introduction both for the specialist and the non-specialist.) Prereq: MA 214 plus CS 150, or CS 221, or consent of instructor. (Same as CS 421.)

MA 423 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 equivalent. (Same as STA 423.)

MA 432 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 433 METHODS OF APPLIED MATHEMATICS II. (3)
Elementary complex variable theory with applications. Complex field, analytic functions, Cauchy theorem, power series, residue theory. Prereq: MA 432 or 471.

MA 441 GEOMETRY I. (3)
Euclidean, affine, projective spaces, and the classical groups. Prereq: MA 361 or consent of instructor.

MA 442 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 441 or consent of instructor.

MA 462 MATRIX ANALYSIS. (3)
Algebra of matrices, elementary theory of vector spaces and inner product spaces, existence, uniqueness and computability of solutions of simultaneous linear equations, generalized inverses of matrices, Gaussian elimination, basic iterative methods, eigenvalues and eigenvectors, rational functions of square matrices, Householder's method, QR method and positive definite matrices. Prereq: MA 262 or consent of instructor.

MA 471 ADVANCED CALCULUS I. (3)
The first half of a year sequence which will cover the standard topics of uniformity, integrals and derivatives in a n-space, Stokes' theorem, and selected other topics. Prereq: MA 214 and 351 or equivalent.

MA 472 ADVANCED CALCULUS II. (3)
A continuation of MA 471. Prereq: MA 471 or consent of instructor.

MA 481 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 482 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 STA 482, CS 482.)

MA 483 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 481 or equivalent.

MA 485 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 432 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 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 521 NUMERICAL ANALYSIS OF ORDINARY DIFFERENTIAL EQUATIONS. (3)
Gaussian quadrature, orthogonal polynomials. Numerical methods for initial value problems: multistep methods, Runge Kutta methods, extrapolation methods. Order, consistency, convergence and stability. Numerical treatment of first order systems and stiff equations. Prereq: MA/CS 421.

MA 522 THEORY OF MATRICES. (3)
Review of linear spaces, algebra of matrices, and linear algebraic equations. Eigenvalues and eigenvectors, positive definite matrices. Variational description of eigenvalues. A-matrices, minimal polynomial and 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 423 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 421, or consent of instructor.

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 462 and either 432 or 471.

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 472 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 432 or 481.

MA 538 ELEMENTARY NUMERICAL ANALYSIS II. (3)
A continuation of CS/MA 421. Gaussian quadrature, orthogonal polynomials, least squares approximation by polynomials, Fourier methods, linear difference equations. Numerical methods for ordinary differential equations. This course is not available for credit to persons who have received credit in MA/CS 521. Prereq: CS/MA 421. (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 432 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 471 or consent of instructor.

MA 573 APPLIED COMPLEX ANALYSIS. (3)
Boundary value problems, analytic continuation, contour integration, special functions. Prereq: MA 433.

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 485 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 472 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 621 NUMERICAL ANALYSIS OF PARTIAL DIFFERENTIAL EQUATIONS. (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 521 or MA/CS 538 or consent of instructor.

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 462 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 432 and MA 572.

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 433 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 411 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, 572.

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 572 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 572 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: MA 638 or 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 once.

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 002 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. (Same as CE 105.)

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. Some laboratory work in machining and 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.

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.

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.

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.

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)
Studies of current engineering literature, preparation and presentation of bibliographies and reports through the use of the Engineering Index and Industrial Arts Index. Class, two hours. Prereq: Senior standing.

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 (VARAIBLE 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 475 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 432.

ME 480 THERMAL ENVIRONMENTAL ENGINEERING. (3)
An introductory course emphasizing the engineering systems aspects of thermal environmental design. A case study approach treats measurement problems, modeling, and equipment specification for design of environmental systems. Examples drawn from terrestrial, space and marine environments. Prereq: Consent of instructor.

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 432.

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 475 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 generalized one-dimensional gas dynamics. Prereq: ME 321, ME 330.

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, EM 343.

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. 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 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.

Prerequiste 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 consent of instructor.

ME 611 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 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 432.

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 432 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 432 or concurrent.

ME 630 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 432.

ME 631 FLUID DYNAMICS II. (3)
A continuation of ME 630 with emphasis on viscous flow. Exact and approximate solutions, boundary layer theory. Jets, wakes, rotating systems, compressible boundary layer and hydrodynamic stability. Prereq: ME 630 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 432.

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 ADVANCED KINEMATICS OF MACHINERY I. (3)
Fundamentals in the analysis and synthesis of mechanisms including coupler curves, guided plane systems and linkage design. Prereq: Approval of director of graduate study.

ME 643 ADVANCED KINEMATICS OF MACHINERY II. (3)
A conitnuation of ME 642, dealing with the motion of rigid planes passing through multiple positions. Theory and application. Prereq: ME 642.

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 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 432.

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 481.

ME 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

ME 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

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 to a maximum of three credits. 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 to a maximum of 12 credits. Prereq: Consent 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 820 INTRODUCTION TO MEDICAL TECHNOLOGY. (1)
Presentation of information about the profession of medical technology and the various phases of laboratory medicine involved in the training for and practice of the specialty. Taught by lectures, films, demonstrations and field trips.

MT 830 MEDICAL TECHNOLOGY SEMINAR. (1)
An introduction to disease processes, their manifestations and related laboratory studies used in diagnosis and treatment. Taught by lectures.

MT 831 INTRODUCTION TO LABORATORY METHODOLOGY I. (3)
An introduction to basic clinical laboratory methodology in theory and practice relative to urinalysis, serology, immunohematology, and bacteriology. Laboratory reporting, quality control, intra-hospital communication, medical terminology, and concern for the patient will be emphasized throughout the course. Prereq: Admission to the medical technology professional program.

MT 832 INTRODUCTION TO LABORATORY METHODOLOGY. (4)
An introductory course in theory of medical laboratory techniques basic to the various disciplines of medical technology. Lecture, two hours; laboratory, four hours. Prereq: Admission to the professional program in medical technology.

MT 833 INTRODUCTION TO LABORATORY METHODOLOGY II. (3)
An introduction to basic clinical laboratory methodology in theory and practice relative to hematology and clincal chemistry. Laboratory reporting, quality control, intra-hospital communications, medical terminology and concern for the patient will be emphasized through the course. Prereq: Admission to the medical technology professional program.

MT 835 LABORATORY ORGANIZATION AND MANAGEMENT I. (1)
Principles of management and human relations, decision making, motivation, leadership, communication and evaluation as applied to laboratory personnel. Grading by pass-fail only. Prereq: Enrollment in medical technology professional program or consent of instructor.

MT 836 LABORATORY ORGANIZATION AND MANAGEMENT II. (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 or consent of instructor and MT 835.

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 senior (clinical) year of medical technology curriculum. Offered on a pass-fail basis.

MT 846 URINALYSIS AND MISCELLANEOUS CLINICAL MICROSCOPY. (3)
A course covering qualitative and quantitative studies, both chemical and microscopic, of urine; studies of miscellaneous materials such as gastric secretions, cerebrospinal fluids and other body fluids, and lectures on basic principles of histologic technique. Lecture, one hour; laboratory, four hours. Prereq: Admission to senior (clinical) year of medical technology curriculum.

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 professional program in medical technology.

MT 855 CLINICAL SEROLOGY. (2)
Clinical serology relative to antibody identification of spirochetal, bacterial and autoimmune diseases with emphasis on the immunologic techniques involved. Prereq: Admission to senior (clinical) year of medical technology curriculum.

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: Admission to the senior (clinical) year of the medical technology curriculum or .consent of the department chairman.

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 senior (clinical) year of medical technology curriculum. 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 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.

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 demonstra-

tions. Prereq: Introductory course in biology, zoology, or botany and consent of the chairman.

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 chairman. 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 twice.

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. (4)
A lecture course with a non-dissection laboratory designed to present the detailed organization of the human body with both systemic and regional approaches. Unifying general concepts and principles relating to the neuromuscular and cardiovascular systems will be stressed. (Note: This course is based on and will include parts of ANA 511, Introduction to Anatomy, the standard course for medical students. 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 221 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)
A cross-cultural survey of behavioral factors in the recognition, prevention and treatment of disease in primitive, folk, and modern cultures with an emphasis on the solution of world-health problems. Topics to be covered include non-western medical systems, health behavior as a projective system, transcultural medicine and psychiatry and health behavior and culture change. Prereq: ANT 120, 121. (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 444 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 444, 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 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 format 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: 6-24 hours per week. May be repeated to a maximum of 12 credits. Prereq: Consent of instructor.

BCH 401 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 104 or 112, 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 108 or 112, 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 444 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 401, 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: BCH 401, 502 or 811.

BCH 611 BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS. (3)
A continuation of BCH 610. 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 401, 502 or 811. (Same as MMI 611.)

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 401, 502 or 811; CHE 444 or consent of instructor. 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 there.

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 CONFERENCE SERIES. (4)
The third year conference series will include that materials which is essential to the third-year curriculum and lend itself to presentation to a large group—to a great extent eliminating duplication and fragmentation of information. Prereq: Completed basic science curriculum of the College of Medicine. Lecture, two hours.

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 CLERKSHIP. (6)
A six week senior selective designed to acquaint the student with the functions, techniques, and experiences associated with the routine of a family physician. Prereq: Admission to the fourth year, College of Medicine.

FP 842 AHES FAMILY PRACTICE CLERKSHIP. (6)
A six week selective in remote site areas designated as Area Health Education Sites by the Council of Higher Education. 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.

MEDICAL MICROBIOLOGY AND IMMUNOLOGY

MMI 512 CELLULAR PHYSIOLOGY. (3)
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. 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 401 or equivalent and consent of instructor. (Same as BIO 515.)

MMI 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 401, 502 or 811. (Same as BCH 611.)

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 404 or equivalent; BCH 401 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 401 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. Prereq: Admission to the College of Medicine.

MMI 821 PATHOGENIC MICROBIOLOGY FOR MEDICAL STUDENTS. (3)
Cell biology of pathogenic organisms with emphasis on their relation to disease in man. Prereq: Admission to the College of Medicine.

MEDICINE

MED 821 PHYSICAL DIAGNOSIS. (4)
This course will provide students with a structured experience in the principles and techniques of physical diagnosis and history taking.* Prereq: Admission to second year, College of Medicine or consent of instructor and dean.

*Lecture, two hours per week for one and one-half semesters; laboratory, two hours per week for one and one-half semesters.

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 421 FUNDAMENTAL HUMAN PATHOLOGY. (4)
This course will provide a general survey of the various types of reactions to injury; regeneration, repair, the granulomata and the fundamentals of neoplasia. The emphasis will be upon the pathogensis, mechanisms, and natural history of disease processes with particular stress on the interrelationships of structural and metabolic abnormalities. For non-medical students and graduate students. Prereq: ANA 511, 512, 513, PGY 511, BCH 511 or equivalents and permission of department chairman.

PAT 422 SYSTEMATIC HUMAN PATHOLOGY. (7)
The study of disease of each organ system. For non-medical students. Prereq: For graduate students: ANA 511, 512, 513, PGY 511, BCH 511 or equivalent; permission of department chairman.

PAT 821 PATHOLOGIC BASIS OF DISEASE. (12)
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-instruction case studies, and clinically-oriented histopathology problems. There are 42 lectures in anatomic pathology given by members of the Department of Pathology, 38 clinical correlative lectures given by members of clinical departments, and 21 lectures in laboratory medicine. (Lecture, seven hours per week for one and one-half semesters; laboratory, two hours per week for one and one half semesters.) 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 6 to 8 months in the intensive study of autopsy and surgical pathology material, and 4 to 6 months in elective periods in the various divisions of laboratory medicine, neuropathology, electron-microscopy, 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 558 NEUROPHARMACOLOGY. (2)
A study of drugs which modify the function of all parts of the nervous system, including the brain, spinal cord and nerve fibers which connect with all parts of the body. Lecture, 25 horus; laboratory, 10 hours. Prereq: Consent of instructor.

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 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)
Continuation of PHA 521 with particular emphasis on recent developments in the field. Prereq: PHA 521, consent of department chairman.

PHA 622 PHARMACOLOGY OF ORGANS AND SYSTEMS. (2)
Discussion of pharmacodynamic principles determining the effects of drugs on individual organs and organ systems except the nervous system. Lectures, discussions and laboratory exercises. Lecture, two hours; laboratory, two hours. Prereq: Admission to the graduate program of the Department of Pharmacology or consent of the Director of Graduate Studies in pharmacology.

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, 444, 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 PHYSICAL AND CHEMICAL DISPOSITION OF DRUGS. (2)
Seminars and discussions of the physical and chemical factors which affect the disposition of drugs in biological tissues and fluids. The topics discussed will change somewhat from year to year; they will be chosen for their importance and current or personal interest. Prereq: 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. 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.

*Will be taught, in most part, on the University of Louisville campus.

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 511 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 512 CELLULAR PHYSIOLOGY. (3)
An intensive study of general physiological principles with emphasis on the chemistry and physics of the cell. 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 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 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 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 472 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. (Same as PHY 472.)

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. (2)
An analysis of common radiation hazards encountered in medicine and research, regulations for safe usage of radiation, and procedure for safe use of radiation. Lecture, one hour; laboratory, two hours. Prereq: College physics; one year biology. (Same as PHY 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 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 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 advisor.

TOX 790 RESEARCH IN TOXICOLOGY. (1-5)

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. (2)
A lecture-laboratory course emphasizing experimental techniques for structural characterization of materials including optical microscopy and x-ray diffraction. Lecture, two hours; laboratory, two hours. Prereq: PHY 242, CHE 115.

MET 303 MATERIALS LABORATORY II. (2)
A continuation of MET 302 with emphasis on the relationships between the structure and properties of engineering materials. Lecture, two hours; laboratory, two hours. 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 112.

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 440.

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. (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 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. Degrees offered are a Master of Science in metallurgical engineering and a Doctor of Philosophy in physical metallurgy.

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, two hours; laboratory, 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 DIFFRATION 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 once.

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.

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 U.S. DEFENSE ESTABLISHMENT. (2)
Introductory course covering broad concepts of military science including organization, missions, and roles of the Army in national security; the structure and function of the defense establishment; and the military as a profession. Open to men and women. Prereq: Full-time undergraduate student (male or female) physically fit to pursue program.

MS 102 AMERICAN MILITARY HISTORY. (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. Prereq: Full-time undergraduate student (male or female) physically fit to pursue program.

MS 201 SMALL UNIT TACTICS. (1)
Course in small unit tactics, patrolling, leadership and command. Prereq: MS 101, 102; physically fit to pursue program, successful completion of MS 101 and 102 or with the consent of PMS (based on prior military training and able to complete required course).

MS 202 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. Prereq: Requirement for prerequisites of MS 101, MS 102, MS 221, 201 are deleted.

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 ROTC students must enroll in MS 221 and 201 concurrently. (Same as GEO 221.)

ADVANCED COURSES

MS 301 LEADERSHIP AND MANAGEMENT I. (3)
Course of study in development of basic skills required to function as a manager; study of leadership styles, group dynamics, communications, motivation and military instruction methods; and school of the soldier and exercise of command. Prereq: MS 201, 202, graduate or undergraduate student (male or female), successful completion of basic course or basic camp, physically fit to pursue program; consent of PMS.

MS 302 ADVANCED TACTICS. (3)
Small unit tactics and communications, organization and mission of combat arms units; leadership and the exercise of command. Prereq: MS 201, 202, graduate or undergraduate student (male or female), successful completion of basic course or basic camp, physically fit to pursue program; consent of PMS.

MS 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.

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
Viola De Gamba	MUP 121, 221, 321, 421	521, 621
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 B.M. in 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.

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. Prereq: For music majors only; others by consent of instructor. Instruction, three hours.

MUC 158 CLASS INSTRUCTION IN WOODWIND INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching woodwind instruments. Prereq: For music majors only; 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. Prereq: For music majors only; others by consent of instructor.

MUC 163 CLASS INSTRUCTION IN BRASS INSTRUMENTS. (1)
A beginning course in the fundamentals of playing and teaching of brass instruments. Prereq: For music majors only, others by consent of instructor. Instruction, three hours.

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 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.

MUS 102 MUSIC HISTORY: ORIENTATION AND SURVEY. (2)
A study of basic music terminology, and preparatory historical survey of music periods designed to orient the entering freshman music major as to the development of musical styles and representative composers.

MUS 103 MUSIC HISTORY. (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—MUS 102; non-music majors—consent of instructor.

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 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 202 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—MUS 102; for non-music majors—consent of instructor.

MUS 203 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 for music majors—MUS 102; for 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. (2)
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 conitnuation of the acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. This course must be taken concurrenlty with MUS 270. Prereq: MUS 171, 173.

MUS 272 THEORY II—AURAL THEORY. (2)
The continuation of the aural and sightsinging techniques of MUS 270. Prereq: MUS 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. 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 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 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 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 507 VENETIAN MUSIC OF THE RENAISSANCE. (3)
Venetian music from circa 1500 to 1612. Includes study of major genres (mass, motet, frottola, madrigal, etc.) with emphasis on the cultural matrix in which the music was composed and performed. Includes also study of Venetian social institutions of the time, and lectures on related Venetian culture. Prereq: MUS 103, MUS 202, or MUS 200 and consent of instructor.

MUS 508 VENETIAN MUSIC OF THE BAROQUE. (3)
Venetian music from circa 1613-1741. Includes study of major genres (monody, opera, oratorio, sonata, concerto, etc.) with emphasis on the cultural matrix in which the music was composed and performed. Includes also study of Venetian social institutions of the time, and lectures on related Venetian culture. Prereq: MUS 103, MUS 202, or MUS 200 and 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 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 561 CURRENT PRACTICES IN ELEMENTARY AND SECONDARY SCHOOL MUSIC. (2)
Contemporary philosophies and objectives of music in the elementary and secondary schools. The in-service training of the classroom teacher; the music specialist as a resource person. Techniques for developing the child's musical interest and capacity for music. The status of music in America's public schools. Open to music teachers only. Prereq: MUS 360 and 364, or MUS 365 or equivalent.

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. (2)
Study of 16th Century contrapuntal techniques.

MUS 573 COUNTERPOINT. (2)
Study of 18th Century contrapuntal techniques

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 ANALYTICAL TECHNIQUES. (2)
Studies in the analysis of stylistic practices in the music of the 18th and 19th Centuries. Prereq: MUS 272 and 273, 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 LITERATURE. (3)
An intensive study of the stylistic and interpretive characteristics of German solo vocal literature.

MUS 621 ADVANCED VOCAL LITERATURE. (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 671 ADVANCED MUSICAL ANALYSIS. (3)
A course designed to show the changing aspects of musical style through analysis of representative compositions from all periods. Prereq: At least eight hours of upper division theory or consent of instructor.

MUS 672 ADVANCED MUSICAL ANALYSIS. (3)
A continuation of MUS 671. Prereq: MUS 671.

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)
An intensive study of compositional procedures in music since 1920. Prereq: MUS 505 (may be taken concurrently with consent of instructor).

MUS 700 MEDIEVAL NOTATION. (3)
The study and transcription of the notation of medieval music from the earliest plainchant sources to mannered notation of the late 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. (Same as EDC 751.)

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 once.

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 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 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: 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: 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 610 CONCEPTS AND THEORIES IN NURSING. (3)
Study of formulation of concepts and theories in nursing and the testing of existing theories in clinical practice. Prereq: Admission to graduate program in nursing.

NUR 612 SYSTEMATIC INQUIRY IN NURSING. (3)
Provides for the development of skills needed to understand and evaluate nursing research to identify problems in nursing which may be studied, and to formulate a study proposal. Prereq: Admission to graduate program in nursing.

NUR 614 PRACTICUM IN CLINICAL NURSING I. (2-4)
Planning nursing care for patients in the clinical component.

Medical-Surgical Nursing and Pediatric Nursing—Effects of specific philosophical viewpoints on health care; testing nursing theories as they relate to children and adults.

Psychiatric-Mental Health Nursing—Development of basic clinical nursing competencies in mental health assessment, treatment modalities and evaluation of treatment outcomes. Experiences with both individuals and groups. Laboratory, four to eight hours. Prereq: Enrollment in the graduate program in nursing. Concurrent with NUR 770.

NUR 615 PRACTICUM IN CLINICAL NURSING II. (2-4)
Leadership skills, transmission of knowledge, and use of research findings are applied in clinical settings.

Medical-Surgical Nursing and Pediatric Nursing—Further testing theoretical concepts related to nursing management of children or adults. Students work with patients of interest, and collect data for a clinical project.

Psychiatric-Mental Health Nursing—Health care systems and change. Consultation, program planning and evaluation. Students collect data for a clinical project. Laboratory, four to eight hours. Prereq: NUR 614. Concurrent with NUR 771.

NUR 616 PRACTICUM IN CLINICAL NURSING III. (2-4)
Experiences in the student's area of clinical interest, ways to bring about change and identify nursing problems that need systematic study. The clinical nursing project is completed. Seminars are scheduled according to need.

Medical-Surgical Nursing and Pediatric Nursing—Consolidate skills in managing ambulatory children or adults. Work with a group of children or adults with other health professionals.

Psychiatric-Mental Health Nursing—Involvement in consultation, education, community assessment, problems in health care delivery, program development. Laboratory, four to eight hours. Prereq: NUR 615.

NUR 620 PROBLEMS IN CLINICAL NURSING.(2-6)
This course provides opportunity for the study of nursing programs 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 OR SUPERVISION IN NURSING. (1-4)
Under faculty guidance students will have practice in the teaching of nursing or in supervision of nursing service personnel in settings appropriate to their career goals. Prereq or concur: NUR 624, NUR 625, NUR 626, or NUR 622.

NUR 624 CLINICAL TEACHING AND SUPERVISION IN NURSING I. (1)
A seminar which discusses 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 AND SUPERVISION IN NURSING II. (1)
A seminar which discusses formal and informal teaching methods, an overview of instructional media, and nursing care planning. Prereq: NUR 624.

NUR 626 CLINICAL TEACHING AND SUPERVISION IN NURSING III. (1)
A seminar which discusses purposes of evaluation, test item construction, performance evaluation, and evaluation of nursing care. Prereq: NUR 624.

NUR 630 CLINICAL NURSING II. (6)
A continuation of NUR 620. Focus is on the consolidation of learnings from nursing and cognate courses into a framework for advanced nursing practice with opportunity to test and evaluate results. Lecture, four hours; laboratory arranged. Prereq: NUR 620. Note: Taught only in the eight-week summer session.

NUR 650 PHYSICAL AND HEALTH ASSESSMENT. (4-6)
Study of common disease processes, diagnostic procedures and clinical judgments in the provision of primary health care is covered. Normal physiological, biologic and psychologic processes are reviewed in depth as a baseline for assessing and understanding health-illness status and competence in clinical management. Lecture, two hours; laboratory, eight hours. Prereq: Graduate standing.

NUR 660 BASIC NURSE-MIDWIFERY I. (6)
The course covers care of the child-bearing woman throughout the pregnancy cycle as well as her family in various settings. Management of common complications of pregnancy and introductory experiences in normal deliveries are included as well as various aspects of family planning, including clinical management of spacing and limitation programs. Genetics and fertility as pertinent aspects of family planning, counseling and guidance are covering. Lecture, two hours; laboratory, eight hours. Prereq: NUR 650 and graduate standing.

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/or consent of instructor.

NUR 670 BASIC NURSE-MIDWIFERY II. (6-9)
Classroom and intensive field experiences are provided ih the 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. Concentrated field experiences in the above areas are required. Competency must be demonstrated in all aspects of the midwifery specialty. Each student carries out a clinical nursing study. Lecture, two-three hours; laboratory, eight-twelve hours. Prereq: NUR 650, 660.

NUR 672 FAMILY NURSE CLINICAL PRACTICUM II. (4)
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 hours. Prereq: NUR 554, 662, and/or consent of instructor.

NUR 682 FAMILY NURSE INTERNSHIP. (6)
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 hours. Prereq: NUR 650, 662, 672.

NUR 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 medical-surgical nursing, nursing-midwifery, pediatric nursing and psychiatric-mental health nursing. Required of all students enrolled in clinical nursing. Concurrent with NUR 614 or enrolled in nurse-midwifery.

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 medical-surgical nursing, nurse-midwifery, pediatric nursing and psychiatric-mental health nursing. Required of all students enrolled in clinical nursing. 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: Graduate status in nursing and/or consent of instructor.

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 831 MEDICAL-SURGICAL NURSING. (14)
This semester length course concerns itself with the nursing care of persons ranging in age from late adolescence through old age and includes aspects of primary prevention of illness as well as the nursing care of persons with major health problems. Lecture, four hours; laboratory, 12 hours. Prereq: Successful completion of NUR 811 and 821.

NUR 833 DRUGS AND DRUG ADMINISTRATION: MEDICAL SURGICAL NURSING. (1)
Uses and actions of drugs used for adult patients with medical and surgical conditions, taught in the framework of the major health problem. Prereq: Senior standing, College of Nursing; concurrent with NUR 831.

NUR 835 ALCOHOLISM: AN ILLNESS. (4)
This elective course will focus on the physical damage inflicted by alcohol and the major nursing modalities used in treatment. Prereq: Admission to upper divisions.

NUR 836 THE NURSING PROFESSION. (3)
This course offers content and opportunity for the student to explore identification with the profession as she approaches the time she will assume professional practice. Deals with historical aspects, current trends, and problems in nursing. Prereq: Senior standing.

NUR 839 LEADERSHIP IN NURSING SERVICE. (2)
This is an introduction to the nursing care of groups of patients for students who have previously learned the nursing care of individual patients; includes direct care, management functions and the principles of administration. Prereq: Senior standing.

NUR 841 COMMUNITY HEALTH NURSING. (10)
This course focuses on the family interacting with its environment; a unique conceptual model has been developed for this course; in addition the systems model, epidemiological model, process of change models and developmental models will be explored. Lecture, four hours; laboratory, 12 hours. Prereq: Successful completion of the junior year courses in the College of Nursing.

NUR 843 WORLD HEALTH CARE SYSTEMS: A COMPARATIVE STUDY. (2)
This elective course will introduce students to health care systems in various nations. Systems will be compared and contrasted with an attempt to identify the strengths and weaknesses of each. Prereq: Admission to the upper division of the College of Nursing.

NUR 845 STUDIES OF COMMON CURRENT EPIDEMIOLOGICAL PROBLEMS. (2)
Students will learn to use the epidemiological process and statistical data in the study of community health problems. The course will include nursing's role in identification of population at risk and levels of prevention and control. Prereq: Admission to upper division of College of Nursing.

NUR 847 DRUGS AND DRUG ADMINISTRATION: COMMUNITY HEALTH NURSING. (1)
Focus is on problems in delivery/maintenance of drug therapy for patients outside the hospital; includes long term therapy, use and misuse of over the counter drugs, financing and availability of drugs. Prereq: Senior standing in college; concurrent with NUR 841.

NUR 850 PHSYICAL AND HEALTH ASSESSMENT. (6)
This course is designed to provide the general principles of obtaining health histories and physical assessment of patients. Management of common individual and family health problems is also covered. Normal physiological, biologic and psychologic processes are reviewed as a baseline for assessing and understanding health-illness status and management. Lecture, two hours; laboratory, eight hours. Prereq: Admission to the College of Nursing.

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; lab, four hours. Prereq: Biology of Disease pre or corequisite.

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; lab, nine hours.

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. Three hours self-instruction, one colloquium per week. Prereq: 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.

NUR 858 CULTURAL DIVERSITY AND IMPLICATIONS FOR NURSING. (2)
Examines diverse cultural practices and patterns and explores implications for nursing practice.

NUR 860 BASIC MIDWIFERY. (6)
Guided experience is provided in the care of the childbearing 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.

NUR 866 IMPLICATIONS OF DRUG THERAPY FOR NURSES. (3)
The study of actions and reactions of medications frequently used as therapeutic agents. Prereq: Completion of required junior year courses.

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; lab, six hours. Prereq: Completion of junior level courses.

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; lab, eight hours. Prereq: Completion of junior level courses.

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; lab, six hours. Prereq: Completion of junior year courses.

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: Completion of junior year courses.

NUR 880 CLINICAL PRACTICUM. (8)
Intensive supervised practice in the application of concepts and theories of nursing in selected health care settings. Lecture, one hour; laboratory, 14 hours. Prereq: Completion of junior year courses and NUR 866—Implications of Drug Therapy for Nurses.

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.

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 300 ORGANIC PHARMACEUTICAL CHEMISTRY. (5)
A comprehensive course in the preparation and properties of aliphatic compounds with emphasis on those compounds which are related to pharmacy. Lecture, three hours; laboratory, six hours. Prereq: CHE 112 and 113.

PHR 302 ORGANIC PHARMACEUTICAL CHEMISTRY. (5)
A course similar to PHR 300 in which the aromatic compounds are studied. Official products are emphasized in their proper sequence as the course progresses. Lecture, three hours; laboratory, six hours. Prereq: PHR 300.

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 112 and 113 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 276 and BIO 202, 203.

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 202, 203, or BIO 240, CHE 232 and PHY 213.

PHR 335 MICROSCOPIC PHARMACOGNOSY. (2)
This lecture-laboratory course discusses and teaches the microscopic features of crude drug sections and powders. Pollen and fiber morphology is included. Photomicrographic techniques are examined. Lecture/laboratory, four hours. Prereq: BIO 202.

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; laboratory, four three-hour sessions per semester. 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; laboratory, two three-hour sessions per semester. Prereq: PHR 336.

PHR 340 PRINCIPLES OF MEDICINAL CHEMISTRY. (3)
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 and BIO 202.

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 404 CHEMISTRY OF MEDICINAL PRODUCTS. (3)
A study of the official and more important non-official medicinal agents with respect to their physical and chemical properties, relationships of chemical structure to physiological activity, as well as their potential incompatabilities. Prereq: PHR 400 or equivalent.

PHR 406 CHEMISTRY OF MEDICINAL PRODUCTS. (3)
Continuation of PHR 404 including considerations of such topics as alkaloids, glycosides, steroids, and other chemotherapeutic agents. Prereq: PHR 404.

PHR 450 PHARMACOLOGY AND TOXICOLOGY. (5)
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: PHR 334, 346, 400.

PHR 462 PHARMACOLOGY AND TOXICOLOGY. (5)
A continuation of PHR 450. Lecture, four hours; laboratory, two hours. Prereq: PHR 450 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 815 and PHR 825; consent of instructor or equivalent background.

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 640 ADVANCED PHARMACEUTICAL CHEMISTRY I. (3)
Chemistry of chemotherapeutic agents. A course bridging synthetic organic chemistry and biological activity and considering those organic compounds used as therapeutic agents in infectious diseases emphasizing the synthesis, relationship between chemical structure, biological activity, molecular modification and metabolism. Prereq: Advanced organic chemistry and consent of instructor.

PHR 642 ADVANCED PHARMACEUTICAL CHEMISTRY II. (3)
Chemistry of pharmacodynamic agents. A course similar to PHR 640, but considering those agents altering physiological activity such as antihistaminics, anesthetics, antispasmodics, hypnotics, etc. Prereq: Advanced organic chemistry and consent of instructor.

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.

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 I. (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 PHARMACEUTICS I. (6)
An introduction to the physical and chemical phenomena that affect the formulation, manufacturing and analysis of dosage forms. Consideration of the factors that control the absorption, distribution, metabolism and elimination of drugs in biological systems.

PHR 802 PHARMACEUTICS II. (5)
A continuation of PHR 801. Lecture, four hours; laboratory, three hours. Prereq: PHR 801.

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 816 PATIENT CARE SERVICES AND CLINICAL PHARMACY PRACTICE. (3)
A continuation of PHR 814. Lecture, two hours; laboratory, three hours. Prereq: PHR 814.

PHR 818 BASIC SCIENCES AND PATIENT CARE. (1)
Weekly interdisciplinary seminar and conference sessions are presented to demonstrate the relationship of basic science disciplines and pharmaceutical education to the care of the patient. Prereq: Admission to the Doctor of Pharmacy program. Offered on an Honors, Pass, Fail basis only (H. P. F).

PHR 819 BASIC SCIENCES AND PATIENT CARE. (1)
Continuation of PHR 818. Prereq: Admission to the Doctor of Pharmacy degree program and PHR 818. To be offered on an Honors, Pass, Fail basis only (H, P, F).

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. (4)
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, three hours; laboratory, three hours. Prereq: PHR 310 or equivalent, and PHR 815.

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 810, 815, 863.

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 SYSTEM. (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: CARDIOPLMONARY 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 869 RESIDENCE CREDIT FOR THE PHARM D. DEGREE. (0-12)
Residence credit for the Pharm. D. degree. May be repeated indefinitely.

PHR 860 ANIMAL HEALTH PRODUCTS. (2)
A study of drug products used in the diagnosis and treatment of common animal diseases. Prereq: PHR 863, PHR 342.

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 866 HOSPITAL PHARMACY PRACTICE I. (3)
The administrative and professional principles and concepts of hospital pharmacy practice. Emphasis placed on the development, functions and organization of the hospital and the relationship of the pharmacy as a component of the hospital. Prereq: PHR 870, or consent of instructor.

PHR 868 HOSPITAL PHARMACY PRACTICE II. (3)
A study of the administrative and professional principles and concepts of hospital pharmacy practice. Emphasis is placed upon the development of trends affecting hospital pharmacy; the administrative organization of the pharmacy; organizing and planning of the department; business management of the pharmacy and analysis of the professional service and activities of the hospital pharmacy. Prereq: PHR 866.

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 814, 820, 824, 863. 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 346, 814, 824, 862.

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. It is designed as a natural continuation of PHR 863. Prereq: PHR 863.

PHR 875 CLINICAL PHARMACOKINETICS. (3)
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 845 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 863, 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 863, 874.

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 CLERKSHIP. (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 820, 862, 863, 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 exprience 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. Prereq: PHR 874, 875, 878.

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, 4-16 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)
An introduction to philosophical studies with emphasis on theory and practice of deduction, selected issues in induction and scientific method, and questions of ordinary argumentation.

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 including 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 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 418 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 440 GREAT RELIGIONS. (3)
A descriptive survey of several religions as they developed within their culture, for example, Hinduism, Buddhism, Confucianism, Judaism, Christianity.

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 INTERMEDIATE LOGIC. (3)
An intermediate course in logic which reviews the logic of propositions, develops the logic of quantification and introduces metalogical issues in the construction, consistency and completeness of deductive systems. Prereq: PHI 120 or consent of instructor.

GROUP A

PHI 504 TOPICS IN THE HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY. (3)
A selective study of representative issues and texts in ancient and medieval philosophy, with special emphasis upon historical continuity and the interrelation of thinkers and problems. Possible topics: Plato and Aristotle; Neo-Platonism; Aristotle and Aquinas; the Renaissance critique of medieval thought. 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 critical survey of American philosophical movements, notably idealism, pragmatism, realism, naturalism, logical positivism, and phenomenology.

PHI 515 CONTEMPORARY ANALYTIC PHILOSOPHY. (3)
A study of philosophical developments in the 20th Century, with concentration on the analytic movements (logical atomism, logical positivism, and linguistic analysis).

PHI 516 PHENOMENOLOGY. (3)
An account of the phenomenological movement from Husserl to the present with emphasis on the development of a phenomenological method including elements such as intentionality, reduction, constitution and their relations to the structure of appearance. Prereq: PHI 270.

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)
Examination of efforts by philosophers to construct general conceptions of the world. Recent approaches to philosophy and metaphysical investigation. Prereq: Two courses in philosophy or consent of instructor.

PHI 555 EPISTEMOLOGY. (3)
A study of the origins, nature, kinds and validity of knowledge, with accent both on traditional epistemological problems and on analyses of epistemological concepts.

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 the foundations of the social sciences, focusing upon the character of the theories and concepts used to explain human behavior, including the role of laws and the nature of confirmation.

PHI 565 PHILOSOPHY OF LANGUAGE. (3)
An investigation of problems current in the philosophy of language such as meaning and reference, the nature of analysis, linguistic relativity and the relation of linguistics to philosophy.

PHI 570 PHILOSOPHY OF HISTORY. (3)
An examination of the theories and methods utilized by historians with special attention to the problems of laws and explanations in history, the nature of historical knowledge and narrative, and the roles of causal judgments and historical understanding. Attention will also be given to theoretical interpretations of history as offered by Marx, Hegel, Toynbee and others.

PHI 575 PHILOSOPHY OF MIND. (3)
An examination of problems current in the philosophy of mind, such as the concept of person, the relation of mind and body, the relation of minds and machines, knowledge of other minds, and the roles of dispositions and volitions in human action. Attention will be given to the philosophical analysis of such psychological categories as consciousness, feeling, emotion, perception, imagination, thinking and will.

GRADUATE SEMINARS

PHI 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 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 nine 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. Prereq: PHI 505.

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 nine 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 nine credits. Prereq: PHI 515 or equivalent.

PHI 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE. (1-6)
May be repeated once.

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 818 CLINICAL PROBLEMS. (2)
Designed to study planning and coordination of hospital and community services in comprehensive care of patients with major orthopedic, neurological, medical-surgical, and trauma disabilities by the way of lecture, laboratory, staff conferences, seminars, and case presentations. Prereq: PT 876, PT 827, PT 857; or consent of instructor.

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 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 836 CLINICAL CLERKSHIP II. (1)
The clinical participation of the physical therapy student, under supervision, is increased by more intense practice of the basic techniques taught in the classroom. Prereq: PT 835, PT 805, PT 815, PT 856, ANA 802, AHE 854, AHE 856 or consent of instructor. Offered on a pass-fail basis only.

PT 837 CLINICAL CLERKSHIP III. (2)
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. Prereq: PT 836, PT 826, PT 846, PT 876, PT 867 or consent of instructor. Offered on a pass-fail basis.

PT 838 CLINICAL CLERKSHIP IV. (2)
Continuation of PT 837. Offered on a pass-fail basis only. 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. (1)
Musculo-skeletal diseases and orthopedic disabilities, anesthesiology, general surgery, chest and cardiac surgery, vascular and plastic surgery are presented. Prereq: ANA 802, BIO 350 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, objectives, 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 AND ASTRONOMY

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 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 211 GENERAL ELEMENTARY PHYSICS. (5)
An elementary course covering the mechanics of solids, liquids, and gases; and heat. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for PHY 231 and 241. Prereq: A working knowledge of algebra as obtainable, for example, in MA 109 or MA 122-123, or demonstrated by an ACT standard score in mathematics of at least 25.

PHY 213 GENERAL ELEMENTARY PHYSICS. (5)
Continuation of PHY 211, covering magnetism and electricity, sound, optics and radiation physics. Lecture, two hours; recitation, two hours; laboratory, two hours. Credit is not given to students who already have credit for 232 and 242. This course is a prerequisite to a significant number of courses in this and related areas of study. Prereq: PHY 211 or equivalent.

PHY 231 GENERAL UNIVERSITY PHYSICS. (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 401 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 402 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. Prereq: EE 305 or PHY 242 or consent of instructor. (Same as EE 402.)

PHY 404 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 416 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 417 ELECTRICITY AND MAGNETISM. (3)
A continuation of PHY 416. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents and electromagnetic radiation. Prereq: PHY 416.

PHY 472 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. Prereq: PHY 361. (Same as RM 472.)

PHY 504 ADVANCED MECHANICS. (3)
A continuation and extension of PHY 404. Includes dynamics of a particle, rigid bodies, Lagrange's equations, constrained motions, and oscillations. Prereq: PHY 404, 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 416.

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 416.

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. (2)
An analysis of common radiation hazards encountered in medicine and research, regulations for safe usage of radiation, and procedure for safe use of radiation. Lecture, one hour; laboratory, two hours. Prereq: College physics; one year biology. (Same as 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 416; 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 650 THEORY OF RELATIVITY. (3)
A lecture and problem course dealing with the special and general theories of relativity. Topics include relativistic kinematics, the Lorentz transformation, the principle of equivalence, Riemannian spaces, field equations and experimental tests of the special and general theories. Prereq: PHY 604.

PHY 652 THEORY OF ELEMENTARY PARTICLES. (3)
A lecture and problem course dealing with the application of modern theoretical concepts to elementary particle systems. Prereq: PHY 714.

PHY 682 ELECTRIC PHENOMENA IN GASES. (3)
Considers basic phenomena of the motion and interaction of electrons in gases including ion formation, mobility, diffusion, recombination, ion lifetimes, atomic and molecular excitations and energetics. Prereq: PHY 417, 554, or 510; MA 214.

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. Lectures, two or three hours. 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 once.

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 400, CHE 230 or 236, AGR 404, PPA 575. (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 once.

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 RESEASRCH 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 in the United States, with emphasis on the Constitution, the structure of government, and politics.

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; its significance and antecedents; analysis of behavioral concepts used in political science, such as political roles, groups, power, systems, and decision making; relation of political behavior to democratic theory.

PS 210 COMPARATIVE POLITICS AND POLITICAL DEVELOPMENT. (3)
An introduction to the theories and concepts employed in comparative political studies. The course is designed to prepare undergraduate students for the more advanced courses in comparative politics and government.

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)
A study of the forms and functions of government in operation in the states of 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 396 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 paper in his internship.

PS 411 COMPARATIVE GOVERNMENT—PARLIAMENTARY DEMOCRACIES I. (3)
A study of the governments of Britain and selected Commonwealth countries.

PS 412 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 417 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 419 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 420 GOVERNMENTS AND POLITICS OF SOUTH ASIA. (3)
A study of the political processes of India, Pakistan, and Ceylon.

PS 421 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 428 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 429 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 430 THE CONDUCT OF AMERICAN FOREIGN RELATIONS. (3)
The formulation, conduct, and control of American foreign policy, basic principles, comparison with other countries. Prereq: PS 101.

PS 431 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 265.

PS 436 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 437 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 441 EARLY POLITICAL THEORY. (3)
The history of political theory from classical Greece to the 17th Century with emphasis on the relationships between political and cultural change and the development of Western political thought.

PS 442 MODERN POLITICAL THEORY. (3)
Political theory from the 17th Century to the present with emphasis on the development of contemporary ideologies, the impact of industrialism and modern science, and the relationships between modern democracy and dictatorship.

PS 450 RURAL LOCAL GOVERNMENT. (3)
A study of the organization and functioning of units of local government, with primary emphasis on government in Kentucky counties.

PS 452 MUNICIPAL GOVERNMENT. (3)
An introductory course in the study of the structure and functions of modern city governments with some attention to other forms of local government.

PS 461 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 463 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 465 CONSTITUTIONAL POLITICS. (3)
A survey of the interpretation of the Constitution as embodied in leading Supreme Court decisions. Concentrates upon (1) the substantive nature of constitutional doctrine, and (2) its relationship to political, economic and social trends.

PS 470 AMERICAN POLITICAL PARTIES. (3)
An analysis of pressure groups; organization, methods, and functions of political parties in the United States.

PS 473 PUBLIC OPINION. (3)
A study of the nature of public opinion and its influence in government, the role of the press, and other media, propaganda techniques, and voting behavior.

PS 476 LEGISLATIVE PROCESS. (3)
A study of Congress and the state legislatures, covering the legislative power structure, the selection of legislators and the roles they play, decision making, and the relations of the legislative and executive branches.

PS 487 INTRODUCTION TO PUBLIC ADMINISTRATION. (3)
A study of theories of administration and organization, problems of line management and control, the principal staff and auxiliary functions and agencies, and the problem of administrative responsibilities under democratic government.

PS 489 ADMINISTRATIVE AGENCIES AND PUBLIC POLICY. (3)
A study of the development, implementation and impact of government policies focusing particularly on the role of administrative agencies.

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 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 emphasis on the Monroe Doctrine and Pan-Americanism.

PS 539 THE FOREIGN POLICY OF THE SOVIET UNION. (3)
A factual survey of the Soviet record in foreign affairs and an introduction to the guiding concepts and principal techniques of Soviet foreign policy; the role of Communist ideology. Prereq: PS 429 or consent of instructor.

PS 545 AMERICAN POLITICAL THOUGHT. (3)
Analysis of the development of American political thought especially as it relates to the role of government in the society.

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 442 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 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 CONSTITUTION. (3)
An intensive study of government and administration in Kentucky. The course is intended primarily for teachers of civics in the secondary schools, and for teachers of government in colleges.

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)
The course will present the development of budgetary techniques in the United States, the uses to which budgets are put and the roles of the budgetary process in budgetary politics in the functioning of government.

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 history of the merit system in public administration, recruitment, position classification, pay policies, employee relations and morale, tenure, promotion, transfer, and training in the public service; the role of the personnel officer.

PS 610 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 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 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 develop 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 555 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 556 and PS 541 or consent of instructor.

PS 759 SEMINAR IN AFRICAN POLITICAL SYSTEMS. (3)
The seminar will focus on dimensions of change in African political systems. Dimensions to be analyzed include ideology, economic development, socialization, authority, political recruitment and political party and interest group behavior.

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 once. (1-6 credits equivalence.)

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 773 ASIAN POLITICAL THEORY. (3)
An examination of the major political thought patterns of ancient and contemporary Asia, with emphasis on India and China. Prereq: Consent of instructor.

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 790 SPECIAL PROBLEMS IN PUBLIC ADMINISTRATION. (3)
A research course in selected problems of public administration. The problems will be chosen in accordance with the needs and desires of students registered for the course.

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 577 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 FHR 254.)

PSY 301 INTRODUCTIO 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 423 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 444 SOCIAL PSYCHOLOGY. (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: PSY 100; SOC 101. (Same as SOC 444.)

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 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 and a course in psycholinguistics, 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. Prereq: PSY 100 and one introductory course in sociology.

PSY 546 APPLIED SOCIAL PSYCHOLOGY. (3)
Stresses the application of social psychological knowledge, both theoretical and empirical, to relevant contemporary social issues. Coverage will include application to such diverse topics as the environment, education, mental illness, drugs, riots, poverty, and international relations. Prereq: PSY 100, PSY 444, and introductory 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 444, or equivalent.

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 investigations of animal behavior. Topics include heredity and environment, activity, instinct, motivation, learning, sensory discrimination, and personality in subhuman species. Prereq: PSY 215, 216.

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 100, 215.

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 602 THEORIES OF PERSONALITY. (3)
An examination of current theories of personality. The relation of these theories to psychological research will be examined. 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 444 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 HUMAN LEARNING AND THINKING. (2)
An intensive examination of basic and applied research and theory in human verbal learning, concept learning, problem solving, and language. Prereq: PSY 527 or consent of instructor.

PSY 629 INTRODUCTION TO CLINICAL PSYCHOLOGY. (1)
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 635 PRACTICUM IN CLINICAL PSYCHOLOGY IV. (3)
Administration, scoring, and interpretation of batteries of clinical tests, with emphasis on organization of all relevant behavioral and test data, and professional report writing. Students will be assigned to local clinical

installations. Laboratory, nine hours. Prereq: PSY 634, 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 640 PRACTICE IN TESTING: INTELLIGENCE TESTS. (4)
This course provides theoretical material and advanced laboratory practice in the measurement of intelligence by individual techniques. Lecture, three hours; laboratory, two hours. Prereq: PSY 535 or EDP 653 or equivalent and consent of instructor.

PSY 641 PSYCHOLOGICAL MEASURING INSTRUMENTS. (3)
A study in some depth of the principal 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: One course in statistics, one course in testing (such as EDP 522 or PSY 535) or consent of 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 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. (Same as EDP 650.)

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 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.

PSY 701 SEMINAR IN CLINICAL CHILD PSYCHOLOGY. (3)
Theory and research relevant to behavior problems of children. Prereq: Enrollment in graduate program and consent of instructor.

PSY 702 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.

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 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.

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 444 and introductory statistics. (Same as BSC 761.)

PSY 767 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 once.

PSY 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

PSY 770 SEMINAR IN PSYCHOLOGY I. (0)
One two-hour discussion each week of some current systematic concepts and of research underway by graduate students and members of the staff. May be repeated indefinitely.

PSY 771 SEMINAR IN PSYCHOLOGY II. (0)
One two-hour discussion each week of some current systematic concepts and of research underway by a graduate students and staff members. For Ph.D. candidates. 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 SEMINAR IN VERBAL BEHAVIOR. (3)
The study of selected topics in the area of verbal behavior with emphasis on recent research and theory. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

PSY 775 ADVANCED 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.

PSY 776 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 777 SEMINAR IN MATHEMATICAL PSYCHOLOGY. (3)
Topics in psychology which are receiving detailed mathematical analysis. Examples are mathematical learning theory, decision and judgment processes, advanced application of probability and statistics in psychological theory. Prereq: PSY 610.

PSY 778 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.

PSY 779 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 444; SOC 101. (Same as SOC 779.)

PSY 780 PROBLEMS IN PSYCHOLOGY. (2)
Shorter research problems are registered under this number. A minimum of six hours a week is required in consultation with the instructor. May be repeated to a maximum of 12 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. (3)
Research or thesis work may be registered under this number. A minimum of nine hours a week is required on research conducted in consultation with the instructor. May be repeated to a maximum of 12 credits.

SLAVIC AND ORIENTAL LANGUAGES & LITERATURES

RUSSIAN

SO 011 RUSSIAN FOR SCIENTISTS. (0)
Designed for graduate students who wish to acquire a reading knowledge of scientific Russian in order to fulfill the foreign language requirement for an advanced degree. Lecture, three hours.

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 103 ACCELERATED ELEMENTARY RUSSIAN. (4)
An intensive introduction to the Russian language. Emphasis is placed on mastering oral skills that will provide students the fastest possible mastery of spoken Russian. Reading and writing skills are acquired as they reinforce oral proficiency. Extensive work with tape recordings.

SO 104 ACCELERATED ELEMENTARY RUSSIAN. (4)
A continuation of SO 103. An intensive introduction to the Russian language. Emphasis is placed on mastering oral skills that will provide students the fastest possible mastery of spoken Russian. Reading and writing skills are acquired as they reinforce oral proficiency. Extensive work with tape recordings. Prereq: SO 103.

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 & 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 & 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 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 RUSSIAN CIVILIZATION (in English). (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 1900's. Emphasis is on major fiction of Dostoevsky, Tolstoy, and Chekkov and on the later works of *Dacadence*. 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 ADVANCED READINGS IN RUSSIAN LITERATURE. (3)
Based on the reading of the 19th Century and 20th Century short stories and plays by Russian masters. Intended for students desiring to combine extensive reading with oral and written expression. Particular emphasis will be placed on advanced grammar and syntax. Prereq: SO 301, 302. (Recommended.)

SO 411 ADVANCED READINGS IN RUSSIAN LITERATURE. (3)
A continuation of SO 410. Prereq: SO 410 or equivalent. (Recommended.)

SO 450 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 460 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 463 RUSSIAN DRAMA (in Russian). (3)
A survey of the growth and development of the Russian drama, with special emphasis on the outstanding dramatists of the 18th, 19th, and the beginning of the 20th Centuries. Prereq: SO 367 or consent of instructor. (Recommended.)

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 HISTORY OF RUSSIAN POETRY (in Russian). (3)
The study of modern Russian poetry from its beginnings in the 18th Century to the contemporary Soviet period. Prereq: A third-year knowledge of Russian or equivalent.

JAPANESE

SO 181 ELEMENTARY JAPANESE. (3)
An introduction to the spoken language through conversational practice, with grammatical principles being explained as an aid to conversation. Written Japanese is introduced gradually.

SO 182 ELEMENTARY JAPANESE. (3)
A continuation of SO 181.

SO 281 INTERMEDIATE JAPANESE. (3)
Reading of texts written in modern colloquial Japanese and continued practice in conversation. Prereq: SO 182.

SO 282 INTERMEDIATE JAPANESE. (3)
A continuation of SO 281. Prereq: SO 281.

SO 284 COMPREHENSIVE READINGS IN JAPANESE. (3)
A course designed to give students a reading knowledge of the standard colloquial form of Japanese used in newspapers and magazines. Prereq: SO 282.

SO 285 COMPREHENSIVE READINGS IN JAPANESE. (3)
A continuation of SO 284. This course will increase the student's reading vocabulary and introduce slightly more advanced grammatical forms.

SO 305 ORIENTAL CIVILIZATION I: FROM THE EARLIEST TIMES TO THE 15th CENTURY. (3)
Survey of major features of the civilizations of China and Japan, emphasizing the important cultural achievements of each area. Prereq: Sophomore standing or consent of instructor.

SO 306 ORIENTAL CIVILIZATION II: FROM THE 15th CENTURY TO THE MODERN ERA. (3)
Survey of the major features of the civilizations of China and Japan, emphasizing the important cultural achievements of each area. Prereq: Sophomore standing 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 458 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 444 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 455 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 457 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.

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 hours; laboratory, one hour. (The laboratory experience will involve three hours of field observation/experience in a variety of settings.)

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 advisor and instructor.

SW 444 EDUCATIONAL PRACTICUM II. (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, 9-18 hours per week. Prereq: 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 501 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: Required of majors; SW 222 or SW 322 or consent of instructor.

SW 505 CHILD WELFARE SERVICES. (2-3)
A study of community and national programs for child care and protection, including aid to dependent children and other social security services.

SW 510 MENTAL HEALTH KNOWLEDGE FOR THE SOCIAL PROFESSIONS. (2-3)
An analysis of personality development, behavior patterns, and social structural factors with special reference to mental health, its service delivery system, and implications for practice in the social professions.

SW 511 PERSPECTIVES ON HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT. (3)
This course will deal with the interrelatedness of the biological, social, cultural, environmental and psychological factors in human behavior and their relevance and application to social work practice. Prereq: A minimum of six hours of psychology and sociology.

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 210, or equivalent, or consent of instructor.

SW 516 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 520 INTERVENTIVE METHODS IN SOCIAL WORK. (4)
A study of the integrated social work method and problem-solving skills. Examination of theories underlying social work practice. Discussion and analysis of readings, practice theory and particular strategies used in working with a variety of client systems and social problems. Prereq: Social work major, SW 225 to be taken concurrently with SW 444.

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 527 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 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 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 PROCESS. (2)
Criminal justice processes are studied and evaluated emphasizing system aims, theories of criminal 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 613 URBAN ECOLOGY AND AGING. (3)
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 FOR THE SOCIAL PROFESSIONS. (2)
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 consent of instructor.

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. (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. Prereq: SW 601, 620, 630 and 690.

SW 642 PSYCHOLOGICAL ASPECTS OF HUMAN AGING. (2)
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 consent of instructor.

SW 650 PROBLEM-SOLVING SEMINAR. (2)
Selected major social problems and their causes are analyzed intensively. Emphasis is placed on social work interventions which are evaluated for their effectiveness in reduction and/or elimination of causes and harmful effects on people. 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 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 second-year standing, or consent of instructor.

SW 740 GRADUATE EDUCATIONAL PRACTICUM II. (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.

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, 8-16 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 service work interventions, welfare programs and social delivery systems. Prereq: SW 690 or other comparable research course in another discipline 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. Lecture, two hours; laboratory hours as needed. 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 advisor 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 beginning 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.

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 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. (Same as ANT 253.)

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 101.

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 science of human social interaction and society from Auguste Comte to the present. Emphasis is on the growth of sociology as a discipline. Required for majors. Prereq: SOC 101, GEN 102 or consent of instructor.

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. (Same as HE 575.)

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 444 SOCIAL PSYCHOLOGY. (3)
Theoretical and empirical analysis of individual behavior in the social setting with particular emphasis on social learning, motivation, and the measurement, formation, and changing of social attitudes. Prereq: PSY 100, SOC 101. (Same as PSY 444.)

SOC 493 SOCIAL AND CULTURAL DETERMINANTS OF ECONOMIC GROWTH AND DEVELOPMENT. (3)
The first part of the course deals with economic variables determining growth and development. The second part deals with the social and cultural forces having a predominant impact upon the variables discussed in part one. The purpose is to emphasize that economic development is a long-run concept and depends heavily upon the impact of the social and cultural forces on the economic variables. Prereq: SOC 101 and ECO 261. (Same as ECO 493.)

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 510 SOCIALIZATION IN THE FAMILY. (3)
A study of the way children grow to early adolescence with major emphasis on the interaction of family members and the contribution the family makes to socialization. Prereq: SOC 101 and 409 or consent of instructor.

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 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.

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 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 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 547 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: SOC 101 or consent of instructor.

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 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 615 ANALYSIS OF COMMUNITY RESEARCH.* (3)
A critical appraisal of community research including comparisons of rural, urban and regional holistic cases, analyses of locality institutional patterns, and studies of specific phenomena such as power, stratification, mobility adjustments in rural, urban, and regional settings. Prereq: SOC 101.

SOC 618 THEORIES OF SOCIAL CHANGE. (3)
The study of theories of change in social units with emphasis on models of social structure and social change and on methodological problems of studying change with historical, evolutionary, conflict, functional, and other approaches. Prereq: 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 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 636 THEORY AND RESEARCH IN DEVIANT BEHAVIOR. (3)
Use of conceptual tools in the analysis of significant sociological problems, such as relationships between individual and society, conformity, stratification, and conflict through readings and projects. Required for graduate study of deviant behavior. Prereq: Graduate standing; SOC 536 or equivalent.

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 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 671 SEMINAR IN CONTEMPORARY SOCIOLOGY. (0)
Each member of the Department of Sociology presents a summary of his past and present research and his current interests. The purpose is to acquaint the student with wide range of interests, projects and personnel in his graduate department. Lecture, one hour. Prereq: SOC 101.

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 690 COMMUNITY ACTION ANALYSIS. (3)
The structure and dynamics of complex, collective actions are analyzed in terms of their social and cultural characteristics and their temporal patterns. Prereq: 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 702 SEMINAR IN SOCIAL DEMOGRAPHY. (3)
A seminar designed to explore the relations between sociology and demography. Emphasis is given to the influence of social factors on demographic behavior and to the utilization of population data and demographic techniques in the investigation of sociological problems. Prereq: SOC 501 or equivalent; SOC 101.

SOC 720 SEMINAR IN COMMUNITY THEORIES. (3)
An intensive examination of selected theories and writings relevant to an understanding of territorial communities. Includes a study of the writings of Durkheim, Park, Redfield, Warner, and others. Prereq: SOC 101.

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 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 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 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 once. Prereq: SOC 101.

SOC 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely. Prereq: SOC 101.

SOC 722 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 SEMINAR IN SOCIAL PSYCHOLOGY. (3)
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. May be repeated to a maximum of six credits. Prereq: SOC 101, PSY 544. (Same as PSY 779.)

SOC 780 SPECIAL PROBLEMS IN SOCIOLOGY. (1-6)
May be repeated to a maximum of 10 credits. Prereq: SOC 101.

SOC 790 RESEARCH IN RURAL SOCIOLOGY.* (1-3)
Individual graduate research with correlated study of rural social research types and methods. May be repeated 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 & 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. Lecture, two hours.

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 221 BEGINNING SPANISH I. (3)
Beginning Spanish for undergraduates taking Spanish as a second foreign language. Emphasis on rapid development of reading skills. Students completing the SPI 221-222 sequence will be prepared to take courses in Spanish literature. Prereq: Three semesters of another foreign language or equivalent.

SPI 222 BEGINNING SPANISH II. (3)
A continuation of SPI 221. Emphasis on rapid development of rapid reading skills. Students completing the SPI 221-222 sequence will be prepared to take courses in Spanish literature. Prereq: SPI 221.

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 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 I. (3)
An introduction to the literature of Spain with selected readings of complete works from the major Spanish authors of the Middle Ages to the end of the 17th Century. Lecture and discussion. A history of Spanish literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 316 MASTERPIECES OF SPANISH LITERATURE II. (3)
An introduction to the literature of Spain with selected readings of complete works from the major Spanish authors of the 18th Century to the contemporary period. Lecture and discussion. A history of Spanish literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 318 SURVEY OF SPANISH AMERICAN LITERATURE I. (3)
An introduction to the principal literary figures and movements of Spanish America. Readings of complete works from the major Spanish American authors from the Colonial Period to Modernism. A history of Spanish American literature is used in conjunction with selected and representative readings. Conducted in Spanish. Prereq: SPI 202 or equivalent.

SPI 319 SURVEY OF SPANISH AMERICAN LITERATURE II. (3)
A basic introduction to the prinipal literature, figures and movements of Spanish America. Readings of com-

plete works from the major Spanish American authors from Modernism to the present. A history of Spanish American literature is used in connection with selected and representative works. Conducted in Spanish. Lecture and discussion. 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 A and S dean required for credits above 6 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 407 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 420 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 421 MASTERPIECES OF THE SPANISH BAROQUE THEATRE IN TRANSLATION. (3)
Study of selected masterworks of Lope de Vega, Tirso de Molina, and Calderon de la Barca in English translation. Introduction to the Spanish National Theatre of the 17th Century. Not open to Spanish majors.

SPI 422 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 423 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 grammer 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 CALDERÓN DE LA BARCA. (3)
The dramatic works and techniques of Calderón de la Barca.

SPI 629 SPANISH POETRY OF THE 16th AND 17th CENTURIES. (3)
An examination of several schools and forms of poetry, both lyric and narrative, in this period.

SPI 631 THE ROMANTIC MOVEMENT IN SPAIN. (3)
An examination of the meaning of the term "romanticism," with a study of representative Spanish works of the Romantic period. Prereq: Graduate standing.

SPI 632 SPANISH DRAMA FROM THE GENERATION OF 1898 TO THE PRESENT. (3)
Representative works of the major dramatists and dramatic trends from Benavente and his contemporaries through 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 Florence Sanchez. Prereq: SPI 315, 316, or 318, 319.

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.* Prereq: SPI 315, 316 or 318, 319.

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 once.

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 009 ITALIAN 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 or who need a reading knowledge of Italian in their minor (for example, in English or in French or Spanish). Lecture, three hours.

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 461 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 462 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: MA 113 or 122 or consent of instructor.

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 X^2 and t-distributions. Prereq: STA 292 and 293.

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. Lecture, three hours; laboratory, two hours.

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 417 PRINCIPLES OF OPERATIONS RESEARCH II. (3)
A continuation of MA 416 with topics selected from stochastic models, decision making under uncertainty, inventory models with random demand, waiting time models and decision problems. Prereq: MA 416 or equivalent and MA 423. (Same as MA 417.)

STA 421 BASIC STATISTICAL THEORY I. (3)
Discrete and continuous probability distributions; simple random sampling; point and interval estimation; hypothesis testing. Coreq: MA 114.

STA 422 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 421.

STA 423 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 equivalent. (Same as MA 423.)

STA 482 DISCRETE METHODS AND MODELS IN APPIIED 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 462, 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 423 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 432 or 471 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 423 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 432 or MA 471 or 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 x^2, F and T distributions; the general linear model and related inference; elementary computational methods; applications of the theory-experimental design and covariance analysis; a. One-Way Layout, CRD. b. Two-Way Layout, RCB. c. Latin Squares—(1) Crossover designs, (2) Reversal, Double-reversal designs, (3) Other related designs. d. Factorials. Prereq: STA 503, STA 531; coreq: STA 601.

STA 612 SEQUENTIAL ANALYSIS. (3).
Survey and application of sequential sampling. Sufficiency and estimation. Two Stage sampling. The SPRT and its properties, both exact and approximate. Truncated and grouped SPRT's. Decision Theoretic approach. Sequential Estimation. Fixed width confidence intervals. Composite hypotheses and nuisance parameters. Generalized SPRT's. K hypothesis problems. Optimal Stopping. Prereq: STA 601.

STA 616 DESIGN AND ANALYSIS OF SAMPLE SURVEYS. (3)
Sampling from finite populations; estimation of sample size; stratification; ratio and regression estimators; systematic sampling; cluster sampling; multistage sampling (selection of sampling units with probability proportional to size); double sampling; response errors. Prereq: STA 421; 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 422 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 670 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.

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, four hours per week for seven and one half weeks. Prereq: STA 670 or EDP 657. Offered in the first 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, four hours per week for seven and a half weeks. Prereq: STA 671. Offered in the 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, four hours per week for seven and a half weeks. Prereq: STA 670 or EDP 657. Offered in the first 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, four hours per week for seven and half weeks. Prereq: STA 670 or EDP 657. Offered in the 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 once.

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. 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.

TEL 504 TELESYSTEMS. (3)
To introduce students to the principles of modern telesystems management as applied to telecommunications properties. 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. 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.

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.

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. Prereq: Consent of department.

THEATRE ARTS

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 STAGE SPEAKING I. (2)
An introduction to the basic techniques of stage speaking. Lecture, two hours; laboratory, two hours. Prereq: Prospective theatre arts majors, others by consent of instructor.

TA 141 STAGE SPEAKING II. (2)
A continuation of the study and practice of vocal techniques with emphasis on individual problems and training in stage dialects. Lecture, two hours; laboratory, two hours. Prereq: TA 140 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 four credits. Pass/fail only. Prereq: Consent of instructor.

TA 191 PERFORMANCE PRACTICUM. (1)
The study and practice of acting and directing through rehearsal and performance. May be repeated to a maximum of four credits. Pass/fail only. Prereq: Consent of instructor.

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 201 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.

TA 226 ACTING II. (3)
A continuation of 201 with increased emphasis on individual growth and creative developments. Lecture, three hours; laboratory, two hours. Prereq: TA 201 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 195 or consent of instructor.

TA 264 MAKEUP FOR THE THEATRE. (2)
Theory and practice in the principles, materials and application of makeup. Lecture, two hours; laboratory, two hours. Prereq: TA 195 or consent of instructor.

TA 266 STAGE LIGHTING. (2)
Theory and practice of lighting for the theatre: electricity, instruments, control, design. Lecture, two hours; laboratory, three hours. Prereq: TA 195 or consent of instructor.

TA 272 SCENOGRAPHICS I. (2)
Principles of drawing for the stage: sketching, lettering, ground plans, line drawings. The language of stage design and the use of design instruments. Lecture, two hours; laboratory, three hours. Prereq: TA 195 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 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 3 times for a maximum of 12 hours when identified by different course subtitles. Prereq: Major or consent of instructor.

TA 391 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 395 INDEPENDENT WORK. (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 and filing of prospectus at time of registration.

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 A&S Dean 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: Major or consent of instructor.

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 518 THEATRE STUDY TOUR. (3)
A domestic or foreign study tour to investigate theatre in major cultural centers. Seminars, tours and performances are planned according to specific itineraries. 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 598. Prereq: TA 598 or consent of instructor.

TA 574 SCENOGRAPHY II. (3)
Intensified and expanded application of TA 592. Advanced theory and practice in scene and lighting design for the theatre. Lecture, three hours plus laboratory assignments. Prereq: TA 592 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 590, 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 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 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 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. (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 12 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.

FRESHMAN SEMINAR

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.

VETERINARY SCIENCE

VS 350 INTRODUCTORY ANATOMY, PHYSIOLOGY, AND ANIMAL HYGIENE. (3)
A study of anatomy and physiology as related to courses in livestock production, judging, nutrition, meats and diseases, and introduction to the basic mechanism of animal disease and the relationship of animal hygiene.

VS 351 PRINCIPLES OF ANIMAL HYGIENE AND DISEASE CONTROL. (3)
A study of animal sanitation and disease control management. The course will acquaint students with the more important infectious, toxic, metabolic and parasitic diseases of domestic animals and will emphasize preventive concepts.

VS 395 SPECIAL PROBLEMS IN VETERINARY SCIENCE. (3)
Prereq: VS 350, 351, and consent of instructor. May be repeated to a maximum of six credits.

VS 650 CELLULAR AND HISTOTOXICOLOGY. (2)
A systematic review of morphological responses to body trauma with special reference to toxic agents. The course is planned to consist of formal presentations and of discussion sessions (primarily interpretation of microscopic preparations). Prereq: Consent of instructor. (Same as TOX 650).

VS 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.

VS 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (0-12)
May be repeated indefinitely.

VS 770 VETERINARY SCIENCE SEMINAR. (1)
Required of graduate students in veterinary science. May be repeated to a maximum of six credits. Prereq: Consent of staff.

VS 781 CORRELATIVE PATHOLOGY. (1-3)
Supervised experience in the use of clinical, gross and histopathological technics in the differential and definitive diagnosis of diseases. May be repeated to a maximum of nine credits. Prereq: Pathology in D.V.M. curriculum or equivalent and consent of staff.

VS 782 NUTRITIONAL PATHOLOGY. (3)
The pathogenesis and physiopathology of deficiency states in domestic and laboratory animals. Prereq: Pathology in D.V.M. curriculum or equivalent and approval 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 784 ADVANCED VETERINARY IMMUNOLOGY. (2)
Theory and practice of the development and standardization of vaccines, and the evaluation of their potency, safety and efficacy in the prophylaxis of infectious diseases of domestic animals. Prereq: Microbiology 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 787 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.

ZOOLOGY

(See courses in Biology.)

FACULTY

COLLEGE OF AGRICULTURE

Charles E. Barnhart, dean

AGRICULTURAL ECONOMICS
Robert W. Rudd, chairman

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
Arthur Frank Bordeaux, Jr., associate professor, Ph.D., Michigan State, 1968
Garnett Lowell Bradford, professor, Ph.D., North Carolina State, 1968
Russell Herbert Brannon, professor, Ph.D., Wisconsin, 1967
Wilmer Browning, extension professor, Ph.D., Kentucky, 1969
James Earnest Criswell, assistant professor, Ph.D., Minnesota, 1966
Joe Thomas Davis, assistant professor, Ph.D., Tennessee, 1974
David Lee Debertin, associate professor, Ph.D., Purdue, 1973
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
Larry Dean Jones, associate extension professor, Ph.D., Purdue, 1973
Fred Edward Justus, Jr., professor, Ph.D., Illinois, 1955
Harold Gibson Love, extension professor, Ph.D., Missouri, 1969
Loys LeRoy Mather, associate professor, Ph.D., Wisconsin, 1968
Charles Lee Moore, associate extension professor, Ph.D., Illinois, 1972
Angelos Pagoulatos, assistant professor, Ph.D., Iowa, 1975
Alan John Randall, professor, Ph.D., Oregon State, 1971
John C. Redman, professor, Ph.D., Kentucky, 1951
Steven K. Riggins, assistant professor, Ph.D., Cornell, 1977
Lynn Wayne Robbins, assistant professor, Ph.D., Michigan State, 1975
Robert William Rudd, professor, Ph.D., California, 1952
Dallas Milton Shuffett, professor, Ph.D., Kentucky, 1956
Eldon D. Smith, professor, Ph.D., Wisconsin, 1954

AGRICULTURAL EDUCATION

Harold R. Binkley, professor, Ed.D., Kentucky, 1955
Herbert H. Bruce, Jr., professor, Ed.D., Kentucky, 1965
Charles W. Byers, associate professor, Ph.D., Ohio State, 1972
Rodney W. Tulloch, assistant professor, Ph.D., Penn State, 1972

AGRICULTURAL ENGINEERING
John Neal Walker, chairman

Bill J. Barfield, professor, Ph.D., Texas A&M, 1968
Joe Millard Bunn, associate professor, Ph.D., Iowa State, 1960
Robert L. Fehr, assistant extension professor, Ph.D., Iowa State, 1976
Charles Thomas Haan, professor, Ph.D., Iowa State, 1967
Wiley Hix Henson, Jr., associate professor, Ph.D., North Carolina State, 1962
O. J. Loewer, associate extension professor, Ph.D., Purdue, 1973
Blaine Frank Parker, professor, Ph.D., Michigan State, 1954
Ira Joseph Ross, professor, Ph.D., Purdue, 1960
Edward Manson Smith, associate 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
Larry G. Wells, assistant professor, Ph.D., North Carolina State, 1975
Gerald Martin White, associate professor, Ph.D., Purdue, 1960

AGRONOMY
Andrew Jackson Hiatt, chairman

Roger Allen Anderson, associate professor, 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, associate professor, Ph.D., Ohio State, 1967
Robert Cecil Buckner, professor, 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, associate professor, Ph.D., Illinois, 1972
Daniel Layton Davis, professor, Ph.D., North Carolina State, 1967
Dennis B. Egli, associate professor, Ph.D., Illinois, 1969
Verne Clifford Finkner, professor, Ph.D., Iowa State, 1950
Wilbur W. Frye, associate professor, Ph.D., Virginia Polytechnic Institute, 1969
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
Michael John Kasperbauer, professor, Ph.D., Iowa State, 1961
G. D. Lacefield, associate extension professor, Ph.D., Missouri, 1974
Paul Davis Legg, professor, Ph.D., North Carolina State, 1964
James Everett Legget, professor, Ph.D., Maryland, 1965
Richie Howard Lowe, professor adjunct, Ph.D., Oregon State, 1963
Herbert Fane Massey, Jr., professor, Ph.D., Wisconsin, 1952
Lloyd W. Murdock, Jr., associate extension professor, Ph.D., Virginia Polytechnic Institute, 1967
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, associate extension professor, Ph.D., VPI, 1966
John Leonard Ragland, professor, Ph.D., North Carolina State, 1959
Charles Edward Rieck, associate professor, Ph.D., Nebraska, 1969
David A. Reicosky, assistant professor, Ph.D., Michigan State, 1973

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
Grant Worthington Thomas, professor, Ph.D., North Carolina State, 1958
Wayne E. Vian, assistant professor, Ph.D., North Dakota State, 1975
Kenneth Lincoln Wells, extension professor, Ph.D., Iowa State, 1963
W. W. Witt, associate extension professor, Ph.D., North Carolina State, 1974

ANIMAL SCIENCES
Virgil W. Hays, chairman

Curtis W. Absher, associate extension professor, Ph.D., Tennessee, 1969
John P. Baker, professor, Ph.D., Illinois, 1960
Charles E. Barnhart, professor, Ph.D., Iowa State, 1954
John J. Begin, associate professor, Ph.D., Penn State, 1960
James A. Boling, professor, Ph.D., Wisconsin, 1967
Neil W. Bradley, professor, Ph.D., Illinois, 1958
Russell BreDahl, associate extension professor, Ph.D., Iowa State, 1970
C. Frank Buck, professor, Ph.D., Cornell, 1953
Leonard S. Bull, associate professor, Ph.D., Cornell, 1969
Marjorie L. Chandler, instructor, M.S., Colorado State, 1975
G. L. Monty Chappell, associate extension professor, Ph.D., Virginia Polytechnic Institute, 1966
Gary L. Cromwell, professor, Ph.D., Purdue, 1967
Benjamin T. Dean, extension professor, 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
Nelson Gay, professor, Ph.D., Illinois, 1962
Robert E. Goodwill, associate professor, Ph.D., Minnesota, 1969
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
John T. Johns, assistant 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, associate extension professor, Ph.D., Michigan State, 1969
C. Oran Little, professor, Ph.D., Iowa State, 1960
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
Hugo Davis, instructional specialist, B.S., Kentucky, 1972
Mary Hotze, assistant extension professor, Ph.D., Oregon State
Kenneth E. Olson, assistant extension professor, Ph.D., Wisconsin, 1976
Gary R. Parker, assistant extension professor, Ph.D., Kentucky, 1975
W. Ronald Parker, assistant extension professor, Ph.D., South Dakota, 1974
John C. Robertson, professor, Ph.D., Kentucky, 1960
Gerald T. Schelling, associate professor, Ph.D., Illinois, 1968
Tim S. Stahly, assistant professor, Ph.D., Nebraska, 1975
Frederick A. Thrift, associate professor, Ph.D., Oklahoma, 1967
Ray E. Tucker, associate professor, Ph.D., Kentucky, 1966
John W. Tuttle, associate extension professor, Ph.D., Michigan State, 1968
W. York Varney, extension professor, Ph.D., Michigan State, 1960
McElwyn D. Whiteker, extension professor, Ph.D., Kentucky, 1961
Karen E. Winn, instructor, B.A., Massachusetts, 1976
Patch G. Woolfolk, professor, Ph.D., Cornell, 1950

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, associate extension professor, Ph.D., Purdue, 1974
Douglas Lee Dahlman, associate professor, Ph.D., Iowa State, 1965
H. Wyman Dorough, professor, Ph.D., Wisconsin, 1963
David E. Foster, associate extension professor, Ph.D., Idaho, 1973
Paul Harold Freytag, associate professor, Ph.D., Ohio State, 1963
Wesley W. Gregory, Jr., associate extension professor, Ph.D., Clemson, 1969
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
Harley G. Raney, associate 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
Kenneth V. Yeargan, assistant professor, Ph.D., California, 1974

FORESTRY
Bart A. Thielges, chairman

Stanley B. Carpenter, associate professor, Ph.D., Michigan State, 1971
George B. Coltharp, associate professor, Ph.D., Michigan State, 1958
David L. Erickson, associate professor, Ph.D., Ohio State, 1969
Donald H. Graves, assistant professor, Ph.D., Kentucky, 1974
Calvin J. Liu, assistant professor, Louisiana State, 1976
Robert N. Muller, assistant professor, Ph.D., Yale, 1975
D. Boyd Richards, professor, Ph.D., Syracuse, 1950
Robert L. Rumsey, assistant professor, Ph.D., Louisiana State, 1973
Bart A. Thielges, professor, Ph.D., Yale, 1968
Robert F. Wittwer, assistant 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, instructional specialist, M.S., Kentucky, 1975
Jack W. Buxton, associate professor, Ph.D., Kentucky, 1973
Carl E. Chaplin, associate professor, M.S., Illinois 1948
Mary L. Hotze, assistant extension professor, Ph.D., Oregon State, 1976
Thomas R. Kemp, associate professor, Ph.D., Kentucky, 1970
Dean E. Knavel, professor, Ph.D., Michigan State, 1959
Aly M. Lasheen, associate professor, Ph.D., Texas A&M, 1954

Raymond G. Lockard, professor, Ph.D., University of London, England, 1954
Dale M. Maronek, assistant professor, Ph.D., Purdue, 1975
Dudley C. Martin, associate professor, Ph.D., Michigan State, 1954
Robert E. McNiel, assistant extension professor, Ph.D., Purdue, 1975
Hubert C. Mohr, professor, Ph.D., Texas A&M, 1955
Thomas J. Nieman, associate professor, Ph.D., Southern Illinois, 1973
Niles T. Nordquist, instructor, M.A., Kentucky, 1977
C. R. Roberts, extension professor, Ph.D., Texas A&M, 1964
Horst Schach, associate professor, MLA, California, 1966
G. W. Schneider, professor, Ph.D., Rutgers, 1950
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

PLANT PATHOLOGY
Stephen Diachun, chairman

Richard A. Chapman, professor, Ph.D., Illinois, 1948
Stephen Diachun, professor, Ph.D., Illinois, 1938
Said A. Ghabrial, associate professor, Ph.D., Louisiana, 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
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, associate professor, Ph.D., North Dakota, 1958
Malcolm R. Siegel, professor, Ph.D., Maryland, 1962
Richard E. Stuckey, assistant extension professor, Ph.D., Michigan State, 1973
Harry E. Wheeler, professor, Ph.D., Louisiana, 1949

SOCIOLOGY
Willis A. Sutton, Jr., chairman

James Stephen Brown, professor, Ph.D., Harvard, 1950
L. M. Busch, assistant professor, Ph.D., Cornell, 1974
J. A. Christenson, associate professor, Ph.D., Washington State, 1972
A. Lee Coleman, professor, Ph.D., Cornell, 1950
Charles Milton Coughenour, professor, Ph.D., Missouri, 1953
L. E. Gorkovich, assistant professor, Ph.D., Missouri, 1976
K. E. Pigg, assistant extension professor, Ph.D., Cornell, 1976
Paul D. Warner, associate extension professor, Ph.D., Illinois, 1973

VETERINARY SCIENCE
John T. Bryans, chairman

J. W. Blake, assistant 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. H. Drudge, professor, D.V.M., Michigan State, 1943, Sc. D., Johns Hopkins, 1950
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, assistant extension professor, D.V.M., Kansas State, 1957
J. A. Pachciarz, assistant professor, Ph.D., St. Louis, 1971
T. W. Swerczek, associate professor, D.V.M., Kansas State, 1964; Ph.D., Connecticut, 1969
Thomas Tobin, associate professor, M.V.B., University College Dublin, Ireland, 1964; Ph.D., Toronto, Canada, 1969
W. E. Wise, associate extension professor, D.V.M., Auburn, 1955

ALLIED HEALTH EDUCATION AND RESEARCH

Daniel Clark, M.H.A., assistant professor, Washington University, 1974
Sylvia Curtis, M.S., assistant professor, Kentucky, 1970
David Davison, M.S., assistant professor, Indiana, 1958
Jane Emanuel, Ed. D., associate professor, Alabama, 1970
Davis Gardner, M.A., assistant professor, Kentucky, 1950
Jane R. Griffin, M.S., assistant professor, Florida State, 1974
Joseph Hamburg, M.D., professor, Hahnemann, 1951
Kent Herring, D.M.D., assistant professor, Kentucky, 1972
Richard Kingston, D.D.S., associate professor, Minnesota, 1961
Judith B. Kirkhorn, M.S., instructor, Wisconsin, 1967
Claudia McEwen, M.D., instructor, Minnesota, 1971
Bonnie Lynch Morris, Ed.S., assistant professor, Iowa, 1973
Dennis Parsons, Ed.D., assistant professor, Georgia, 1972
Nicholas J. Pisacano, M.D., professor and chairman, Hahnemann, 1951
Helen M. Sady, M.A., assistant professor, American International College, 1970
Karen O. Skaff, M.S., assistant professor, Columbia, 1971
Eric Spohn, D.D.S., associate professor, Michigan, 1969
Robert Storat, M.Ed., adjunct professor, Vermont, 1973
L. Russell Watjen, Ph.D., assistant professor, Indiana State, 1972
Hal T. Wilson, M.D., professor, Michigan, 1942

CLINICAL ASSOCIATE PROGRAM

Debbie Fury, Kentucky
Claudia McEwen, M.D., clinical coordinator, Minnesota, 1971
Robert F. Storat, M.Ed., assistant director, Vermont, 1973
Hal T. Wilson, M.D., professor and director, Michigan, 1942

CLINICAL NUTRITION

Sister Julia R. Barrett, M.S., instructor, Ohio State, 1969
Willena Beagle, Ph.D., associate professor, Kentucky, 1973
Janice Hensley, (part-time), Kentucky, 1971
Marian Ho, M.S., assistant professor, McGill, 1971
Dale Sherer, Kentucky
Paul A. Thornton, Ph.D., professor and chairman, Michigan State, 1956

CLINICAL PASTORAL COUNSELING

Ralph Carpenter, S.T.M., associate professor and chairman, Union Theological Seminary, 1961
Ray W. Holdren, D.Min., visiting lecturer, Lexington Theological Seminary, 1971
Robert A. Preston, Ph.D., associate clinical professor, Pittsburg, 1961
John D. Serkland, Ph.D. (anticipated 1977), assistant professor, Chicago, 1977

COMMUNITY HEALTH

A. Kent Ballard, M.A., clinical instructor, Texas A&M, 1972

Julia Blondell, M.P.H., assistant professor, North Carolina, 1958
A.L. Fish, M.S., assistant professor, Wisconsin, 1950
Larry A. Fowler, M.P.H., clinical instructor, Oklahoma, 1970
Carolyn Francis, M.S.L.S., clinical instructor, Kentucky, 1972
Gordon Harmon, M.P.H., instructor, Oklahoma, 1973
Linda Hays, M.P.H., clinical instructor, Harvard, 1957
Helen Hunt, M.P.H., assistant in teaching, North Carolina, 1959
Martin Marx, Ph.D., associate professor, North Carolina, 1968
Joanne Parker, M.A., clinical instructor, Kentucky, 1968
Carl J. Peter, Ph.D., associate professor, Nebraska, 1973
Joe Fred Sills, Ph.D., professor and chairman, North Carolina, 1964
John Stoner, M.P.H., assistant professor, North Carolina, 1970

DENTAL HYGIENE

Laurence R. Bean, D.D.S., professor, Ohio State, 1966
Eunice Beatty, Kentucky, 1975
James G. Burch, D.D.S., professor, Ohio State, 1962
Joyce A. Bothe, Certified Dental Assistant, clinical instructor, Indiana, 1953
James E. Cutcliffe III, D.D.S., assistant professor, North Carolina, 1972
David D. Davison, M.S., assistant professor, Indiana, 1958
Kathryn E. Fair, M.A., assistant professor, Framingham State College, Massachusetts, 1964
Katherine Fisher, R.D.H., clinical instructor, Louisville, 1969
Marjorie A. Gattozzi, B.S., instructor, (part-time), Ohio State, 1957
John Green, D.M.D., clinical instructor, Louisville, 1956
Jane R. Griffin, M.S., assistant professor, Florida State, 1974
Kent Herring, D.M.D., assistant professor, Kentucky, 1972
Harold K. Isaac, clinical instructor of Dental Radiology
Sheila M. Ketrick, M.S., instructor, Missouri, 1975
Judith B. Kirkhorn, M.S., instructor, Wisconsin, 1967
Markell Kohn, D.D.S., associate professor, California, San Francisco, 1963
Ed Lyons, D.D.S., clinical instructor, Indiana, 1959
Penny L. Miller, M.S., assistant professor, Western Michigan, 1976
Kent Moseley, D.D.S., clinical instructor, Indiana, 1950
Cheryl A. Pearson, B.S., instructor, North Carolina, 1976
Louella G. Puckett, B.H.S., instructor, Kentucky, 1976
Donald C. Reel, D.D.S., clinical instructor, Tennessee, 1957
Helen M. Sady, M.A., assistant professor, American International College, 1970
Karen O. Skaff, M.S., assistant professor, Columbia, 1971
Eric E. Spohn, D.D.S., associate professor, Michigan, 1969
Catherine C. Sterling, M.S., assistant professor, Kentucky, 1975
Orhan C. Tuncay, D.M.D., assistant professor, Ankara, Turkey, 1969
Richard L. Wynn, Ph.D., associate professor, Maryland, 1970

HEALTH RADIATION SCIENCES

John C. Calkins, Ph.D., associate professor, Texas, 1963
Ralph Christensen, Ph.D., assistant professor, California, Berkley, 1971
Yosh Maruyama, M.D., professor, California, San Francisco, 1955
Joseph Sayeg, Ph.D., associate professor and chairman, California, Berkley, 1954
Guy Simmons, Ph.D., assistant professor, Cincinnati, 1972
Don E. Wrede, Ph.D., associate professor, Cincinnati, 1963

MEDICAL TECHNOLOGY

Ellen Aeschleman, M.T., (ASCP), M.S., instructor, Kentucky, 1976
Jane G. Bryant, M.T., (ASCP), S.B.B., B.S., assistant professor (part-time), Alabama, 1957
Phyllis G. Campbell, M.T. (ASCP), B.S., clinical instructor, Kentucky, 1950
Patricia Ann Collins, M.T. (ASCP), M.S., associate professor, West Virginia, 1971
Phillip Flanery, M.T., (ASCP), B.S., clinical instructor, Pikeville College, 1969
Beth Morgan Gorham, M.T. (ASCP), B.S., clinical instructor, Eastern Nazarene College, 1969
Mary Frances James, M.T. (ASCP), M.S., professor and chairman, Alabama, 1961
Mildred Jobe, M.T. (ASCP), B.S., instructor (part-time), George, 1942
Marilyn Lippert, M.T. (ASCP), S.B.B., B.S., instructor, Kentucky, 1967
Brenda Marie Lloyd, M.T. (ASCP), S.B.B., B.S., instructor (part-time), Kentucky, 1963
Lynne H. Lyons, M.T. (ASCP), B.S., instructor, Kentucky, 1973
Sara McDearman, M.T. (ASCP), Ph.D., associate clinical professor, Tennessee, 1955
Martha Mann, M.T. (ASCP), B.S., instructor (part-time) Louisville, 1967
Kenneth M. Martin, M.T. (ASCP), M.S., assistant professor, Tennessee, 1970
Bonnie Lynch Morris, M.T. (ASCP), Ed.S., assistant professor, Iowa, 1974
Betty Mulberry, M.T. (ASCP), B.S., instructor (part-time), Kentucky, 1957
Phyllis J. Newland, M.T. (ASCP), B.S., clinical instructor, Eastern Kentucky, 1967
Sue Overman, M(ASM), M.A., instructor (part-time), Kansas, 1966
Denver Robertson, M.T.(ASCP), B.S., assistant professor (part-time), Kentucky, 1948
John Seabolt, M.T. (ASCP), M.S., instructor, Kentucky, 1974
Ellen T. Shackelford, M.T. (ASCP), B.A., assistant clinical professor, Maryville College, 1936
E. Anne Stiene-Martin, M.T. (ASCP), M.S., associate professor, Minnesota, 1969
Joberta Wells, M.T. (ASCP), S.B.B., B.S., clinical instructor, Kentucky, 1964

PHYSICAL THERAPY

Timothy Alberhasky, Kentucky, 1976
Howard Appleby, P.T., B.S., clinical instructor, New York, 1955
Florence Bailey, P.T., B.S., assistant clinical professor, Cincinnati, 1941
Nancy Brinly, P.T., B.S., assistant clinical professor, Washington, 1959
Linda Caldwell, P.T., B.S., clinical instructor, Tennessee, 1973
Denise Colwell, P.T., B.S., clinical instructor, Northern Illinois, 1970
Frances Cromwell, P.T., B.A., assistant clinical professor, Winthrop, 1953
Russ Cromwell, P.T., B.S., assistant clinical professor, Ohio, 1951
Bill Daugherty, P.T., M.A., clinical instructor, Ohio, 1961
Jane Day, P.T., M.S., clinical instructor, Alabama, 1974
Joseph Drake, P.T., B.A., assistant clinical professor, Kentucky, 1962
Hugh Galford, P.T., B.S., clinical instructor, Davis & Elkins, 1951
Sister Mary Glass, P.T., M.S., clinical instructor, Case Western Reserve, 1971
Sandra Hartner, P.T., B.S., clinical instructor, Illinois, 1971
Robert Hayhurst, P.T., B.S., assistant clinical professor, Pennsylvania, 1949
Linda Hearn, P.T., B.H.S., clinical instructor, Kentucky, 1973
Wylie Joe High, P.T., B.S., clinical instructor, Colorado, 1965
Janet Ingram, P.T., B.S., clinical instructor, St. Louis, 1967
D. LaVonne Jaeger, P.T., M.S., associate professor, Washington, 1966
Joyce Julien, B.S., P.T., clinical instructor, Kentucky, 1974
Stuart Lowenthal, P.T., certificate, assistant clinical professor, Duke, 1964

Mary McDonnell, P.T., B.S., clinical instructor, Northeastern, 1944
Richard V. McDougall, P.T., M.E., professor and chairman, Kentucky, 1965
Christine McGill, P.T., B.S., clinical instructor, Missouri, 1973
Richard Magato, P.T., M.S., clinical instructor, Ohio, 1955
Glover Martin, P.T., B.E., clinical instructor, Missouri, 1960
Mary Martin, P.T., B.S., clinical instructor, Kentucky, 1970
Roger Meece, M.A., rehabilitation counselor, assistant clinical professor, Eastern Kentucky, 1963
John Moisan, P.T., B.S., clinical instructor, Oregon, 1967
Nancy Newton, P.T., B.S., clinical instructor, Florida, 1964
Junior Odum, certified prosthetist, assistant clinical professor
Linda Omer, P.T., B.S., clinical instructor, Indiana, 1973
Pat Moore Peck, P.T., B.S., assistant professor, Kentucky, 1969
Betty Rhodes, P.T., R.N., clinical instructor, D.T. Watson, 1946
Wayne Rice, P.T., B.S., clinical instructor, George Williams, 1963
Stan Schlachter, P.T., B.S., instructor, Nebraska, 1966
San Scruggs, P.T., B.S., clinical instructor, A&I State University, Tennessee, 1955
Ron Seymour, P.T., M.H.S., assistant professor, Ohio State, 1973
Bill Snowden, P.T., B.S., assistant clinical professor, McMurray, 1961
Florence Speck, P.T., B.S., clinical instructor, Kentucky, 1973
Jeff Spence, P.T., B.H.S., clinical instructor, Kentucky, 1972
Joseph Strunk, P.T., B.S., clinical instructor, Indiana, 1969
Carolyn Wadsworth, P.T., M.S., instructor, Kentucky, 1975
John Wadsworth, P.T., M.A., assistant professor, Iowa, 1970
Lloyd Weidler, P.T., B.S., clinical instructor, Slippery Rock, 1961
Duane Williams, P.T., M.S., assistant professor, Iowa, 1972
Elizabeth Yoakum, P.T., B.A., assistant clinical professor, Stanford, 1944

RENAL DIALYSIS PROGRAM

Anna Corea, B.H.S., nurse tutor, Kentucky, 1974
Paul Cowden, B.A., educational coordinator, West Virginia, 1969

COLLEGE OF ARCHITECTURE

Anthony Eardley, dean

Michael Alcorn, assistant professor, M. Arch., Illinois, 1972
Paul Amatuzzo, associate professor, B. Arch., Cooper Union, 1969
Peter Carl, assistant professor, M. Arch., Princeton, 1974
Clyde R. Carpenter, associate professor, M. Arch., Pennsylvania, 1962
Dennis W. Carpenter, assistant professor, B. Arch., Kentucky, 1972
Mark Cigolle, assistant professor, M. Arch., Princeton, 1973
Caruthers A. Coleman, visiting professor, B. Arch., California, Berkeley, 1958
Maria G. Dallerba, associate professor, Dottore in Architecture and Town Planning, University of Florence, Italy, 1964
Stephen C. Deger, associate professor, M.S. Arch. Engr., Illinois, 1966
Judith DiMaio, assistant professor, M. Arch., Harvard, 1976
Anthony Eardley, professor, Architectural Association Diploma (Hons), London, England, 1958
Nona Ellis, assistant professor, M. Arch., Pennsylvania, 1968
Richard Etlin, assistant professor, M. Arch., Princeton, 1972, M. Arts, 1973
Jonathan Friedman, assistant professor, M. Arch., Princeton, 1969
Charles P. Graves, professor, M. Arch., Pennsylvania, 1957
Herbert Greene, professor, B. Arch., Oklahoma, 1952
Russell Groves, assistant professor, B. Arch., Kentucky, 1970; Juris Doctor, Kentucky, 1972
George Gunther, professor, M.F.A., Indiana, 1951
Hans Gesund,* professor, D. Engr., Yale, 1958
Guillermo Jullian de la Fuente, visiting professor, dipl Arch & C.P., U.C.V.C.H., 1957
Michael D. Kennedy, associate professor, B.S. Engr., Physics, Tennessee, 1966
Pedro L. Koe-Krompecher, emeritus professor, Diploma in Architecture, Technical University of Budapest, 1926; Dr. Pol Sci, Erzebet, Pecs, 1942
Richard Levine, associate professor, M. Arch., Rennsselaer, 1963
Mary McLeod, assistant professor, M. Arch. Princeton, 1975, M. Arts, Princeton, 1976
J. Philip Noffsinger, professor, D. Arch., Catholic, 1955
Niles T. Nordquist,* instructor, M.A., Kentucky, 1977
Paul Pinney, associate professor, M.S. Arch., Columbia, 1967
James Prestridge, associate professor, M.S. Arch., Columbia, 1949; M.C.P., Pennsylvania, 1964
Richard Rauh, visiting assistant professor, M. Arch., Harvard, 1974
Anthony Roccanova, assistant professor, M. Arch., Cornell, 1972
Horst Schach,* associate professor, M.L.A., California, Berkeley, 1966
David Spaeth, associate professor, M. Arch., Illinois Institute of Technology, 1966
John Strickland, associate professor, M.F.A., Cranbrook, 1959
Jason Tannen, assistant professor, M.F.A., Chicago Art Institute, 1975

*joint appointment

COLLEGE OF ARTS AND SCIENCES

Art Gallaher, Jr., dean

AEROSPACE STUDIES
(Air Force ROTC)

Colonel Joseph M. Dougherty, chairman
Captain Christopher Contos, assistant professor, M.S., Eastern Illinois, 1976
Colonel Joseph M. Dougherty, professor, M.A., Vanderbilt, 1963
Captain Robert R. Franke, assistant professor, M.S., Arkansas, 1974
Major Willard Hammons, assistant professor, M.B.A., Oklahoma, 1973
Lt. Col. George P. Yancey, assistant professor, M.P.A., Golden Gate University, 1973

ANTHROPOLOGY
John van Willigen, chairman

William Y. Adams, professor, Ph.D., Arizona, 1958
Albert S. Bacdayan, associate professor, Ph.D., Cornell, 1967
Michael B. Collins, associate professor, Ph.D., Arizona, 1973
Billie R. DeWalt, assistant professor, Ph.D., Connecticut, 1975
Lathel F. Duffield, associate professor, Ph.D., Wisconsin, 1970
Art Gallaher, Jr., professor, Ph.D., Arizona, 1956
Richard Levy, assistant professor, Ph.D., British Columbia, Canada, 1973
Marion Pearsall, professor, Ph.D., California, 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

BIOLOGICAL SCIENCES
Samuel F. Conti, 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, assistant professor, Ph.D., California, San Diego, 1971
John C. Calkins, associate professor, Ph.D., Texas, 1963
John M. Carpenter,* professor, Ph.D., Texas, 1946
Jim D. Clark, assistant professor, Ph.D., California, Berkeley, 1972
W. S. Cohen, assistant professor, Ph.D., City University of New York, 1970
Samuel F. Conti, professor, Ph.D., Cornell, 1959
Marjorie A. Crandall, assistant professor, Ph.D., Indiana, 1968
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
J. M. Edney,* associate professor, M.S., Iowa, 1934
O. F. Edwards,* associate professor, Ph.D., Yale, 1936
Thomas C. Gray, associate professor, Ph.D., Vanderbilt, 1965
Denny O. Harris, associate professor, Ph.D., Indiana, 1967
Carl E. Henrickson, associate professor, Ph.D., Ohio State, 1950
Anthony D. Hitchins, assistant professor, Ph.D., Michigan State, 1972
James C. Humphries,* professor, Ph.D., Yale, 1944
John J. Just, associate professor, Ph.D., Iowa, 1968
Robert A. Kuehne, associate professor, Ph.D., Michigan, 1958
Judith A. Lesnaw, assistant professor, Ph.D., Illinois, 1969
Willem Meijer, associate professor, Ph.D., Amsterdam, Holland, 1951
Janet L. Morgan, assistant professor, Ph.D., Colorado, 1975
N. J. Pisacano, professor, M.D., Hahnemann, 1951
David J. Prior, associate professor, Ph.D., Virginia, 1972
John M. Rawls, Jr., assistant professor, Ph.D., North Carolina, 1973
H. P. Riley,* distinguished professor, Ph.D., Princeton, 1931
Gerald A. Rosenthal, associate professor, Ph.D., Duke, 1966
I. Ruchman,* professor, Ph.D., Cincinnati, 1944
P. S. Sabharwal, associate professor, Ph.D., New Delhi, India, 1963
Morris Scherago,* professor, DVM, Cornell, 1949; Hon. Doctorate, Kentucky, 1966
Sheldon Steiner, associate professor, Ph.D., Kentucky, 1967
Gary L. Uglem, assistant professor, Ph.D., Idaho, 1972
Ralph F. Wiseman, professor, Ph.D., Wisconsin, 1956

*emeritus

CHEMISTRY
William F. Wagner, chairman

Thomas G. Attig, assistant professor, Ph.D., Ohio State, 1973
Henry H. Bauer, professor, Ph.D., Sydney, Australia, 1956
Rodney E. Black, associate professor, Ph.D., Wisconsin, 1942
Carolyn S. Brock, assistant professor, Ph.D., Northwestern, 1972
David A. Butterfield, assistant 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
Robert D. Guthrie, professor, Ph.D., Rochester, 1963
Floyd J. Holler, assistant professor, Ph.D., Michigan State, 1977
Robert W. Kiser, professor, Ph.D., Purdue, 1958
Douglas G. Naae, assistant professor, Ph.D., Iowa, 1972
Kurt Niedenzu, professor, Dr. rer.nat., Heidelberg, Germany, 1956
James E. O'Reilly, assistant 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
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, assistant professor, Ph.D., Purdue, 1973

CLASSICAL LANGUAGES AND LITERATURES
Hubert Martin, Jr., chairman

James P. Chapman, adjunct assistant professor, Ph.D., Indiana, 1972
Hubert M. Martin, Jr., professor, Ph.D., Johns Hopkins, 1958
Jane E. Phillips, assistant 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, associate 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
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
Thaddeus B. Curtz, chairman

Ronald Alter, associate professor, Ph.D., Pennsylvania, 1965
Anthony Q. Baxter, assistant professor, Ph.D., Virginia, 1972
Joyce A. Blair, instructor, M.S., Kentucky, 1975
Frank M. Brown,* associate professor of Electrical Engineering, Ph.D., Ohio, 1967
Thaddeus B. Curtz, professor, Ph.D., Yale, 1960
Johnson M. Hart, associate professor, Ph.D., Pennsylvania, 1972
Rowland R. Johnson, assistant professor, Ph.D., California, Berkeley, 1976
Michael C. McCord, associate professor, Ph.D., Yale, 1963
A. Chris Newbery, professor, Ph.D., London, England, 1962
Garth L. Olde,* associate professor, Ph.D., Western Ontario, Canada, 1960
Martin B. Soloman, associate professor and Director of Computing Center, Ph.D., Kentucky, 1967
Henry C. Thacher, Jr., professor, Ph.D., Yale, 1949
Chung C. Wang, assistant professor, Ph.D., SUNY at Buffalo, 1974

*joint appointment

DIPLOMACY AND INTERNATIONAL COMMERCE
Vincent Davis, director
Maurice A. East, associate 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
Richard C. Elling, Department of Political Science
Michael Ferri, Department of Business Administration
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 H. Richardson, Department of Economics
David F. Ross, Department of Economics
Hirofumi Shibata, Department of Economics
Gerard E. Silberstein, Department of History
Eldon Smith, Department of Agricultural Economics
Lynn Spruill, Department of Business Administration
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
Richard G. Alvey, assistant professor, Ph.D., Pennsylania, 1974
Wendell E. Berry, professor, M.A., Kentucky, 1957
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
Joseph A. Bryant, Jr., professor, Ph.D., Yale, 1948
William R. Campbell, associate professor, Ph.D., Oregon, 1967
John L. E. Clubbe, professor, Ph.D., Columbia, 1965
Alfred L. Crabb, Jr., associate professor, M.S., Peabody, 1941
Guy M. Davenport, Jr., professor, Ph.D., Harvard, 1961
Kenneth W. Davis, assistant professor, Ph.D., Michigan, 1975
John G. Demaray, professor, Ph.D., Columbia, 1963
David S. Durant, associate professor, Ph.D., North Carolina, 1968
Lee A. Elioseff, associate professor, Ph.D., New York, 1959
Robert O. Evans, professor, Ph.D., Florida, 1954
Tay N. Fizdale, assistant professor, Ph.D., California, Los Angeles, 1972
Walter C. Foreman, assistant professor, Ph.D., Washington, 1974
Joseph H. Gardner, associate professor, Ph.D., California, Berkeley, 1969
William A. Gordon, associate professor, Ph.D., Tulane, 1963
John L. Greenway, associate professor, Ph.D., Wisconsin, 1969
Neil Grobman, assistant professor, Ph.D., Pennsylvania, 1974
James B. Hall, associate professor, M.A., Stanford, 1961
Patricia A. Halliday, assistant professor, Ph.D., Minnesota, 1973
H. Joan Hartwig, associate professor, Ph.D., Washington, 1967
Robert E. Hemenway, associate professor, Ph.D., Kent State, 1966
William H. Jansen, professor, Ph.D., Indiana, 1948
Kevin S. Kiernan, associate professor, Ph.D., Case-Western Reserve, 1970
James Leary, assistant professor, Ph.D., Indiana, 1976
Edward McClanahan, visiting professor, M.A., Kentucky, 1958
William Magretta, assistant professor, M.A., Michigan, 1970
Stephen Manning, professor, Ph.D., Johns Hopkins, 1956
Jerome T. Meckier, professor, Ph.D., Harvard, 1968
Jean G. Pival, associate professor, M.A, Kentucky, 1962
George A. Potratz, assistant professor, Ph.D., Cornell, 1974
Armando Prats, assistant 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
Larry J. Swingle, associate professor, Ph.D., Wisconsin, 1967
Mary Ann Taylor, instructor, M.A., Columbia, 1962
Arthur Wrobel, associate professor, Ph.D., North Carolina, 1968

FRENCH LANGUAGE AND LITERATURE
Phillip A. Duncan, chairman

Claire O. Carpenter, instructor, M.A., Yale, 1971
Jean D. Charron, professor, Ph.D., North Carolina, 1956
Phillip A. Duncan, professor, Ph.D., Indiana, 1958
Mary Lynne Flowers, assistant professor, Ph.D., Ohio State, 1973
Raymond C. La Charité, professor, Ph.D., Pennsylvania, 1966
Virginia A. La Charité, associate professor, Ph.D., Pennsylvania, 1966
Theodore H. Mueller, professor, Ph.D., Northwestern, 1953
Rupert T. Pickens, associate professor, Ph.D., North Carolina, 1966
John A. Rea, assistant professor, A.B., Miami, 1948

GEOGRAPHY
Karl B. Raitz, chairman

Wilford A. Bladen, associate professor, Ph.D., Kentucky, 1972
Robert G. Cromley, assistant professor, Ph.D., Ohio State, 1978
Thomas P. Field, professor, Ph.D., North Carolina, 1948
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
Phillip D. Phillips, assistant professor, Ph.D., Minnesota, 1970
Karl B. Raitz, associate professor, Ph.D., Minnesota, 1970
Gary Shannon, Associate professor, Ph.D., Michigan, 1970
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, assistant professor, Ph.D., Illinois, 1975
Irving Sanborn Fisher, associate professor, Ph.D., Harvard, 1952
William C. MacQuown, professor, Ph.D., Cornell, 1943
Bruce Robert Moore, associate professor, Ph.D., Melbourne, Australia, 1967
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, M.S., Columbia, 1942 (Co-appointed with Civil Engineering)

GERMANIC LANGUAGES AND LITERATURES
Bernd Kratz, chairman

Norman H. Binger, professor, Ph.D., Ohio State, 1942
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
Paul K. Whitaker, professor emeritus, Ph.D., Ohio State, 1942

HISTORY
Joe A. Thompson, chairman

William C. Baldwin, assistant professor, Ph.D., Michigan, 1973
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
Carl B. Cone, professor, Ph.D., Iowa, 1940
E. Randolph Daniel, associate professor, Ph.D., Virginia, 1966
Nancy Schrom Dye, assistant 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., associate professor, Ph.D., Virginia, 1965
Robert M. Ireland, professor, Ph.D., Nebraska, 1967
John R. Mayfield, assistant professor, Ph.D., Johns Hopkins, 1971
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, 1972
Robert W. Randall, associate professor, Ph.D., Harvard, 1965
Charles P. Roland, professor, Ph.D., Louisiana State, 1951
Daniel B. Rowland, assistant 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
Joe A. Thompson, associate professor, Ph.D., Stanford, 1966
Robert D. Warth, professor, Ph.D., Chicago, 1949
George C. Wright, assistant professor, Ph.D., Duke, 1977

LINGUISTICS
Thomas M. Olshewsky, chairman

Richard Levy, assistant professor of Anthropology, advisor
William Magretta, assistant professor of English, advisor
Michael McCord, associate professor of Computer Science, advisor
Thomas Olshewsky, associate professor of Philosophy, advisor
Jean Pival, associate professor of English, advisor
John Rea, assistant professor of French, advisor

MATHEMATICS
Roger Wets, chairman

David R. Adams, associate professor, Ph.D., Minnesota, 1969
James C. Beidleman, associate professor, Ph.D., Pennsylvania State, 1964
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
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., associate professor, Ph.D., Louisiana State, 1968
Carl Eberhart, associate professor, Ph.D., Louisiana State, 1966
Edgar Enochs, professor, Ph.D., Notre Dame, 1959
L. Craig Evans, associate professor, Ph.D., UCLA, 1975
Graeme Fairweather, associate professor, Ph.D., St. Andrews, Scotland, 1966
Steven Ferry, associate professor, Ph.D., Michigan, 1973
Richard Frankfurt, assistant professor, Ph.D., Virginia, 1974
Michael Freeman, professor, Ph.D., California, Berkeley, 1965
Brauch Fugate, professor, Ph.D., Iowa, 1964
Ronald Gariepy, associate professor, Ph.D., Wayne State, 1969
Brian German, instructor, Ph.D., Western Michigan, 1976
Frederick Richard Giles, assistant professor, Ph.D., Waterloo, Canada, 1975
L. Wayne Goodwyn, associate professor, Ph.D., Maryland, 1968
Lawrence A. Harris, associate professor, Ph.D., Cornell, 1969
Thomas L. Hayden, professor, Ph.D., Texas, 1961
Henry C. Howard, professor, Ph.D., Carnegie-Mellon, 1958
Robert Jensen, assistant 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
Barry Knerr, assistant professor, Ph.D., Northwestern, 1976
Kenneth K. Kubota, professor, Ph.D., Faculte des Sciences de Paris, France, 1969
Stephen L. Langston, associate professor, Ph.D., Wisconsin, 1968
Donald C. Leigh, professor, Ph.D., Cambridge, England, 1954
Anders Lindquist, associate professor, Ph.D., Royal Institute Tech., Sweden, 1968
John E. Mack, professor, Ph.D., Purdue, 1959
Coy L. May, instructor, Ph.D., Texas, Austin, 1975
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
Danny C. Sorensen, assistant professor, Ph.D., California, San Diego, 1977
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
Da-Lun Wang, assistant professor, Ph.D., Massachusetts Institute of Technology, 1973
Ping Y. Wang, instructor, Ph.D., Princeton, 1974
James H. Wells, professor, Ph.D., Texas, 1958
Roger Wets, professor, Ph.D., California, Berkeley, 1964
Marcus Wright, assistant professor, Ph.D., Stanford, 1974

MILITARY SCIENCE
(Army ROTC)
Lieutenant Colonel Bobbie G. Pedigo, chairman

Captain Richard E. Allenbaugh, assistant professor, B.B.A., Ohio U., 1970

Major James T. Chester, Jr., assistant professor, M.B.A., Xavier (OH), 1977
Captain Philip G. Cottell, Jr., assistant professor, M.S., Kentucky 1976
Captain Philip A. Hesson, assistant professor, M.B.A., Kentucky 1976
Lieutenant Colonel Bobbie G. Pedigo, professor, M.A., Nebraska, 1973

PHILOSOPHY
Thomas M. Olshewsky, acting chairman

Michael D. Bayles, professor, Ph.D., Indiana, 1967
J. Daniel Breazeale, associate professor, Ph.D., Yale, 1971
Ronald Bruzina, associate professor, Ph.D., Notre Dame, 1966; Doctorate de 3e cycle, Paris-Nanterre, France, 1970
Jesse de Boer, professor, Ph.D., Harvard, 1942
Kenneth I. Henley, assistant professor, Ph.D., Virginia, 1972
Dallas M. High, professor, Ph.D., Duke, 1964
James W. Manns, associate professor, Ph.D., Boston, 1971
Thomas M. Olshewsky, associate professor, Ph.D., Emory, 1965
Alan R. Perreiah, associate professor, Ph.D., Indiana, 1967
Henry A. S. Schankula, assistant professor, Ph.D., Toronto, Canada, 1976

PHYSICS AND ASTRONOMY
Fletcher Gabbard, chairman

Phillip Olaf Berge, visiting assistant professor, Ph.D., Arkansas, 1974
Eugene Bradford Bradley,* associate professor of Electrical Engineering, Ph.D., Vanderbilt, 1964
Jerry Duke Brandenberger, professor, Ph.D., Texas, 1962
John Ernest Christopher, associate professor, Ph.D., Virginia, 1967
Frank Oliver Clark, assistant professor, Ph.D., Virginia, 1973
Lewis Wellington Cochran, professor, Ph.D., Kentucky, 1952
Marcel Coz, associate professor, D.Sc., Sorbone, France, 1960
Wendell Carden DeMarcus, professor, Ph.D., Yale, 1951
Peter Clay Eklund, assistant professor, Ph.D., Purdue, 1974
Paul Marvin Everett, assistant professor, Ph.D., Case-Western Reserve, 1968
Robert C. Fleck, visiting assistant professor, Ph.D., Florida, 1977
Fletcher Gabbard, professor, Ph.D., Rice, 1959
Ben Roger Gossick, professor, Ph.D., Purdue, 1954
Richard Hanau, professor, Ph.D., Michigan, 1947
Robert Lee Hersheberger, visiting assistant professor, Ph.D., Arizona, 1970
George Samuel Hurst,* professor, Ph.D., Tennessee, 1959
Bernard Donald Kern, professor, Ph.D., Indiana, 1949
Robert Edward Knight, associate professor, Ph.D., Texas, 1954
Wasley Swen Krogdahl, professor, Ph.D., Chicago, 1942
Guy Walter Lehman, professor, Ph.D., Purdue, 1954
Peter Kurt Leichner, assistant professor, Ph.D., Kansas, 1969
Keith Bradford MacAdam, assistant professor, Ph.D., Harvard, 1972
Alan Douglas MacKellar, associate professor, Ph.D., Texas A&M, 1965
Marcus Thomas McEllistrem, professor, Ph.D., Wisconsin, 1956
Marvin G. Payne,* associate professor, Ph.D., Kentucky, 1969
George Harold Pepper, assistant professor, Ph.D., North Texas State, 1975
Rudolph Schrils, associate professor, Ph.D., Colorado, 1963
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
Jesse Leo Weil, professor, Ph.D., Columbia, 1959
Clasine van Winter, professor, Ph.D., Groningen, The Netherlands, 1957

*adjunct or joint appointment.

POLITICAL SCIENCE
Michael A. Baer, chairman

Michael A. Baer, associate professor, Ph.D., Oregon, 1968
Bradley C. Canon, professor, Ph.D., Wisconsin, 1967
Kenneth Coleman, associate professor, Ph.D., North Carolina, 1970
B. Vincent Davis, professor, Ph.D., Princeton, 1961
Herbert N. Drennon, associate professor, Ph.D., Duke, 1951
Maurice A. East, associate professor, Ph.D., Princeton, 1969
Richard Elling, assistant professor, Ph.D., Wisconsin, 1976
George H. Gadbois, associate professor, Ph.D., Duke, 1965
Donald A. Gross, assistant professor, Ph.D., Iowa, 1976
Dean Jaros, professor, Ph.D., Vanderbilt, 1966
Malcolm E. Jewell, professor, Ph.D., Penn State, 1958
Thomas Likens, assistant professor, Ph.D., Washington (St. Louis), 1977
William E. Lyons, professor, Ph.D., Penn State, 1965
Karen A. Mingst, assistant professor, Ph.D., Wisconsin, 1974
Daniel N. Nelson, assistant professor, Ph.D., Johns Hopkins, 1974
John Patterson, assistant professor, Ph.D., SUNY, Buffalo, 1971
Herbert G. Reid, associate professor, Ph.D., North Carolina, 1968
Phillip Roeder, assistant professor, Ph.D., Florida State, 1973
S. Sidney Ulmer, professor, Ph.D., Duke, 1956
Kenneth E. Vanlandingham, associate professor, Ph.D., Illinois, 1950
John Wanat, associate professor, Ph.D., Illinois, 1971
Ernest Yanarella, associate professor, Ph.D., North Carolina, 1971

PSYCHOLOGY
Ronald C. Dillehay, 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
Jeffrey Brandsma,* associate professor, Ph.D., Penn State, 1971
Robert M. Bray, assistant professor, Ph.D., Illinois, 1974
James S. Calvin, professor, Ph.D., Yale, 1939
Patrick Cavanagh, assistant professor, Ph.D., Rochester, 1973
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
Russell A. Jones,* associate professor, Ph.D., Duke, 1969
Raymond Martorano, assistant professor, Ph.D., Rutgers, 1973
Suzanne Martorano, assistant professor, Ph.D., Rutgers, 1974
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
John Sensenig, associate professor, Ph.D., Duke, 1969
James E. Spivey, associate professor, Ph.D., Texas, 1964
Leonard Worell, professor, Ph.D., Ohio State, 1954
T. Benjamin Yandell, assistant professor, Ph.D., North Carolina, 1974
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
Roger B. Anderson, chairman

Roger B. Anderson, professor, Ph.D., Michigan, 1966

Paul G. Forand, associate professor, Ph.D, Princeton, 1962
Duncan Gardiner, assistant professor, Ph.D., Indiana, 1975
Gerard Janecek, assistant professor, Ph.D., Michigan, 1972
Boris Sorokin, assistant professor, Ph.D., Chicago, 1973
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, assistant professor, Ph.D., North Carolina, 1975
Janet Bokemeier, assistant professor, Ph.D., Iowa State, 1978
J. Michael Brooks, assistant professor, Ph.D., Ohio State, 1970
James S. Brown, professor, Ph.D., Harvard, 1953
Lawrence M. Busch, assistant professor, Ph.D., Cornell, 1974
James A. Christenson, associate professor, Ph.D., Washington State, 1972
Richard R. Clayton, associate professor, Ph.D., Tennessee, 1970
A. Lee Coleman, professor emeritus, Ph.D., Cornell, 1950
C. Milton Coughenour, professor, Ph.D., Missouri, 1953
Alan DeYoung, assistant professor, Stanford, 1975
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, associate 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. Houghland, assistant professor, Ph.D., Indiana, 1975
William F. Kenkel, professor, Ph.D., Ohio State, 1952
William B. Lacy, assistant professor, Ph.D., Michigan, 1975
Philip M. Moody, associate professor, Ph.D., Utah, 1967
John A. O'Donnell, professor, Ph.D., Kentucky, 1960
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
Ann R. Tickamyer, assistant professor, Ph.D., North Carolina, 1978
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, associate 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
Daniel R. Reedy, professor, Ph.D., Illinois, 1962
Gerardo Sáenz, professor, Ph.D., Texas, 1959
Edward Stanton, assistant professor, Ph.D., California, Los Angeles, 1972

STATISTICS
Richard L. Anderson, chairman

David M. Allen, associate professor, Ph.D., North Carolina State, 1968
Richard L. Anderson, professor, Ph.D., Iowa State, 1941
Vasant P. Bhapkar, professor, Ph.D., North Carolina, 1959
William J. Bramble, associate professor, Ph.D., Chicago, 1970
Paul L. Cornelius, associate professor, Ph.D., Illinois, 1972
Emad El-Neweihi, assistant professor, Ph.D., Florida State, 1973
James W. Evans, assistant professor, Ph.D., North Carolina State, 1974
Zakkula Govindarajulu, professor, Ph.D., Minnesota, 1961
James J. Halavin, assistant professor, Ph.D., SUNY at Buffalo, 1978
Harry H. Hall, associate professor, Ph.D., Iowa State, 1969
Robert B. Latta, assistant professor, Ph.D., Stanford, 1975
Harlley E. McKean, professor, Ph.D., Purdue, 1958
Peter Purdue, associate professor, Ph.D., Purdue, 1972
Grant W. Somes, assistant professor, Ph.D., Kentucky, 1975
Lynn Weidman, assistant professor, Ph.D., North Carolina, 1975
Constance L. Wood, assistant professor, Ph.D., Florida State, 1975

COLLEGE OF BUSINESS AND ECONOMICS
William W. Ecton, dean

ACCOUNTING
James A. Knoblett, chairman

Art Boyett, instructor, D.B.A. cand., Texas Tech
Myrtle F. Clark, instructor, Ph.D. cand., South Carolina
Paul M. Davis, professor, Ph.D., Illinois, 1969
William W. Ecton, professor, Ph.D., Missouri, 1966
Dan Fulks, instructor, Ph.D. cand., Georgia State
James R. Holmes, assistant professor, Ph.D., Missouri, 1977
James A. Knoblett, professor, D.B.A., Washington, 1963
Donald L. Madden, professor, D.B.A., Texas, 1967
Levis D. McCullers, professor, Ph.D., Florida, 1969
Terry J. Nunley, instructor, Ph.D. cand., Alabama
Albert W. Patrick, professor, Ph.D., Michigan, 1955
Edward Schnee, associate professor, Ph.D., Michigan State, 1973
Richard Schroeder, associate professor, D.B.A., Arizona State, 1974
Manuel A. Tipgos, associate professor, Ph.D., Louisiana State, 1974
Relmond P. Van Daniker, associate professor, D.B.A., Maryland, 1970

BUSINESS ADMINISTRATION
M. Lynn Spruill, chairman

Kashi R. Balachandran, associate professor, Ph.D., California, 1968
Philip K. Berger, associate professor, Ph.D., Texas Christian, 1969
John J. Bernardo, assistant 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
James Donnelly, professor, D.B.A., Maryland, 1968
Michael G. Ferri, assistant professor, Ph.D., North Carolina, 1975
James L. Gibson, professor, Ph.D., Kentucky, 1962
Andrew Grimes, associate professor, Ph.D., Minnesota, 1964
Joseph Guiltinan, associate professor, D.B.A., Indiana, 1969
Charles S. Haywood, professor, Ph.D., California
Harold Hotelling, Jr., instructor, Ph.D. cand., Duke
Clyde L. Irwin, associate professor, D.B.A., Illinois, 1966
Keith H. Johnson, associate professor, Ph.D., Illinois, 1970
Wesley H. Jones, assistant professor, Ph.D., Purdue, 1975
Linda Krefting, assistant professor, Ph.D., Minnesota, 1974
James R. Lang, assistant professor, Ph.D., Massachusetts, 1976
Lawrence K. Lynch, assistant professor, Ph.D., Kentucky, 1966
Kenneth Marino, instructor, Ph.D. cand., Massachusetts
Joseph L. Massie, professor, Ph.D., Chicago, 1955
Tony McAdams, associate professor, J.D., Iowa, 1969
P. J. O'Connor, assistant professor, Ph.D., Florida, 1978
William C. Rodgers, assistant professor, Ph.D., Iowa, 1977
Donald S. Shannon, associate professor, Ph.D., North Carolina, 1972

Martin B. Solomon, associate professor, Ph.D., Kentucky, 1967
Charles S. Spiegel, assistant professor, J.D., SUNY, 1976
M. Lynn Spruill, associate professor, Ph.D., Michigan, 1972
Ralph Steuer, associate professor, Ph.D., North Carolina, 1973
Gary L. Sullivan, instructor, Ph.D. cand., Florida
David E. Upton, assistant professor, Ph.D., North Carolina, 1976
Marc J. Wallace, associate professor, Ph.D., Minnesota, 1972
Sammy E. White, assistant professor, Ph.D., Washington, 1976

ECONOMICS
David H. Richardson, chairman

M. Mukhtar Ali, professor, Ph.D., Wisconsin, 1969
Wallace G. Blackhurst, visiting assistant professor, Ph.D. cand., Chicago
Gary D. Brown, visiting assistant professor, Ph.D., Illinois, 1974
H. Stuart Burness, associate professor, Ph.D., Kansas, 1970
Carl Cabe, professor, Ph.D., Illinois, 1952
Virgil L. Christian, professor, Ph.D., Kentucky, 1956
Stephen A. Clark, visiting assistant professor, Ph.D., California, 1976
Carlos C. Erwin, associate professor, Ph.D., Illinois, 1952
Richard E. Gift, associate professor, Ph.D., Duke, 1965
Merlin N. Hackbart, associate extension professor, Ph.D., Kansas State, 1968
H. W. Hargreaves, professor, Ph.D., Duke, 1941
Curtis E. Harvey, associate professor, Ph.D., Southern California, 1963
Charles F. Haywood, professor, Ph.D., California, 1955
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
L. Randolph McGee, extension professor, Ph.D., Tulane, 1963
Brian Motley, associate professor, Ph.D., California, 1968
Howard Reese, instructor, Ph.D. cand., Kansas
David H. Richardson, professor, Ph.D., Purdue, 1966
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
Don M. Soule, professor, Ph.D., Wisconsin, 1953
William J. Stober, professor, Ph.D., Duke, 1965
Robert H. Stroup, professor, Ph.D., Iowa, 1953
Harvey Zabinsky, instructor, Ph.D. cand., Rochester

COLLEGE OF COMMUNICATIONS

Ramona R. Rush, dean

HUMAN COMMUNICATION
John R. Baseheart, chairman

James L. Applegate, assistant professor, Ph.D., Illinois, 1977
John R. Baseheart, associate professor, Ph.D., Michigan State, 1969
Gifford Blyton, professor emeritus, Ph.D., Ohio State, 1941
Robert N. Bostrom, professor, Ph.D., Iowa, 1961
R. Lewis Donohew, professor, Ph.D., Iowa, 1965
Gerald Herbener, assistant professor, Ph.D., Ohio, 1974
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
Michael Roloff, assistant professor, Ph.D., Michigan State, 1975
G. Norman Van Tubergen, associate professor, Ph.D., Iowa, 1968
Enid Waldhart, assistant professor, Ph.D., Indiana, 1975
Lawrence A. Wenner, assistant professor, Ph.D., Iowa, 1977

SCHOOL OF JOURNALISM
Ronald T. Farrar, director

Joyce Adams, visiting assistant professor, M.S., Ohio, 1968
Ralph E. Johnson, lecturer, A.B., Kentucky, 1937
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, 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

James D. Bader, assistant professor, D.D.S., Michigan, 1970; M.P.H., Michigan, 1973
Ervin C. Belcher, associate professor, D.M.D., Kentucky, 1969
Hector Bethart, associate professor, D.M.D., Tufts, 1946
Thomas M. Cooper, professor, D.D.S., Tennessee, 1956
A. Lincoln Fisch, assistant professor, M.S., Wisconsin, 1950
Albert L. Heise, associate professor, D.M.D., Louisville, 1949; M.P.H., Michigan, 1969
Alan Kaplan, assistant professor, Ph.D., Kentucky, 1975
Bernard Lutz, associate professor, D.D.S., Marquette, 1953; M.P.H., Michigan, 1969; Ph.D., Iowa, 1973
M. Raynor Mullins, associate professor, D.M.D., Kentucky, 1968; M.P.H., North Carolina, 1970
Merrill W. Packer, professor, D.D.S., Minnesota, 1959: M.S.D., Minnesota, 1964
Steven L. Reid, assistant professor, D.M.D., Kentucky, 1973
Ronald Q. Robinson, 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
David B. Webster, Jr., assistant professor, D.D.S., Virginia Commonwealth, 1969; M.P.H., North Carolina, 1971

ENDODONTICS
Thomas P. Mullaney, chairman

Mark W. Bothwell, (part-time) instructor, D.M.D., Kentucky, 1976
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
Michael F. Hutton, (part-time) assistant professor, D.D.S., SUNY-Buffalo, 1969; M.S.D., Indiana, 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
Robert S. Sergent, (part-time) instructor, D.M.D., Kentucky, 1973

ORAL BIOLOGY
Richard L. Wynn, chairman

Raymond B. Bridges, associate professor, Ph.D., Vanderbilt, 1969
Albert T. Brown, associate professor, Ph.D., Vanderbilt, 1968

Robert B. Calmes, assistant 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
Richard L. Wynn, associate professor, Ph.D., Maryland, 1970

*joint appointment

ORAL DIAGNOSIS AND ORAL MEDICINE
Laurence R. Bean, Jr., acting chairman

Richard C. Bartlett, professor, D.M.D., Louisville, 1952
Laurence R. Bean, Jr., professor, D.D.S., Ohio State, 1961
Donald A. Falace, assistant 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
James W. Little, professor, D.M.D., Oregon, 1958; M.S., Oregon, 1963
Richard D. Oles, associate professor, D.D.S., Michigan, 1961; M.S., Detroit, 1967; Cert. Perio., Henry Ford Hospital, Detroit, 1967
Edwin F. Struss, (part-time) assistant professor, D.M.D., Kentucky, 1975

ORAL PATHOLOGY
James F. Drummond, acting chairman

James F. Drummond,* associate professor, D.D.S., St. Louis, 1963; M.S.D., St. Louis, 1966; Ph.D., St. Louis, 1970
Joseph S. Giansanti, professor, D.M.D., Tufts, 1958; M.S.D., Emory, 1969
William R. Sabes, professor, D.D.S., Minnesota, 1959; M.S.D., Minnesota, 1961

*joint appointment

ORAL 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, assistant 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, (part-time) 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, associate professor, D.D.S., Howard, 1955; Ph.D., Pennsylvania, 1969, Cert. Ortho., Kentucky 1973
Jackie Berkowitz, (part-time) assistant professor, D.D.S., Case Western Reserve, 1973; M.S., Case Western Reserve, 1975; Cert. Ortho., Case-Western Reserve, 1975
William B. Daugherty, (part-time) assistant professor, D.M.D., Kentucky, 1970; Cert. Ortho., Kentucky, 1977
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
Timothy R. Perkins, (part-time) assistant professor, D.M.D., Louisville, 1971; Cert. Ortho., Louisville, 1976
Howard K. Starnbach, (part-time) professor, D.D.S., Ohio State, 1961; Cert. Ortho., Eastman Dental Disb., 1964
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, assistant professor, D.M.D., Ankara, Turkey, 1969; Cert. Ortho., Pennsylvania, 1974
Robert W. Webster, (part-time) assistant professor, D.M.D., Kentucky, 1972; Cert. Ortho., Kentucky, 1977

PEDIATRIC DENTISTRY
Robert H. Spedding, chairman

Paul A. Bender, associate professor, D.D.S., Indiana, 1967; Cert. Pedo., Indiana, 1969; M.S.Ed., Southern California, 1974
Wayne Collier, (part-time) associate professor, D.M.D., Louisville, 1952
David A. Flanagan, (part-time) assistant professor, D.M.D., Kentucky, 1967
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, 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

Archie W. Beckner, (part-time) associate professor, D.D.S., Ohio State, 1960; Cert. Perio., Kentucky, 1970
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
Raymond A. Kopczyk, professor, D.D.S., Northwestern, 1956; M.Sc., Ohio State, 1966
Jan H. Kraal, associate professor, Doctoral and Tandarts., Netherlands, 1966; M.S., Michigan, 1972
William J. Morgan, (part-time) assistant professor, D.M.D., Kentucky, 1972; Cert. Perio., Kentucky, 1975
Oakie G. Newsome, (part-time) associate professor, D.M.D., Kentucky, 1966
Lawrence R. Page, assistant professor, D.D.S., Michigan, 1968; Ph.D., Maryland, 1974; Cert. Oral Path., Maryland, 1974
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
David C. Vandersall, associate professor, D.D.S., Case Western Reserve, 1961; M.S., Rochester, 1967

PROSTHODONTICS
Charles W. Ellinger, chairman

Behruz J. Abadi, instructor, D.M.D., Istanbul, Turkey, 1972
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
Karl W. Lange, (part-time) associate professor, D.M.D., Louisville, 1960
Harry E. Moore, associate professor, D.M.D., Louisville, 1952
Harry M. Plummer, Jr., (part-time) assistant professor, D.M.D., Kentucky, 1967
John W. Unger, associate professor, D.D.S., Illinois, 1972; Cert. Prosth., Illinois, 1974
Robert C. Wesley,* associate professor, D.M.D., Louisville, 1954
Paul Wong, (part-time) instructor, Ph.D., Kentucky, 1973; D.M.D., Kentucky, 1976

*joint appointment

RESTORATIVE DENTISTRY
Harold R. Laswell, chairman

Neal D. Bellanti, associate professor, D.D.S., Missouri, 1966; M.A., Missouri, 1971
Thomas G. Berry, associate professor, D.D.S., Missouri, 1961; M.A., Missouri, 1970
Thomas W. Brehm, associate professor, D.D.S., Ohio State, 1949
Hugh N. Burkett, associate professor, D.M.D., Kentucky, 1970
Warren Fischer, (part-time) associate professor, D.M.D., Louisville, 1952
Kent Herring,* assistant professor, D.M.D., Kentucky, 1972
Howard Higgins, (part-time) assistant professor, D.M.D., Kentucky, 1975
Suteera Hovijitra, assistant professor, D.D.S., Mahidol, Bangkok, Thailand, 1968; M.S.D., Indiana, 1976
John T. Kemper, assistant professor, D.M.D., Kentucky, 1976
Harold R. Laswell, professor, D.D.S., Indiana, 1961; M.S.D., Indiana, 1966
Jose M. Lucente, assistant professor, D.D.S., West Virginia, 1970
Laban T. McClure, (part-time) associate professor, D.D.S., Ohio State, 1944
E. Allen Meyer, assistant professor, D.M.D., Kentucky, 1974
Wendell W. Neeley, (part-time) assistant professor, D.M.D., Kentucky, 1975
Bruce D. Obray, assistant professor, D.M.D., Washington, St. Louis, 1974
Jeffrey P. Okeson, assistant professor, D.M.D., Kentucky, 1972
Francis B. Robinson, assistant professor, D.D.S., Ohio State, 1971
Erwin G. Turner, (part-time) assistant professor, D.M.D., Kentucky, 1975
Thomas M. Williams, (part-time) assistant professor, D.M.D., Kentucky, 1974
Steven Zeh, (part-time) assistant professor, D.M.D., Kentucky, 1976

*joint appointment

COLLEGE OF EDUCATION

George W. 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
James B. Kincheloe, professor, Ph.D., Peabody, 1954
James R. Ogletree, professor, Ed.D., Columbia, 1956

CURRICULUM AND INSTRUCTION
William H. Peters, chairman

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, M.A., Kentucky, 1949
Jacques S. Benninga, assistant professor, Ph.D., George Peabody College, 1976
Frank Bickel, adjunct assistant professor, Ed.D., Kentucky, 1970
Ollie E. Bissmeyer, Jr., assistant professor, Ed.D., Indiana, 1964
Connie A. Bridge, assistant professor, Ed.D., University of Arizona, 1977
Necia Coker, associate professor, Ed.D., Wayne State, 1974
Georgia Collins, instructor, M.A., Kentucky, 1974
Frank Colton, associate professor, Ed.D., Wayne State, 1970
George Denemark, professor, Ed.D., Illinois, 1956
Lowell Eberwein, associate professor, Ed.D., Indiana, 1968
Anne Fox, assistant professor, Ph.D., Syracuse, 1975
Donald Hoffman, joint appointment associate professor, Ed.D., Georgia, 1972
Catherine Lytle, assistant professor, M.A., Kentucky, 1949
Nancy McClure, assistant professor, M.A., Kentucky, 1954
Ernest Middleton, assistant professor, Ed.D., Colorado, 1974
Fannie Miller, assistant professor, M.A., Kentucky, 1937
James T. Moore, professor, Ph.D., Stanford, 1949
Theodore Mueller, professor, Ph.D., Northwestern, 1953
Phil Nacke, associate professor, Ed.D., University of British Columbia, Canada, 1970
William Peters, associate professor, Ph.D., Virginia, 1968
Bruce Petty, assistant professor, Ph.D., Kansas State, 1974
E. Leon Porter, assistant professor, Ed.D., Kentucky, 1960
Opal Reynolds, assistant professor, M.A., Kentucky, 1952
Andrew Robinson, assistant professor, Ph.D., Northwestern, 1973
James Simpson, associate professor, Ph.D., Yale, 1961
C. Leland Smith, professor, Ed.D., Kentucky, 1962
J. Truman Stevens, assistant professor, Ed.D., Virginia, 1972
Martha Sudduth, professor, Ed.D., Indiana, 1962
Betty A. Taylor, assistant professor, M.A., Kentucky, 1963
Kathy Thornburg, joint appointment associate professor, Ph.D., Missouri, 1973
Diana Wearne, assistant professor, Ph.D., Wisconsin, 1976
Angene Wilson, assistant professor, Ph.D., Ohio State, 1976

EDUCATIONAL PSYCHOLOGY AND COUNSELING
Henry P. Cole, chairman

C. Dwight Auvenshine, associate professor, Ph.D., Missouri, 1962
James R. Barclay, professor, Ph.D., Michigan, 1959
William J. Bramble, associate professor, Ph.D., Chicago, 1971
Henry P. Cole, professor, Ed.D., SUNY, 1968
Logan Green, assistant professor, Ph.D., Chicago, 1974
Robert Harman, associate professor, Ed.D., Nebraska, 1969
Edward Kifer, assistant professor, Ph.D., Chicago, 1973
Gordon P. Liddle, professor, Ph.D., Chicago, 1959
Emanuel Mason, associate professor, Ed.D., Temple, 1972
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, assistant professor, Ph.D., Colorado, 1972
Timothy Smith, professor, Ph.D., North Carolina, 1963
William E. Stilwell III, associate professor, Ph.D., Stanford, 1969
Raymond A. Wilkie, associate professor, Ph.D., Yale, 1954; Ph.D., Kentucky, 1960

Tom Venable, assistant professor, Ph.D., Kentucky, 1977
Judith Worell, associate professor, Ph.D., Ohio State, 1956

HEALTH, PHYSICAL EDUCATION AND RECREATION
Hubert L. Garrett, chairman

Barbara Call, assistant professor, Ed.S., Eastern Ky., 1975
Jess L. Gardner, associate professor, Ed.D., Kentucky, 1964
Hubert L. Garrett, professor, Ed.D., George Peabody College, 1965
Joseph J. Gruber, professor, Ph.D., Purdue, 1959
Eugene Huff, assistant professor, M.A., Tennessee, 1964
Sharon Hunt, assistant professor, Ed.D., Georgia, 1977
Bernard M. Johnson, assistant professor, M.A., Kentucky, 1949
Jay T. Kearney, assistant professor, Ph.D., Maryland, 1972
Stanley Labanowich, assistant professor, Ph.D., Illinois, 1975
Ann C. Loye, instructor, M.A., DePaul University, 1963
Ralph V. Mann, assistant professor, Ph.D., Washington State, 1976
Vivian McKibben, instructor, M.S., Maine, 1973
James Nance, assistant professor, M.A., Middle Tennessee State, 1965
William R. Pupke, assistant professor, Ph.D., George Peabody College, 1977
Glenn E. Richardson, assistant professor, Ph.D., Utah, 1976
Abdelmonem Rizk, associate professor, Ed.D., Kentucky, 1968
Pentti Teraslinna, associate professor, Ph.D., Purdue, 1966
Dennis Vinton, assistant 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
Charles F. Elton, professor, Ph.D., Ohio State, 1951
Jon F. Hesseldenz, adjunct assistant professor, Ed.D., Kentucky, 1976
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
Richard L. Warren, chairman

Clinton Collins, associate professor, Ph.D., Indiana, 1970
David E. Denton, professor, Ed.D., Tennessee, 1963
Alan J. DeYoung, assistant 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
A. Edward Blackhurst, chairman

William H. Berdine, assistant professor, D.Ed., Penn State, 1972
JoAnn Berryman, assistant professor, M.A., Kentucky, 1963
A. Edward Blackhurst, professor, Ph.D., Pittsburgh, 1966
Patricia T. Cagelka, assistant professor, Ed.D., Kansas, 1970
Barbara K. Culatta, assistant professor, Ph.D., Pittsburgh, 1975
Richard Culatta, assistant professor, Ph.D., Pittsburgh, 1970
Donald P. Cross, associate professor, Ed.D., Kansas, 1968
Susan R. Dick, instructor, M.A., Ohio University, 1972
Joseph Fox, adjunct assistant professor, Ph.D., Indiana, 1970
David Gast, assistant professor, Ph.D., Kansas, 1975
William Green, joint appointment associate professor, Ph.D., Case-Western Reserve, 1970
Antoinette P. Kasica, instructor, M.A., SUNY at Buffalo, 1972
Susan M. Kershman, assistant professor, Ph.D., Pittsburgh, 1975
Albert S. Levy, associate professor, Ed.D., Portia, 1953
Melton C. Martinson, associate professor, Ph.D., Wisconsin, 1965
James A. McLoughlin, assistant professor, Ph.D., Arizona, 1973
Catherine V. Morsink, associate professor, Ed.D., Kentucky, 1974
C. Michael Nelson, associate professor, Ed.D., Kansas, 1969
Natalie Patterson, adjunct instructor, M.A., Georgetown, 1969
Linda Price, instructor, M.A., Kentucky, 1967
Sharon Roe, instructor, M.S., Purdue, 1972
Beverly Stanley, assistant professor, M.A., Kentucky, 1959
James W. Tawney, associate professor, Ph.D., Illinois, 1969
Judith Worell, associate professor, Ph.D., Ohio State, 1965

VOCATIONAL EDUCATION
Harold R. Binkley, chairman

Ray Bernardi, assistant professor, Ph.D., Oklahoma, 1969
Harold R. Binkley, professor, Ed.D., Kentucky, 1955
Herbert H. Bruce, Jr., professor, Ed.D., Kentucky, 1965
Charles Byers, associate professor, Ph.D., Ohio State, 1972
Bernard Fagan, associate professor, Ed.D., Kentucky, 1970
Inez H. Hill, assistant professor, M.S., Kentucky, 1952
Evangeline S. Kelsay, assistant professor, M.A., Kentucky, 1948
Carl F. Lamar, professor, Ph.D., Kentucky, 1957
Paul Lee, instructor, M.A., 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
Michael Minor, assistant professor, Ph.D., Massachusetts, 1974
Clayton Omvig, associate professor, Ph.D., Iowa State, 1968
Devert Owens, assistant professor, M.S., Kentucky, 1958
Kawanna Simpson, assistant professor, Ed.D., Kentucky, 1976
Rodney Tulloch, assistant professor, Ph.D., Penn State, 1972
Elaine Uthe, associate professor, Ph.D., Minnesota, 1966

COLLEGE OF ENGINEERING
James E. Funk, dean

CHEMICAL ENGINEERING
Robert Belanger Grieves, chairman

William Lawrence Conger, associate professor, Ph.D., Pennsylvania, 1965
George Franklin Crewe, associate professor, Ph.D., West Virginia, 1970
Robert Belanger Grieves, professor, Ph.D., Northwestern, 1961
Charles E. Hamrin, Jr., associate professor, Ph.D., Northwestern, 1964
Richard Ira Kermode, professor, Ph.D., Northwestern, 1962
Edward Darrell Moorhead, associate professor, Ph.D., Ohio State, 1959
Leonard K. Peters, associate professor, Ph.D., Pittsburgh, 1971
J. Thomas Schrodt, associate professor, Ph.D., Louisville, 1966
A. H. Peter Skelland, professor, Ph.D., Birmingham, England, 1952
John Yamanis, assistant professor, Ph.D., Windsor, Ontario, 1975

CIVIL ENGINEERING
John A. Deacon, chairman

Staley F. Adams, professor, Ph.D., Colorado, 1965
Sherrill Bost Biggers, Jr., associate professor, Ph.D., Duke, 1971
John A. Deacon, professor, D. Engr., California, Berkeley, 1965
John Arthur Dearinger, professor, M.S., Kentucky, 1948
Robert C. Deen, adjunct associate professor, Ph.D., Purdue, 1964

William Bright Drake, lecturer, M.S., Kentucky, 1949
Vincent Paul Drnevich, professor, Ph.D., Michigan, 1967
Edward G. Foree, associate professor, Ph.D., Stanford, 1967
Hans Gesund, professor, D.Engr., Yale, 1958
Ted D. Haley, professor, B.S., Kentucky, 1949
Bobby Ott Hardin, professor, Ph.D., Florida, 1961
Robert C. Howell, assistant professor, Ph.D., Wisconsin, Madison, 1971
Yang Hsien Huang, professor, D.Sc., Virginia, 1966
John W. Hutchinson, professor, Ph.D., Illinois, 1961
V. Kalyanaraman, assistant professor, Ph.D., Cornell, 1975
David Teh-yu 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 Shelby Mateer, professor, Ph.D., Pittsburgh, 1950
Michael E. Meadows, assistant professor, Ph.D., Tennessee, 1976
Jerry G. Rose, associate professor, Ph.D., Texas A&M, 1971
Shien T. Wang, associate professor, Ph.D., Cornell, 1969
Don J. Wood, professor, Ph.D., Carnegie Institute of Technology, 1961
Frederick D. Wright, professor, M.A., Columbia, 1942

ELECTRICAL ENGINEERING
Earl L. Steele, 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
Ben R. Gossick, professor, Ph.D., Purdue, 1954
Terry L. Henderson, associate professor, Ph.D., Texas-Austin, 1970
Tatsuo Itoh, associate professor, Ph.D., Illinois, 1969
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
Syed A. Nasar, professor, Ph.D., California, Berkeley, 1963
Clayton R. Paul, associate professor, Ph.D., Purdue, 1970
L. Wilson Pearson, assistant professor, Ph.D., Illinois, 1976
Earl L. Steele, professor, Ph.D., Cornell, 1952
Lee T. Todd, assistant professor, Ph.D., Massachusetts Institute of Technology, 1974
Hsi-Han Yeh, associate professor, Ph.D., Ohio State, 1967

ENGINEERING MECHANICS
Donald C. Leigh, 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
Nelson N. Hsu, associate professor, Ph.D., Johns Hopkins, 1969
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
T. Richard Robe, professor, Ph.D., Stanford, 1966
David J. Shippy, associate professor, Ph.D., Iowa State, 1963
Theodore R. Tauchert, professor, D.Eng., Yale, 1964

MECHANICAL ENGINEERING
Clifford J. Cremers, chairman

Robert A. Altenkirch, assistant professor, Ph.D., Purdue, 1975
Pramode K. Bhagat, assistant professor, Ph.D., Ohio State, 1972
Richard C. Birkebak, professor, Ph.D., Minnesota, 1962
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
Thomas E. Eaton, assistant professor, Sc.D., Massachusetts Institute of Technology, 1974
Roger Eichhorn, professor, Ph.D., Minnesota, 1959
James McClelland Elliott, assistant professor, M.S., Kentucky, 1959
James E. Funk, professor and Dean of the College of Engineering, 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
John H. Lienhard, professor, Ph.D., California, Berkeley, 1961
Maurice Keith Marshall, associate professor, M.S., Kentucky, 1956
Harry Louis Mason, assistant professor, M.S., Kentucky, 1959
Robert E. Peck, assistant professor, Ph.S., California, Irvine, 1976
Kenneth L. Perry, lecturer, M.S., Murray, 1973
Charlene Randle, lecturer, B.S., Kentucky, 1973
Andrew F. Seybert, assistant professor, Ph.D., Purdue, 1975
Shiva N. Singh, associate professor, Ph.D., Indian Institute of Technology, Kharagpur, India, 1959
Orville Watson Stewart, professor, M.S., Kentucky, 1955
Deh Chang Tao, lecturer, Ph.D., Purdue, 1951
Robert A. Walker, instructor, B.S., Eastern Kentucky, 1970
Warren Ware Walton, associate professor and Assistant Dean of the College of Engineering, M.S., Kentucky, 1953

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE
Hans Conrad, chairman

Hans Conrad, professor, D.Engr., Yale, 1956
Robert J. DeAngelis, professor, Ph.D., Northwestern, 1965
Robert Carlisle Duncan, assistant professor, M.S., Kentucky, 1957
H. Alan Fine, assistant 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
Phillip J. Reucroft, professor, Ph.D., London, England, 1959
Gordon A. Sargent, professor, Ph.D., London, England, 1964
Roy Erwin Swift, professor emeritus, D.Engr., Yale, 1949

COLLEGE OF FINE ARTS

J. Robert Wills, Jr., dean

ART

Georgia Collins, assistant professor, Ed.M., Kentucky, 1973
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, assistant professor, M.A., California, Berkeley, 1970
Donald H. Hoffman, associate professor, Ed.D., Georgia, 1972
Christine Havice, assistant professor, M.A., Pennsylvania State, 1973
Leonard Hunter, associate professor, M.F.A., California, 1972
Arthur F. Jones, associate professor, Ph.D., Case-Western Reserve, 1974
Lowell D. Jones, associate professor, M.F.A., Cranbrooks, 1966
Jane S. Peters, assistant professor, Ph.D., Wisconsin-Madison, 1975
John Roloff, assistant professor, M.A., California State, Humbolt, 1973
Arturo A. Sandoval, associate professor, M.F.A., Cranbrook, 1971

Robert Tharsing, associate professor, M.A., California, 1967
John R. Tuska, professor, M.F.A., Alfred, 1960
Derrick Woodham, associate professor, A.R.C.A., Royal College of Art, 1965
James S. Pierce, professor, Ph.D., Harvard, 1959

SCHOOL OF MUSIC
Joe B. Buttram, director
Aimo J. Kiviniemi, associate director

Joseph W. Baber, associate 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
Rex A. Conner, associate professor, M.M.E., Missouri, 1953
David A. Davenport, instructor (part-time), M.M., Cleveland Institute of Music, 1973
Vincent A. DiMartino, assistant professor, B.M., Rochester, 1970
Richard C. Domek, assistant professor, Ph.D., Indiana, 1976
David Elliott, associate professor, M.M., Catholic University of America, 1968
Rodney Farrar, instructor (part-time), B.M., Oberlin, 1965
Suzanne Frank, instructor (part-time), M.M., Indiana, 1971
Arthur Graham, professor, Ed.D., Columbia, 1960
Gordon Henderson, instructor, M.M.E., Kentucky, 1977
Hubert P. Henderson, professor, Ph.D., North Carolina, 1962
Sara Holroyd, associate professor, M.A., Columbia, 1951
Donald W. Ivey, professor, D.M.A., Illinois, 1962
Phyllis Jenness, professor, M.A., Kentucky, 1958
Aimo Justus Kiviniemi, professor, M.A., Ohio State, 1952
John R. Lindsey, assistant professor, M.M., Illinois, 1972
Rey M. Longyear, professor, Ph.D., Cornell, 1957
Mina F. Miller, assistant professor, M.M., Manhattan School of Music, 1971
Phillip Miller, associate professor, M.M.E., Boston, 1958
Patricia Montgomery, assistant professor, M.M., Boston, 1968
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
William F. Prizer, assistant professor, Ph.D., North Carolina, 1973
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, instructor (part-time), M.A., New Hampshire, 1975
Lucien P. Stark, professor, D.M.A., Michigan, 1968
Thomas W. Tunks, assistant professor, Ph.D., Michigan State, 1973
Judith Vasek, instructor (part-time), M.M.E., Indiana, 1969
Virginia R. Walker, instructor (part-time), A.B., Kentucky, 1943
Cecilia Hoi-Mee Chu Wang, assistant professor, Ph.D., Texas Tech, 1975

THEATRE ARTS
James W. Rodgers, chairman

Wallace N. Briggs, professor, M.A., Kentucky, 1945
Charles Dickens, assistant professor, M.F.A., Western Reserve, 1957
Gvozden Kopani, instructor, M.A., Illinois
John B. Lynaugh, assistant professor, Ph.D., Wisconsin
James W. Rodgers, professor, Ph.D., Michigan, 1968
Raymond A. Smith, associate professor, M.F.A., Western Reserve, 1955
Mary A. Stephenson, associate professor, M.A., Florida, 1963
J. Robert Wills, professor, Ph.D., Case-Western Reserve, 1971

COLLEGE OF HOME ECONOMICS
Marjorie S. Stewart, dean

FAMILY STUDIES: HUMAN DEVELOPMENT AND RESOURCE MANAGEMENT
John F. Crosby, chairman

Lisa K. Barclay, associate professor, Ph.D., Stanford, 1969
Teresa Bax, part-time instructor, M.S., Missouri, 1976
Jacques S. Benninga, assistant professor, Ph.D., George Peabody College, 1976
John F. Crosby, associate professor, Ph.D., Syracuse, 1970
Rose Davis, assistant professor, Ph.D., Kansas State, 1973
Glenda C. Harris, instructor, M.S., Kentucky, 1977
Peggy P. Kimsey, assistant professor, Pennsylvania State, 1977
Mary Langenbrunner, instructor, M.S., Kentucky, 1976
Linda F. Little, assistant professor, M.S., Alabama, 1972
Florence J. Parker, extension specialist, M.S., Kentucky, 1962
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, instructor, M.S., Pennsylvania State, 1974
Helen M. Stevens, extension specialist, M.S., Purdue, 1955
Kathy R. Thornburg, associate professor, Ph.D., Missouri, 1973
M. O'Neal Weeks, associate professor, Ph.D., North Carolina, 1972
George W. Wise, assistant professor, Ph.D., Connecticut, 1976

HUMAN ENVIRONMENT: DESIGN & TEXTILES
Richard Rankin, chairman

Bette Jo Dedic, extension specialist, M.S., Purdue, 1973
Aziz B. Farag, associate professor, M.A., Notre Dame, 1968
Carolyn Flowers, instructor, M.S., Arizona State, 1976
Glenda H. Herman, assistant extension specialist, Ph.D., North Carolina, 1976
Joseph W. Kuhn, instructor, M.A., Florida, 1975
Deborah LaMar, assistant professor, M.S., University of N.C. at Greensboro, 1975
Bettie W. McClaskey, assistant professor, Ph.D., North Carolina, 1976
Betsy McKean, instructor, M.F.A., Virginia Commonwealth University, 1969
Linda Nell, instructor, M.A., Western Kentucky, 1973
Ruth T. Phillips, assistant professor, M.S., Kentucky, 1968
Terry Rothgeb, assistant professor, M.A., Missouri, 1972
Diane G. Smathers, instructor, M.S., Kentucky, 1974
Sandra Smith, extension specialist, M.A., California State at Long Beach, 1975

NUTRITION AND FOOD SCIENCE
Donald Oberleas, chairman

Anna Mae Brenner, associate professor, Ph.D., Tennessee, 1975
Sue W. Burrier, extension specialist, M.S., Kentucky, 1953
Linda Huang Chen, associate professor, Ph.D., Louisville, 1964
Jose Concon, associate professor, Ph.D., Purdue, 1965
Ching Chow, assistant professor, Ph.D., University of Illinois, 1969
Sherrell Foree, associate extension professor, Ph.D., Texas Tech., 1975
Denise Griffith, clinical instructor, M.S., University of Kentucky, 1976
Pat Hammerschmidt, instructor, M.S., Purdue, 1976
Ralph Lane, assistant professor, Ph.D., Louisiana State, 1973
Jeanne Luhr, clinical instructor, B.S., Miami University, 1968; R.D.
Abby Marlatt, professor, Ph.D., California, 1947

Fudeko T. Maruyama, associate extension professor, Ph.D., California, 1955
David Newburg, assistant professor, Ph.D., Boston, 1976
Donald Oberleas, professor, Ph.D., Missouri, 1964
Leonard V. Packett, professor, Ph.D., Texas A & M, 1958
Helen Palmer, clinical instructor, B.S., Kentucky, 1965; R.D.
Joe B. Paulk, associate professor, M.S., Alabama, 1956
Elizabeth Turner, clinical instructor, B.S., Lawrence University, 1947, R.D.

COLLEGE OF LAW

Thomas P. Lewis, dean

Gerald Grant Ashdown, assistant professor, J.D., Iowa, 1972
Richard C. Ausness, professor, LL.M., Yale, 1973
Joseph Randolph Batt, professor, LL.M., Yale, 1960
Carolyn Schmoll Bratt, assistant professor, J.D., Syracuse, 1974
Rutherford B Campbell, Jr., associate professor, LL.M., Harvard, 1971
William Hifner Fortune, associate professor, J.D., Kentucky, 1964
Eugene R. Gaetke, assistant professor, J.D., Minnesota, 1974
John H. Garvey, assistant professor, J.D., Harvard, 1974
Kenneth B. Germain, associate 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
Wilburt 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, associate 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
Eugene French Mooney, Jr., professor, LL.M., Yale, 1963
Paul Oberst, professor, LL.M., Michigan, 1942
Linda J. Peltier, assistant professor, J.D., George Washington, 1973
James R. Richardson, emeritus professor, LL.M., Yale, 1955
John M. Rogers, assistant professor, J.D., Michigan, 1974
Robert G. Schwemm, assistant professor, J.D., Harvard, 1970
Paul C. VanBooven, assistant 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
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,* instructor, M.S.L.S., Kentucky, 1976
Robert E. Cazden, professor, Ph.D., Chicago, 1965
Lois M. Chan, associate 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
Claire McCann,* instructor, M.S.L.S., Kentucky, 1962
Anne Y. McConnell, assistant professor, M.S.L.S., Kentucky, 1967
William Marshall,* instructor, M.L.S., Kent State, 1973
Laura K. Martin, emeritus professor, M.A., Stanford, 1940
JoAnn Rogers, assistant professor, Ph.D., Pittsburgh, 1977
Timothy W. Sineath, professor, Ph.D., Illinois, 1970
James D. Sodt, assistant professor, M.S.L.S., Syracuse, 1974
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
Harold F. Parks, chairman

Robert S. Benton, professor, Ph.D., Duke, 1960
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, associate professor, Ph.D., Tulane, 1965
William D. Martin, assistant professor, Ph.D., Minnesota, 1973
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
Stephen D. Smith, associate professor, Ph.D., Tulane, 1965
Harold H. Traurig, professor, Ph.D., Minnesota, 1963
Miroslava N. Winer, professor, Ph.D., Duke, 1957

ANESTHESIOLOGY
Mark B. Ravin, chairman

Peter P. Bosomworth, professor, M.D., Cincinnati, 1955
William J. Carey, associate professor, M.D., Louisville, 1962
Maria DeBrand, assistant professor, M.D., Academy of Medicine, Warsaw, Poland, 1967
Robert Donham, associate professor, M.D., New York, 1962
Thomas S. Foster, associate professor, Pharm. D.
John E. Plumlee, professor, M.D., Missouri, 1959
Mark B. Ravin, professor, M.D., New York, 1959
David Sprague, assistant professor, M.D., Albany Medical College, 1969
Kentaro Tsueda, associate professor, M.D., Okayama University, 1958
James E. Warren, assistant professor, M.D., Kentucky, 1973
Clara L. Winter, associate professor, M.D., Colorado, 1966
Ballard D. Wright, associate professor, M.D., Kentucky, 1964
Susanne S. Zeok, assistant professor (part-time), M.D., Thomas Jefferson, 1969

Voluntary Faculty

John E. Boso, associate clinical professor, M.D., West Virginia, 1969
C. Mark Bowden, Jr., assistant clinical professor, M.D., Kentucky, 1975
Ben W. Crawford, associate clinical professor, M.D., Louisville, 1955
Edward P. Crawford, associate clinical professor, M.D., Louisville, 1955
Paul Hodel, assistant clinical professor, M.D., Northwestern, 1961

Charles Moller, associate clinical professor, M.D., McGill, Canada, 1947
Robert C. Morris, assistant clinical professor, M.D., Louisville, 1951
James C. Ridenour, assistant clinical professor, M.D., Tennessee, 1967
Saul Rubin, assistant clinical professor, M.D., Georgia, 1943
Joseph Schmidt, assistant clinical professor, M.D., Kentucky, 1970
William E. Waltrip, assistant clinical professor, M.D., Louisville, 1960

BEHAVIORAL SCIENCE
Robert Straus, chairman

Lawrence Busch,* assistant professor, Ph.D., Cornell, 1974
Ronald C. Dillehay,* professor, Ph.D., California, Berkeley, 1962
Thomas R. Ford,* professor, Ph.D., Vanderbilt, 1951
Eugene B. Gallagher, professor, Ph.D., Harvard, 1958
Art Gallaher, Jr.,* professor, Ph.D., Arizona, 1956
Thomas F. Garrity, associate professor, Ph.D., Duke, 1971
Frederick W. Hafferty, assistant professor, Ph.D., Yale, 1976
John V. Haley, professor, Ph.D., Loyola, 1964
Leonard Heller,* associate professor, Ed.D., Kansas, 1972
Jon Hendricks,* assistant professor, Ph.D., Penn State, 1971
Roy K. Jarecky,* professor, Ed.D., Columbia, 1958
Russell A. Jones, associate professor, Ph.D., Duke, 1969
Philip M. Moody, associate professor, Ph.D., Utah, 1967
John A. O'Donnell,* professor, Ph.D., Kentucky, 1960
Garth L. Olde,* professor, Ph.D., West Ontario, Canada, 1960
Marion Pearsall, professor, Ph.D., California, Berkeley, 1950
John Sensenig,* associate professor, Ph.D., Duke, 1969
Gary Shannon,* assistant professor, Michigan, 1970
John B. Stephenson,* professor, Ph.D., North Carolina, 1966
Robert Straus, professor, Ph.D., Yale, 1947
Helen Jean Wiese, assistant professor, Ph.D., North Carolina, 1971
John F. Wilson, assistant professor, Ph.D., Michigan, 1977

*joint appointment,

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, assistant professor, Ph.D., North Carolina, 1969
Robert C. Dickson, assistant professor, Ph.D., Calfornia, Los Angeles, 1970
Alfred S. L. Hu, professor, Ph.D., Oregon, 1957
John J. Hutton, Jr.,* professor, M.D., Harvard, 1964
Eric James, associate professor, Ph.D., Queens, 1970
Roger Allan Laine, assistant professor, Ph.D., Rice, 1970
Robert L. Lester, professor, Ph.D., California, Institute of Technology, 1956
Robert E. Rhoads, assistant professor, Ph.D., George Washington, 1971
George W. Schwert, professor, Ph.D., Minnesota, 1943
Alfred D. Winer, associate professor, Ph.D., Duke, 1957

*joint appointment

COMMUNITY MEDICINE
Philip Weiler, chairman

David Bauman, associate professor, Ph.D., West Virginia, 1968
Ernest W. Chick, professor, M.D., Duke, 1953
Happa B. Clifford, assistant professor, M.A., American University, 1954; D.S.P., Université de Lyon, France, 1970
David L. Cowen, professor, M.D., Colorado, 1959
Norman L. Goodman, associate professor, Ph.D., Oklahoma, 1965
Joseph Hamburg,* professor, M.D., Hahnemann, 1951
Gordon S. Harmon, clinical instructor (part-time), M.P.H., Oklahoma, 1973
Donald L. Hochstrasser, professor, Ph.D., Oregon, 1961; M.P.H., California, 1969
Roy K. Jarecky,* professor, Ed.D., Teachers College, Columbia, 1958
William S. Jordan, Jr., professor, M.D., Harvard, 1942
Jane Kotchen, assistant professor, M.D., M.P.H., Western Reserve, 1964
Frank R. Lemon, professor, M.D., Loma Linda, 1950; M.P.H., Tulane, 1955
Martin B. Marx, associate professor, D.V.M., Texas A&M, 1951; M.P.H., Harvard, 1959; Ph.D., North Carolina, 1968
Samuel R. Scott,* assistant professor, M.D., Bowman Gray School of Medicine of Wake Forest, 1969
Coy D. Smith, assistant professor, Dr. P.H., North Carolina, 1972
Grant W. Somes, assistant professor, Ph.D., Kentucky, 1975
H. Mac Vandiviere, professor, M.D., North Carolina, 1960
Philip Weiler, associate clinical professor (part-time), M.D., Tulane, 1965; M.P.H., Harvard, 1970; M.P.A., Harvard, 1971
Tom F. Whayne, professor, M.D., Washington, 1931; Dr. P.H., (emeritus), Harvard, 1950

*joint appointment

Voluntary Faculty

W.B. Rogers Beasley, assistant clinical professor, M.D., Tennessee, 1949
M.E. Briscoe, assistant clinical professor, Ph.D., Florida, 1970
Buster F. Brown, assistant clinical professor, M.D., Louisville, 1953
Grace Eddison, associate clinical professor, M.D., Columbia, 1960
C. Hernandez, assistant clinical professor, M.D., Havana, Cuba, 1956; M.P.H., California, Berkeley, 1963
Dan A. Martin, clinical professor, M.D., Harvard, 1952
William McElwain, associate clinical professor, Ph.D., Louisville, 1958; M.P.H., Johns Hopkins, 1967
Joseph W. Skaggs, assistant clinical professor, D.V.M., Ohio State, 1955; California, Berkeley, 1959
G. David Steinman, associate clinical professor, M.D., Baylor, 1963; M.P.H., Johns Hopkins, 1967
John E. Trevey, assistant clinical professor, M.D., Medical College of Virginia, 1959

DIAGNOSTIC RADIOLOGY
Harold D. Rosenbaum, chairman

Vincent P. Chuang, associate professor, M.D., National Taiwan University, 1965
Frank Deland,* professor, M.D., Louisvillle, 1952
A.S. DeSai, assistant professor, M.B.B.S., Baroda, India, 1968
Guy T. Ellis, assistant professor, M.D., Kentucky, 1969
Andrew Fried, assistant professor, M.D., Alabama, 1968
Del Henderson, associate-in-radiology, R.T., California, Los Angeles, 1960
Jack Hildner, instructor, R.T., St. Joseph Hospital, Flint, Michigan, 1964; P.A., Kentucky, 1973 (Allied Health)
E. Edmund Kim, assistant professor, M.D., Seoul National University, 1966
J. Krumpelman, assistant professor, M.D., Kentucky, 1971
Thomas O. Larson, assistant professor, M.D., Wisconsin, 1969
Arthur Lieber, professor, M.D., Louisville, 1953
James G. Lorman, associate professor, M.D., Indiana, 1944
Leonidas Mostowycz, associate professor, M.D., Innsbruck, Austria, 1951

Michael Oliff, assistant professor, M.D., George Washington University, 1972
Calixto Pulmano, assistant professor, M.D., Santo Tomas, Manila, 1962
Harold D. Rosenbaum, professor, M.D., Harvard, 1944
Joseph A. Sayeg,* associate professor, Ph.D., California, Berkeley, 1954
Albert Selke, associate professor, M.D., Pennsylvania, 1959

*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
Gail E. Barker, Jr., assistant clinical professor, M.D., North Carolina, 1965
Harry J. Batts, assistant clinical professor, M.D., Louisville, 1954
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
Colby N. Cowherd, assistant clinical professor, M.D., Louisville, 1949
James R. Damron, assistant clinical professor, M.D., Indiana, 1971
Alan K. David, assistant clinical professor, M.D., Missouri, 1971
Darryl Dochterman, assistant clinical professor, M.D., Iowa, 1966
Zymunt S. Gierlach, associate clinical professor, M.D., Wayne State, 1946
Robert B. Groves, assistant clinical professor, M.D., Iowa, 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. Quillin, assistant clinical professor, M.D., Vanderbilt, 1944
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
John B. Stewart, assistant clinical professor, M.D., Pennsylvania, 1952
Ouida F. Tisdall, assistant clinical professor, M.D., Kentucky 1970

FAMILY PRACTICE
Max A. Crocker, acting chairman

Richard A. Allnutt, associate professor, M.D., Cincinnati, 1949
Ted D. Ballard, associate professor, M.D., Louisville, 1961
James A. Burdette, professor, M.D., Tennessee, 1952
William K. Burkhart, assistant professor, M.D., Tennessee, 1961
Max A. Crocker, associate professor, M.D., Tennessee, 1963
Thomas Andrew Dale, II, assistant professor, M.D., Kentucky, 1972
Rachel Eubank, assistant professor, M.S., Kentucky, 1966
William S. Foley, assistant professor, M.D., Kentucky, 1970
Frank R. Lemon,* professor, M.D., Lomo Linda University, 1945
John Miller, assistant professor, D.M.D., Iowa, 1970
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., Duval Medical Center, 1949
Robert C. Wesley,* associate professor, D.M.D., Louisville, 1954
H. Thomas Wiegert, associate professor, M.D., Washington, 1955

*joint appointment

Voluntary Faculty

James W. Baker, clinical instructor, M.D., West Virginia, 1968
Stephen M. Bobys, clinical instructor, M.D., Virginia, 1971
R. Eugene Bowling, associate clinical professor, M.D., Tulane, 1955
Kent Brown, assistant clinical professor, M.D., Louisville, 1962
Robert C. Burkhart, associate clinical professor, M.D.
Gus A. Bynum, clinical instructor, M.D., Mississippi, 1972
Joseph G. Caldwell, clinical instructor, M.D., Ohio State, 1964
James D. Crase, assistant clinical professor, M.D., Louisville, 1962
Philip S. Crossen, associate clinical professor, M.D., Washington, 1954
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
Robert P. Goodman, assistant clinical professor, M.D., Vanderbilt, 1963
Richard F. Hench, associate clinical professor, M.D., Pennsylvania, 1956
Samuel O. Hodges, assistant clinical professor, M.D., Louisville, 1954
D. Vertrees Hollingsworth, assistant clinical professor, M.D., Cincinnati, 1963
Stephen Jasper, clinical instructor, M.D., Louisville, 1967
Van R. Jenkins, associate clinical professor, M.D., Louisville, 1962
Stephen B. Kelley, assistant clinical professor, M.D., Ohio, 1962
David C. Lewis, associate clinical professor, M.D., Louisville, 1959
Paul F. Maddox, associate clinical professor, M.D., Louisville, 1952
Dan A. Martin, clinical professor, M.D., Harvard, 1952
William K. Massie, associate clinical professor, M.D., Harvard, 1937
William T. Maxson, II, assistant clinical professor, M.D., Kentucky, 1964
Glenn I. Moore, clinical instructor, M.D., Kentucky, 1969
John E. Myers, associate clinical professor, M.D., Louisville, 1954
Preston P. Nunnelley, clinical instructor, M.D., Kentucky, 1970
Charles L. Preston, associate clinical professor, M.D., Cincinnati, 1950
Harold L. Reams, assistant clinical professor, M.D., Vanderbilt, 1963
Stephen C. Schindler, assistant clinical professor, M.D., St. Louis, 1961
Wilson Sebastian, clinical instructor, M.D., Kentucky, 1968
Lee C. Shine, assistant clinical professor, M.D., Vanderbilt, 1959
Orville J. Stein, assistant clinical professor, M.D., 1962
Grady Stumbo, clinical instructor, M.D., Kentucky, 1971
Michael D. Thomas, assistant clinical professor, M.D., Louisville, 1962
William H. Wagner, assistant clinical professor, M.D., Kentucky, 1965
Gary R. Wallace, clinical instructor, M.D., Kentucky, 1966
James B. Wessinger, clinical instructor, M.D., Michigan, 1966
Paul Williamson, clinical instructor, M.D., Kansas, 1973
Elizabeth A. Wright, clinical instuctor, M.D., Kentucky, 1967

MEDICAL MICROBIOLOGY AND IMMUNOLOGY
Norman Goodman, acting chairman

Charles T. Ambrose, professor, M.D., Johns Hopkins, 1955
Robert J. Baumann, assistant professor, M.D., Western Reserve, 1965
Raymond B. Bridges,* assistant professor Ph.D., Vanderbilt, 1969 (Oral Biology)
Nirmal K. Das, associate professor, Ph.D., Wisconsin, 1957
Mary G. Leonidiakis, assistant professor, M.S.S.W., Columbia, 1949
Thomas T. Lillich,* associate professor, Ph.D., North Carolina, 1968 (Oral Biology)

Donald M. Pett, assistant professor, Ph.D., Pennsylvania, 1970
Thomas L. Roszman, associate professor, Ph.D., Michigan State, 1966
Dhirendra B. Shah, assistant professor, Ph.D., Wisconsin, 1962
H. Earle Swim, professor, Ph.D., Western Reserve, 1952

*joint appointment

MEDICINE

James W. Hollingsworth, chairman

James W. Anderson, associate professor, M.D., Northwestern, 1961
Richard Baehler, assistant professor, M.D., Marquette, 1969
John G. Banwell, professor, M.D., Oxford, 1967
Michael P. Barron, (part-time) clinical instructor, M.D., Vermont, 1967
David H. Boldt, assistant professor, M.D., Tufts, 1969
Patrick G. Brady, assistant professor, M.D., New Jersey College of Medicine, 1968
G. Richard Braen, assistant professor, M.D., Cincinnati, 1972 (Director, Emergency Medicine)
Ward E. Bullock, professor, M.D., Temple, 1959
N.K. Burki, assistant professor, M.D., Ph.D., University of London, 1969
Frank Cescio, associate professor, M.D., Buffalo, 1954
James S. Cole, associate professor, M.D., Iowa, 1963
J. Donald Coonrod, associate professor, M.D., Johns Hopkins, 1963
John J. Curtis, assistant professor, M.D., Georgetown, 1970
Philip DeSimone, assistant professor, M.D., Vermont, 1967
James A. Flueck, assistant professor, M.D., Minnesota, 1967
Robert E. French, associate professor, M.D., Ohio State, 1963
John H. Galla, assistant professor, M.D., Cornell, 1967
Leonard S. Gettes, professor, M.D., Pennsylvania, 1958
Ralph Giannella, associate professor, M.D., Albany Medical College, 1965
Jon P. Gockerman, associate professor, M.D., Chicago, 1967
*Theodore N. Guigla, associate professor, M.D., Louisville, 1956
Gordon P. Guthrie, assistant professor, M.D., Columbia, 1970
Henry G. Hanley, associate professor, M.D., Yale, 1966
James W. Hollingsworth, professor, M.D., Duke, 1947
Stanley K. Huffman, associate professor, M.D., George Washington, 1963
John J. Hutton, professor, M.D., Harvard, 1964
Theodore A. Kotchen, associate professor, M.D., Western Reserve, 1964
Chien-Suu Kuo, assistant 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
Robert G. Luke, professor, M.D., Glasgow University, 1959
Paul Mandlestam, professor, M.D., Ph.D., Harvard, 1953
Ewa Marciniak, associate 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
Ira P. Mersack, assistant clinical professor (part-time), M.D., Kentucky, 1966
Robert C. Noble, associate professor, M.D., Duke, 1964
Richard O'Neill, associate professor, M.D., University College, Dublin, Ireland, 1955
C. Pratap Reddy, assistant professor, M.D., Osmania Medical College, 1968
E. Douglas Rees, professor, M.D., Yale, 1954
Ronald J. Saykaly, assistant professor, M.D., California, Los Angeles, 1969
Eileen Scherl, instructor, M.D., Maryland, 1973
Samuel Scott, assistant professor, M.D., Bowman Gray, 1969
Robert Siegell, associate professor, M.D., Columbia, 1955
Borys Surawicz, professor, M.D., Stefan Batory University, Poland, 1939
Donald Vine, assistant professor, M.D., Stanford, 1966
Peter D. Walzer, assistant professor, M.D., Albany Medical College, 1968
Fredrick L. Weber, assistant professor, M.D., Cornell, 1970
Robert Williams, assistant professor, M.D., Alabama, 1972

Voluntary Faculty

Kenneth Andrews, assistant clinical professor, M.D., Vanderbilt, 1936
James Bard, associate clinical professor, M.D., Marquette, 1958
Stanley I. Bernstein, assistant clinical professor, M.D., Louisville, 1956
J. Hunter Black, assistant clinical professor, M.D., Cornell, 1959
Cary Blaydes, associate clinical professor, M.D., Virginia, 1954
Richard Carpenter, assistant clinical professor, M.D., Vanderbilt, 1962
Allen Cornish, clinical professor, M.D., Columbia College of Physicians and Surgeons, 1940
Jeffrey B. Crandall, clinical instructor, M.D., Boston School of Medicine, 1967
Matthew Darnell, clinical professor, Boston School of Medicine, 1943
M. Allen Dawson, assistant clinical professor, M.D., Kentucky, 1964
George Dozier, assistant clinical professor, M.D., Louisville, 1950
Stephen Edelstein, assistant clinical professor, M.D., Harvard, 1961
Charles Elliott, clinical instructor, M.D., Medical College of Virginia, 1970
George 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
George L. Foster, clinical instructor, M.D., Cincinnati, 1961
Richard French, associate clinical professor, M.D., Columbia College of Physicians and Surgeons, 1948
James G. Gay, assistant clinical professor, M.D., Virginia, 1965
C. Richard Gill, associate clinical professor, M.D., George Washington, 1955
Armond Gordon, clinical instructor, M.D., Louisville, 1945
J. Frank Greene, clinical instructor, M.D., Louisville, 1944
Joseph C. Harkness, clinical instructor, M.D., California, Irvine, 1966
Richard Hench, assistant clinical professor, M.D., Temple, 1956
Thomas Hobbs, associate clinical professor, M.D., Northwestern, 1938
Ardis D. Hoven, clinical instructor, M.D., Kentucky, 1970
Jamie J. Jacobs, assistant clinical professor, M.D., Vermont College of Medicine, 1965
David Johnson, associate clinical professor, M.D., Duke, 1951
Nicholas Kavanaugh, associate clinical professor, M.D., Harvard, 1949
Dennis Kelley, assistant clinical professor, M.D., Downstate Medical Center (Brooklyn), 1969
Karl Kelty, associate clinical professor, M.D., Tennessee, 1943
Nelson Lamkin, Jr., clinical instructor, M.D., Louisville, 1968
Glenn Marsh, assistant clinical professor, M.D., Emory, 1961
William T. Maxson, assistant clinical professor, M.D., Kentucky, 1964
William T. McDaniel, associate clinical professor, M.D., Indiana School of Medicine, 1944
Franklin Moosnick, clinical professor, M.D., Cincinati, 1940
John Myers, associate clinical professor, M.D., Louisville, 1954
James 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, associate clinical professor, M.D., Cincinnati, 1944
Douglas Ruff, associate clinical professor, M.D., Medical College of the State of South Carolina, 1946

S. Randolph Scheen, associate clinical professor, M.D., Louisville, 1953
Stephen Schindler, assistant clinical professor, M.D., St. Louis, 1961
Ewell Scott, assistant clinical professor, M.D., Western Reserve, 1966
Thornton Scott, clinical professor, M.D., Cornell, 1934
Lee Shine, assistant clinical professor, M.D., Vanderbilt, 1959
W. Clifton Smith, clinical instructor, M.D., Washington University, 1969
Earle E. Spencer, clinical instructor, M.D., Tulane, 1952
Abdolkarim Tahanasab, clinical instructor, M.D., University of Tehran, 1969
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
Wilk O. West, associate clinical professor, Medical College of Virginia, 1955

NEUROLOGY
David B. Clark, chairman

Robert Baumann, assistant professor, M.D., Western Reserve, 1965
David B. Clark, professor, M.D., Chicago, 1946
H. Douglas Jameson, associate professor, M.D., Wisconsin, 1958
Lorraine Josifek,* professor, M.D., Kentucky, 1972
Mary Leonidakis, assistant professor, M.S.S.W., Columbia, 1949
William R. Markesbery, associate professor, M.D., Kentucky, 1964

*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
Helen Burgess, instructor, C.N.M., and M.S., New York, 1972
Marjorie Crosby, instructor, C.N.M., Kentucky, 1976
Elvis S. Donaldson, assistant professor, M.D., Kentucky, 1971
John L. Duhring, professor, M.D., Pennsylvania, 1959
John W. Greene, Jr., professor, M.D., Pennsylvania, 1952
Van R. Jenkins, associate clinical professor (part-time), M.D., Louisville, 1962
Preston P. Nunnelly, clinical instructor (part-time), M.D., Kentucky, 1970
James E. O'Neill, assistant professor, M.D., Kentucky, 1972
Eunice E.D. Robinson, instructor, C.N.M., SUNY, 1972
Margaret A. Strickhouser, instructor, C.N.M., Downstate Medical Center, Brooklyn, 1974
John R. van Nagell, Jr., professor, M.D., Pennsylvania, 1967
Emery A. Wilson, assistant professor, M.D., Kentucky, 1968

Voluntary Faculty

Stephen M. Bobys, clinical instructor, M.D., Virginia, 1971
Artur E. Butterfield, assistant clinical professor, M.D., Loma Linda University, California, 1958
Eugene A. Castle, associate clinical professor, M.D., Oklahoma, 1953
G. Nelson Copeland, clinical instructor, M.D., Tennessee, 1960
Phillip Crossen, associate clinical professor, M.D., Washington, 1954
Donald Edward Edger, associate clinical professor, M.D., Cincinnati, 1955
William C. Ellis, 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
Lewis P. Hicks, assistant clinical professor, M.D., North Carolina, 1966
James Kenneth Hurlocker, assistant clinical professor, M.D., Tennessee, 1956
Billy J. Jackson, clinical instructor, M.D., Louisvillle, 1962
Glenn Irvin Moore, clinical instructor, M.D., Kentucky, 1969
Charles L. Preston, clinical instructor, M.D., Cincinnati, 1950
Barbara Schroeter, clinical instructor, B.S., 1976
Beverly Ann Smith, assistant clinical professor, M.D., Tennessee, 1966
Geraldine W. Spurlin, clinical instructor, M.D., Kentucky, 1968
James L. Stambaugh, assistant clinical professor, M.D., Louisville, 1948
J. Dennis Steen, clinical instructor, M.D., Jefferson Medical College of Philadelphia, 1966
James B. Stith, clinical instructor, M.D., Louisville, 1944
David Stephen Swan, assistant clinical professor, M.D., Wayne State, 1962
Charles N. Tarkington, assistant clinical professor, M.D., St. Louis, 1953
Claude W. Trapp, associate clinical professor, M.D., Cornell, 1950
William Harry Wagner, clinical instructor, M.D., Kentucky, 1965
Gary R. Wallace, associate clinical professor, M.D., Kentucky, 1966
Francis E. Wells, associate clinical professor, M.D., Louisville, 1954
Elwood L. Woolsey, associate clinical professor, M.D., Stanford, 1935; M.S., Pennsylvania, 1950

OPHTHALMOLOGY
Richard A. Kieler, acting chairman

George Birenbaum, clinical instructor (part-time), M.D., Kentucky, 1967
Wilbur C. Blount, assistant professor, M.D., Ohio State, 1959
John W. Garden, (part-time) assistant clinical professor, M.D., North Carolina, 1961
Richard A. Kielar, associate professor, M.D., Cincinnati, 1962
Michael Minix, clinical instructor (part-time), M.D., Kentucky, 1968
William N. Offutt, IV, assistant clinical professor (part-time), M.D., Pennsylvania, 1933
John C. Sparrow, clinical instructor (part-time), M.D., Pennsylvania, 1972
William Wood, (part-time) clinical instructor, M.D., Kentucky, 1970

Voluntary Faculty

William Preston, clinical instructor, M.D., Vanderbilt, 1936
Joseph Saunders, assistant clinical professor, M.D., Tulane, 1937
James Stambaugh, assistant clinical professor, M.D., Louisville, 1948
J. Dennis Steen, clinical instructor, M.D., Jefferson Medical College of Pennsylvania, 1965
Claude Trapp, associate clinical professor, M.D., Cornell, 1950
Gary R. Wallace, assistant clinical professor, M.D., Kentucky, 1956
Francis B. Wells, associate clinical professor, M.D., Louisville, 1954

PATHOLOGY
Abner Golden, chairman

Sidney J. Bennett, assistant prfessor, Ph.D., Tulane, 1968
Dinyar Bhathena, assistant professor, M.D., S.C.B. Medical College Hospital, Cuttack (Orissa), 1961
Harold P. Brusman, assistant professor, M.D., Chicago, 1969
Marcelo Canlas, assistant professor, M.D., St. Thomas, 1946
Frank Deland,* professor, M.D., Minnesota, 1952; M.S., Louisville, 1956
Abner Golden, professor, M.D., Harvard, 1942
David M. Goldenberg, professor, M.D., Heidelberg, Germany, 1966
Norman Goodman,* associate professor, Ph.D., Oklahoma, 1965 (part-time)
Richard Kielar,* associate professor, M.D., Cincinnati, 1962
Harvey L. Kincaid, assistant professor, Ph.D., Texas, Houston, 1971
J. Parker LaBach, instructor, M.D., Kentucky, 1973
C. Charlton Mabry,* professor, M.D., Emory, 1954
William R. Markesbery,* professor, M.D., Kentucky, 1964
A. Wendell Musser, professor, M.D., Indiana, 1956
William N. O'Conner, instructor, M.D., National University of Ireland (County of Cork), 1972
Peter R. Oeltgen, assistant professor, Ph.D., Loyola, 1973
Timothy L. Overman, assistant professor, Ph.D., Cincinnati, 1971
Richard B. Passey, assistant professor, Ph.D., Colorado State, 1969
Deborah E. Powell, associate professor, M.D., Tufts, 1965
Ralph D. Powell, associate professor, M.D., Boston, 1958
F. James Primus, assistant professor, Ph.D., Tulane, 1972
Irene E. Roeckel, instructor, M.D., Heidelburg, West Germany, 1946
Isobel Rutherford, assistant professor, M.D., Queen's University (Kingston, Ontario, Canada), 1957
Jesse E. Sisken, professor, Ph.D., Columbia, 1957
Irena J. Sniecinski, instructor, M.D., Silesian Medical Academy (Poland), 1968
Norbert W. Tietz, professor, Ph.D., Technical University of Stuttgarte, Germany, 1950
Daniel L. Weiss, professor, M.D., Columbia, 1946
John P. Wyatt, professor, M.D., Manitoba, Canada, 1938
Kokichi Yoneda, assistant professor, M.D., Nara Medical College, Japan, 1968
Stephen G. Zimmer, assistant professor, Ph.D., Colorado, 1973

Voluntary Faculty

Malcolm L. Barnes, clinical professor, M.D., Louisville, 1935
Buster F. Brown, assistant clinical professor, M.D., Louisville, 1953
P.R. Caffrey, assistant clinical professor, M.D., St. Louis, 1957
H. Davis Chipps, clinical professor, M.D., Louisville, 1934
Louis D. Dubilier, assistant clinical professor, M.D., Rochester, 1960
E.J. Fadell, associate clinical professor, M.D., St. Louis, 1957
Ullin W. Leavell, Jr., clinical professor, M.D., Duke, 1945
John J. Loughrin, clinical professor, M.D., Michigan, 1952
James T. McClellan, clinical professor, M.D., Minnesota, 1950
Ronald A. Moss, associate clinical professor, M.D., Iowa, 1951
Harold E. Resinger, associate clinical professor, M.D., Nebraska, 1954
Joe C. Savage, clinical instructor, LL.M., Harvard
Elon B. Tucker, assistant clinical professor, M.D., Kentucky, 1934
Len Wallace, assistant clinical professor, M.D., Nebraska, 1956
Kazuko Yoneyama, assistant clinical professor, M.D., Toho University, Japan, 1957

PEDIATRICS
Jacqueline A. Noonan, chairperson

Robert A. Beargie,* associate professor, M.D., Ohio State, 1957
Robert P. Belin,* associate professor, M.D., Tufts, 1962
William Buntain,* assistant professor, M.D., Dalhousie University, Halifax, Nova Scotia, Canada, 1966
Joseph A. Burke, assistant professor, M.D., Georgetown, Washington, D.C., 1964
Jacqueline Campbell, assistant professor, M.D., Kentucky, 1972
David B. Clark,* professor, Ph.D., Chicago, 1940; M.D., Chicago, 1946
Carol M. Cottrill, assistant professor, M.D., Cincinnati, 1971
M. Douglass Cunningham, assistant professor, M.D., Cincinnati, 1965
Nirmala Desai, assistant professor, MDDS, M.D., Faculty of Medicine, Baroda, India, 1966
Peggy B. Falace, clinical instructor (part-time), M.D., Chicago, 1965
Doane Fischer, professor, M.D., Temple, Pennsylvania, 1954
Kenneth L. Gerson, assistant clinical professor (part-time), M.D., Ohio State, 1958
William W. Green, associate professor, Ph.D., Case Western Reserve, 1970
Martha F. Greenwood, associate professor, M.D., Kentucky, 1968
C. Philip Holland, professor, M.D., Louisville, 1954
Nancy H. Holland, professor, M.D., Louisville, 1954
Dorothy R. Hollingsworth, professor, M.D., Virginia, 1950
Hector James,* assistant professor, M.D., University of Buenos Aires, Brazil, 1967
Gregory Johnson, assistant professor, M.D., Washington University, 1971
Michael B. Kurtz, assistant professor, M.D., Pennsylvania, 1964
Priscilla Lynd, assistant professor, M.D., Kentucky, 1968
C. Charlton Mabry, professor, M.D., Emory, Atlanta, 1954
Claudia McEwen,* assistant professor, M.D., Minneapolis, 1971
Susan McFarland,* assistant professor, Ph.D., Mississippi, 1972
Jacqueline A. Noonan, professor, M.D., Vermont Medical School, 1954
Albert C. Selke, Jr.,* associate professor, M.D., Pennsylvania, 1959
Linda Walters, associate professor, M.D., Indiana, 1962
H. David Wilson, assistant professor, M.D., St. Louis, 1966
Betty I. Wolf, assistant clinical professor (part-time), M.D., Chicago, 1965

Voluntary Faculty

Humildad Ansures, 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
Timothy Costich, assistant clinical professor, M.D., Kentucky, 1973
Gregory 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
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
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
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
James W. Rackley, associate clinical professor, M.D., Tennessee, 1955

Joan E. Rider, associate clinical professor, M.D., Cornell, 1950
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, clinical instructor, 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
Robert B. Warfield, associate clinical professor, M.D., Jefferson Medical College, 1933
William T. Watkins, clinical instructor, M.D., Vanderbilt, 1960
John Whalley, assistant clinical professor, M.D., Bowman Gray, 1973
Carl L. Wheeler, associate clinical professor, M.D., Louisville, 1937
James G. Wilhite, clinical instructor, M.D., Tennessee, 1957
Thomas M. Wilson, clinical instructor, 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 K. Martin, chairman

Tihamer Z. Csaky, professor, M.D., Budapest, 1939
Louis Diamond,* associate professor, Ph.D., Maryland, 1967
Donald F. Diedrich, professor, Ph.D., Wisconsin, 1959
John A. Dougherty,* assistant professor, Ph.D., Minnesota, 1973
Jerome A. Dominic, clinical instructor (part-time), Ph.D., Michigan State, 1970; M.D., Kentucky, 1974
James W. Flesher, associate professor, Ph.D., Loyola, 1958
Leonard S. Gettes,* professor, M.D., Pennsylvania, 1958
Helmut A. Gordon, professor, M.D., Budapest, 1932
Ralph E. Miller, associate professor, M.D., Harvard 1961; D.Sc., Harvard, 1970
E. Douglas Rees,* professor, M.D., Yale, 1954
Abraham Wikler,* professor, M.D., Long Island College of Medicine, 1935

*joint appointment

Voluntary Faculty

Charles W. Gorodetzky, associate professor, M.D., Boston, 1962; Ph.D., Kentucky, 1975
K. C. Huang, professor, M.D., Yet-sen Medical School, Canton, China, 1940; Ph.D., Columbia, 1953
Donald R. Jasinski, assistant professor, M.D., Illinois, 1963
William R. Martin, professor, M.D., Illinois, 1953
Thomas G. Scharff, professor, Ph.D., Rochester, 1956
William J. Waddell, professor, M.D., North Carolina, 1955
S. Y. Yeh, assistant professor, Ph.D., Iowa, 1959

PHYSIOLOGY AND BIOPHYSICS
Fred W. Zechman, chairman

Barbara A. Birge, instructor (part-time), M.S., Kentucky, 1969
Louis L. Boyarsky, professor, Ph.D., Chicago, 1948
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
David Lally, assistant professor, Ph.D., Hawaii, 1973
Cobern E. Ott, assistant professor, Ph.D., Mississippi, 1971
Bertram Peretz, associate professor, Ph.D., Iowa, 1968
Judith D. Pratt, associate professor, Ph.D., Duke, 1958
David C. Randall, assistant 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
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
Arnold M. Ludwig, chairman

Billie M. Ables, associate professor, Ph.D., Purdue, 1954
Robert G. Aug, professor, M.D., Cincinnati, 1955
Frank R. Bowers, assistant professor, M.D., Ohio State, 1962
Jeffrey Brandsma, associate professor, Ph.D., Pennsylvania, 1971
Dennis R. Brightwell, assistant professor, M.D., Iowa, 1971
Gene N. Combs, assistant professor, M.D., Kentucky, 1972
G. Michael Dempsey, assistant professor, M.D., Colorado, 1968
John A. Dougherty, assistant professor, Ph.D., Minnesota, 1973
William G. Drew, associate professor, Ph.D., Tennessee, 1969
Robert G. Graucher, assistant professor, M.D., Kentucky, 1972
Lowell S. Husband, assistant professor, M.D., Mississippi, 1966
Carol Iglauer, assistant professor, Ph.D., Michigan, 1972
Janet H. Jones, assistant professor, M.D., Kentucky, 1971
Kim S. Larmore, assistant professor, M.D., Wisconsin, 1972
Arnold M. Ludwig, professor, M.D., Pennsylvania, 1958
Patricia Maffeo, assistant professor, Ph.D., Syracuse, 1974
Peter A. Mansky, assistant professor, M.D., SUNY, Buffalo, 1968
Maxie C. Maultsby, associate professor, M.D., Case-Western Reserve, 1957
John R. Neill, assistant professor, M.D., Maryland, 1973
James C. Norton, assistant professor, Ph.D., Arizona, 1970
Arvil C. Reeb, Jr. assistant professor, M.S.S.W., Louisville, 1967
Douglas C. Ruth, assistant professor, M.D., Kentucky, 1972
Myron G. Sandifer, professor, M.D., Harvard, 1947
Hugh A. Storrow, professor, M.D., Southern California, 1950
Frida G. Surawicz, associate professor, M.D., Munich, Germany, 1943
Lane Veltkamp, Jr., associate professor, M.S.W., Michigan State, 1964
William D. Weitzel, assistant professor, M.D., St. Louis, 1968
Richard Welsh, associate professor, M.S.S.W., Iowa, 1966
Abraham Wikler, professor, M.D., Long Island College of Medicine, 1935
Cornelia B. Wilbur, professor, M.D., Michigan, 1939 (emeritus)
Melbourne A. Williams, assistant professor, M.D., Vanderbilt, 1971

Voluntary Faculty

Janet M. Boog, clinical instructor, M.D., New York Medical College, 1939
Earl W. Christensen, assistant clinical professor, M.D., St. Louis, 1951
Erling W. Eng, assistant professor, Ph.D., Northwestern, 1952
Irving A. Gail, associate clinical professor, M.D., Cincinnati, 1939

Martin L. Gebrow, assistant clinical professor, M.D., Kentucky, 1964
Robert Granacher, assistant clinical professor, M.D., Kentucky, 1972
John D. Griffith, associate clinical professor, M.D., Tennessee, 1955
Helen L. Hallock, assistant clinical professor, M.D., Louisville, 1947
Jesse G. Harris, clinical professor, Ph.D., Duke, 1955
Jimmie D. Hawthorne, assistant clinical professor, M.D., Tennessee, 1955
Norman S. Jessop, assistant clinical professor, Ph.D., Illinois, 1971
David C. Kay, associate clinical professor, M.D., Illinois, 1958
David H. Looff, associate clinical professor, M.D., Maryland, 1954
Loren L. Miller, assistant clinical professor, Ph.D., Kentucky, 1971
Elizabeth C. Penick, assistant clinical professor, Ph.D., Washington, St. Louis, 1974
Pedro M. Ruiz, clinical instructor, M.D., Havana, Cuba, 1943
Doug Ruth, assistant clinical professor, M.D., Kentucky, 1972
Nat H. Sandler, assistant clinical professor, M.D., Tennessee, 1955; M.P.H., North Carolina, 1971
Mike 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
Carl Wiesel, associate clinical professor, M.D., Michigan, 1939

RADIATION MEDICINE
Yosh Maruyama, chairman

John Calkins, associate professor, Ph.D., Texas, 1963
Ralph Christiansen,* assistant clinical professor, Ph.D., California, Berkeley, 1971
Charles Coffey, II, assistant professor, Ph.D., Purdue, 1975
John J. Coupal,* assistant clinical professor, Ph.D., Purdue, 1969
Frank Deland, professor, M.D., Louisville, 1952; M.S., Minnesota, 1956
George A. Digenis,* associate clinical professor, Ph.D., Wisconsin, 1964
Jose M. Feola,* assistant clinical professor, Ph.D., Minnesota, 1974
Euishin Edmund Kim, assistant professor, M.D., Seoul National University, Korea, 1966
Yosh Maruyama, professor, M.D., California, 1955
Mary F. Reed, assistant professor, Ph.D., California, 1968
Joe Sayeg, associate professor, Ph.D., California, Berkeley, 1954
Guy Simmons, assistant professor, Ph.D., Cincinnati, 1972
Ray W. Ware, clinical instructor, M.D., Texas, Galveston, 1955
Leonard Wilson, assistant professor, B.S., Eastern Kentucky, 1958
Don E. Wrede, associate professor, Ph.D., Cincinnati, 1963

SURGERY
Ward O. Griffen, Jr., chairman

Robert P. Belin, professor, M.D., Tufts, 1962
Brack A. Bivins, assistant professor, Kentucky, 1970
H. Martin Blacker, associate professor, M.D., Nebraska, 1959; M.S., Nebraska, 1959
Phillip K. Blevins, assistant professor, M.D., Kentucky, 1967
William H. Brooks, assistant professor, M.D., Kentucky, 1969
Thomas D. Brower, professor, M.D., Washington University, 1947
D. Kay Clawson, professor, M.D., Harvard, 1952
C. Robert Combs, assistant professor, M.D., Kentucky, 1969
Michael E. Daugherty, assistant professor, M.D., Kentucky, 1966
Marcus L. Dillon, professor, M.D., Duke, 1947
Calvin B. Ernst, professor, M.D., Michigan, 1959
Ward O. Griffen, Jr., profesor, M.D., Cornell, 1953; Ph.D., Minnesota, 1963
Patrick F. Hagihara, associate professor, M.D., Albany, 1960
John Kavanaugh, assistant professor, M.D., St. Louis, 1968
Austin S. Litvak, associate professor, M.D., Virginia, 1958
Bruce A. Lucas, assistant professor, M.D., Duke, 1965
Edward A. Luce, associate professor, M.D., Kentucky, 1965
Sally S. Mattingly, assistant professor, M.D., Vanderbilt, 1972
J. William McRoberts, professor, M.D., Cornell, 1959
William R. Meeker, associate professor, M.D., Alabama, 1957; M.S., Minnesota, 1974
John J. Mulcahy, assistant professor, M.D., Georgetown, 1966; Ph.D., Michigan, 1972; M.S., Minnesota, 1974
Charles R. Sachatello, professor, M.D., Yale, 1961
Donald E. Slagel, associate professor, M.D., Wisconsin, 1961
Edward P. Todd, assistant professor, M.D., Baylor, 1969; Ph.D., Baylor, 1969
William G. Winter, associate professor, M.D., Harvard, 1963
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)
Harry L. Bailey, clinical instructor, M.D., Vanderbilt, 1962 (Orthopedics)
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
Melvin L. Dean, assistant clinical professor, M.D., Louisville, 1940
Fernando Domingquez, clinical instructor, M.D., Mexico, 1953
Howard E. Dorton, clinical professor, M.D., Illinois, 1938
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, assistant 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)
William F. Gee, assistant clinical professor, M.D., Wisconsin, 1967 (Urology)
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
David K. Heydinger, clinical professor, M.D., Western Reserve, 1943

A. Joe Hiller, assistant clinical professor, M.D., Louisville, 1963
Samuel O. Hodges, clinical instructor, M.D., Louisville, 1954 (Orthopedics)
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
Gordon L. Hyde, associate clinical professor, M.D., Michigan, 1950
Christopher Jackson, clinical instructor, M.D., Louisville, 1959
Frank M. Jenkins, clinical instructor, M.D., Arkansas, 1959 (Otolaryngology)
Coleman C. Johnston, clinical professor, 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
Graydon A. Long, clinical instructor, M.D., Michigan, 1950
S. W. Lykins, clinical instructor, M.D., Louisville, 1950
William K. Massie, assistant clinical professor, M.D., Harvard, 1937 (Orthopedics)
Florentino A. Martin, Jr., clinical instructor, M.D., Manila Central University, 1956 (Urology)
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
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)
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
Raymond M. Slabaugh, Jr., associate clinical professor, M.D., Ohio State, 1939 (Urology)
John S. Sprague, associate clinical professor, M.D., Johns Hopkins, 1936
Giles L. Stephens, assistant clinical professor, M.D., Louisville, 1952
David B. Stevens, assistant clinical professor, M.D., Northwestern, 1955 (Orthopedics)
Ben C. Stigail, 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 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

Ruth Assell, associate professor, M.S., Colorado, 1966
Beverly Baldwin, lecturer, M.A., Iowa, 1970
Penny Bamford, instructor, M.S.N., Texas Women's University, 1976
Elizabeth Bear, associate professor, M.S.N., Wayne State, 1958
Jan Bellack, assistant professor, M.N., Florida, 1971
Irma Bolte, associate professor, M.S.N., Catholic University, 1957
Pamela Broughman, assistant professor, M.S.N., Indiana, 1967
Susan Browne, assistant professor, M.S.N., Kentucky, 1973
Helen Burgess, instructor, M.S.N., New York Medical College, 1972
Sandra Campbell, associate professor, M.N., Emory, 1970
Doris Cary, associate professor, M.P.H., Tulane, 1956; M.S., Indiana, 1958
Kathleen Cooper, instructor, M.S.N., Medical College, Georgia, 1977
Loretta Denman, professor, Ph.D., Ohio State, 1962
Geraldine Ellison, associate professor, M.S.N., Vanderbilt, 1968
Juanita Fleming, professor, Ph.D., Catholic University, 1969
Claudine Gartner, associate professor, M.S.N.Ed., St. Louis, 1954
Beatrice Gaunder, assistant professor, M.S.N., New York at Buffalo, 1973
Evelyn Geller, associate professor, M.S.N., Catholic University, 1963; M.Ed., Columbia, 1972
Lynn Goodykoontz, instructor, M.S.N., Kentucky, 1975
Jean Hayter, professor, Ed.D., Columbia, 1961
Melva Jo Hendrix, associate professor, D.N.Sc., Boston, 1971
Beth Hicks, associate professor, M.S., Maryland, 1961
Marilyn-Lu Jacobsen, associate professor, Ph.D., Texas A&M, 1977
Alyce Jessop, assistant professor, M.S.N., Nebraska, 1971
Gretchen LaGodna, associate professor, Ph.D., Kentucky, 1976
Virginia Lane, professor, M.A., Chicago, 1950
Shirley Lewis, instructor, M.S.N., Kentucky, 1976
Dorothy Luther, associate professor, M.A., Columbia, 1957
Jo Ann Maurer, instructor, M.S.N., Kentucky, 1975
Marion E. McKenna, professor, Ed.D., Florida, 1970
Julia Morris, instructor, M.S.N., Kentucky, 1976
Marilyn Musacchio, assistant 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, assistant professor, M.S.N., Kentucky, 1975
Kathryn Sallee, associate professor, M.N., Emory, 1971
Julie Sebastian, instructor, M.S.N., Kentucky, 1977
Jean Smith, assistant professor, M.S.N., Kentucky, 1973
Catherine Starkey, instructor, M.P.H., Michigan, 1966
Ruth Stoll, associate professor, M.S.N., Wayne State, 1966
Frances J. Thomas, associate professor, Ph.D., North Carolina, 1972
Cora Withrow, assistant professor, M.P.H., Michigan, 1968
Margaret Wolfe, instructor, M.S.N., Kentucky, 1975
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
Olga Bourne, clinical instructor, M.S.N., Kentucky, 1975
Annette Castle, clinical instructor, M.S.N., Kentucky, 1972
Phyllis Combs, clinical instructor, M.N., Emory, 1969
Marjorie Crosby, clinical instructor, M.S.N., Kentucky, 1976
Jan Dickson, assistant clinical professor, M.A., Iowa, 1968
Suzanne Dozier, assistant clinical professor, M.A.Ed., Kentucky, 1956
Rosalie Evans, clinical instructor, M.N., Mississippi, 1975
George B. Gascoigne, assistant clinical professor, M.D., Cincinnati, 1973
Kathleen Harwell, clinical instructor, M.S.N., Catholic University, 1974
Nancy Hynson, clinical instructor, M.S.N., Kentucky, 1971
Anne Lauf, clinical assistant professor, M.S.N., Catholic University, 1962
Callista Lillard, assistant clinical professor, M.S., Catholic University, 1962
Elsie Maier, clinical instructor, M.S.N., Vanderbilt, 1974
Sally Martin, clinical instructor, M.S.N., Kentucky, 1973
Jean McKinley, clinical instructor, M.S.N., Catholic University, 1966
Maureen Morrell, clinical instructor, M.P.H., Minnesota, 1976
Pat Rice, clinical instructor, M.S.N., Kentucky, 1976
Eunice Robinson, clinical instructor, B.S.N.Ed., Texas, 1954
Christine Schenk, clinical instructor, M.S., Boston College, 1971
Esther Seeley, assistant clinical professor, M.N., Pittsburgh, 1969
Carol Slater, clinical instructor, M.Ed., Minnesota, 1964
Margaret Strickhauser, clinical instructor, M.N., Emory, 1969
Evelyn Tarkington, assistant clinical professor, M.A., New York University, 1950
Anne W. Wasson, assistant clinical professor, M.D., University of Buffalo, 1950
Judy Wika, clinical instructor, M.S.N., Kentucky, 1975

COLLEGE OF SOCIAL PROFESSIONS

Ronda S. Connaway, dean

John R. Ballantine, assistant professor, M.S.W., Tulane, 1966
Joanne I. Bell,** associate professor, M.S.W., Pennsylvania, 1954
Beverly C. Benton, lecturer, M.S.W., Kentucky, 1974
Richard K. Brautigam, associate professor, Ph.D., Wisconsin, 1971
Ronda S. Connaway, professor, D.S.W., Washington University, 1964
Elizabeth Crowell, associate professor, Ph.D., Indiana, 1971
Martha E. Gentry, associate professor, Ph.D., Washington, 1974
Saiyid Zafar Hasan, professor, D.S.W., Columbia, 1958
Chester A. Holmquist, assistant professor, M.A., Ohio State, 1947
Paul K. H. Kim, assistant professor, D.S.W., Tulane, 1973
Elizabeth A. Kirlin, associate professor, Ed.D., Kentucky, 1974
John W. Landon, associate professor, Ph.D., Ball State, 1972
Edgar L. Mack, assistant professor, M.S.W., Ohio State, 1970
James G. McCullagh,** assistant professor, M.S.S.W., Missouri, 1970
C. Aaron McNeece, assistant professor, Ph.D., Michigan, 1976
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
Paul R. Raffoul, assistant professor, Ph.D., Washington University, 1977
Edna F. Roth, associate professor, D.S.W., Smith College, 1969
Nathan R. Sullivan, assistant professor, M.S.W., Kentucky, 1972
Ann Hall Taylor,* assistant professor, M.S.S.W., Louisville, 1964
David S. Walls,** assistant professor, M.A., Kentucky, 1972
Kennard W. Wellons, associate professor, D.S.W., California, Berkeley, 1973
Vernon R. Wiehe, assistant professor, Ph.D., Washington University, 1972
Constance P. Wilson, associate professor, M.S.S.S., Boston, 1950

*Part-time faculty
**Doctoral Candidate with thesis to complete

COLLEGE OF PHARMACY

Joseph V. Swintosky, dean

Ann Amerson, associate professor, Pharm.D., Kentucky, 1971
Robert L. Barnett, assistant professor, B.S., Kentucky, 1959
R. Paul Baumgartner, Jr., associate professor, B.S., Pittsburgh, 1956
David W. A. Bourne, assistant professor, Ph.D., Kansas, 1974
David A. Burns, assistant professor, Pharm.D., Kentucky, 1973
John L. Butler, associate professor, M.S., Philadelphia, 1962
Ronald David Cobb, assistant professor, Pharm.D., Kentucky, 1973
Patricia P. DeLuca, professor, Ph.D., Temple, 1962
Louis Diamond,* professor, Ph.D., Maryland, 1967
George A. Digenis, professor, Ph.D., Wisconsin, 1964
Lewis W. Dittert, professor, Ph.D., Wisconsin, 1961
Richard M. Doughty, associate professor, M.S., Pittsburgh, 1953
Gary L. Ellenor,* assistant professor, Pharm.D., California, 1970
Thomas S. Foster,* associate professor, Pharm.D., Kentucky, 1973
Ruby Joyce Garrett, associate professor, Ph.D., Kentucky, 1971
Robert B. Griffith, professor, Ph.D., California, Berkeley, 1953
Howard Hopkins, emeritus professor, Ph.D., Nebraska, 1959
Laurence H. Hurley, associate professor, Ph.D., Purdue, 1970
Anwar Hussain, associate professor, Ph.D., Wisconsin, 1965
Clifford E. Hynniman, associate professor, M.S., Maryland, 1967
Sophann Im, assistant professor, Ph.D., Montpellier, 1970
Curtis A. Johnson, assistant professor, Pharm.D., Kentucky, 1975
Milton J. Kornet, associate professor, Ph.D., Illinois, 1962
Harry B. Kostenbauder, professor, Ph.D., Wisconsin, 1956
Charles T. Lesshafft, Jr., professor, Ph.D., Purdue, 1955
Jimmie W. Lockhart,** instructor, B.S., Kentucky, 1962
David Love, assistant 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
Bruce D. McWhinney, assistant professor, Pharm.D., Kentucky, 1975
James W. Munson, associate professor, Ph.D., Wisconsin, 1971
Paul F. Parker, professor, M.S., Michigan, 1951
James E. Pierce, assistant professor, Pharm.D., Minnesota, 1977
Robert P. Rapp, associate professor, Pharm.D., Kentucky, 1970
Ian W. Rodger, visiting assistant professor, Ph.D., Scotland, 1974
Gerald P. Sherman, associate professor, Ph.D., Philadelphia, 1967
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
Randall B. Smith, assistant professor, Ph.D., Texas, 1976
Condit F. Steil, assistant professor, Pharm.D., Kentucky, 1973
Robert Straus,* professor, Ph.D., Yale, 1947
Joseph V. Swintosky, professor, Ph.D., Wisconsin, 1948
John W. Triplett, assistant professor, Ph.D., Kentucky, 1977
Donald D. Vogt, associate professor, Ph.D., Texas, 1969
Dennis M. Williams, instructor, B.S., Kentucky, 1977

*joint appointment
**part-time

Voluntary Faculty

Robert J. Abell, clinical instructor, B.S., Kentucky, 1974
John B. Anneken, clinical instructor, B.S., Cincinnati, 1953
James P. Arnold, clinical instructor, B.S., Kentucky, 1959
James T. Arnold, clinical instructor, B.S., Kentucky, 1958
Russell G. Arnold, clinical instructor, B.S., Kentucky, 1956
Emil W. Baker, assistant clinical professor, B.S., Kentucky, 1963
Patsy Cummins Barnett, clinical instructor, Pharm.D., Kentucky, 1972
Carl E. Beck, clinical instructor, M.S., Maryland, 1952
Alvin R. Bertram, assistant clinical professor, B.S., Kentucky, 1950
James Boylan, associate adjunct professor, Ph.D., Purdue, 1963
James M. Brockman, clinical instructor, B.S., Kentucky, 1964
Bennett E. Brown, clinical instructor, B.S., Kentucky, 1958
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
Johnny W. Burkett, clinical instructor, B.S., Kentucky, 1970
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
Joseph D. Clark, associate clinical professor, Ph.D., West Virginia, 1968
Thomas R. Clarkson, assistant clinical professor, B.S., Kentucky, 1950
J. Leon Claywell, clinical instructor, B.S., Alabama, 1971
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
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
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
Dwaine K. Green, assistant clinical professor, B.S., Kentucky, 1971
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
Vernon B. Hager, assistant clinical professor, B.S., Kentucky, 1934
Emmett K. Hammond, Jr., clinical instructor, Pharm.D., Michigan, 1967
Dean L. Henderson, clinical instructor, B.S., Kentucky, 1963
David Holdaway, clinical instructor, B.S., Kentucky, 1957
Norman C. Horn, clinical instructor, B.S., Kentucky, 1953
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
Gary T. Jones, clinical instructor, B.S., Kentucky, 1971
James R. Kaelin, clinical instructor, B.S., Kentucky, 1952
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
Donald R. Kennedy, clinical instructor, B.S., Tennessee, 1959
Robert L. Kimbrell, clinical instructor, B.S., Kentucky, 1952
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
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
William D. Marshall, clinical instructor, B.S., Kentucky, 1974
Guy Martin, Jr., clinical instructor, B.S., Kentucky, 1949
Sheldon M. McCreary, clinical instructor, B.S., Kentucky, 1971
John McFarland, clinical instructor, B.S., Kentucky, 1974
Richard Meena, clinical instructor, B.S., Kentucky, 1951
Douglas E. Miller, assistant clinical professor, Pharm.D., Kentucky, 1972
William R. Mink, clinical instructor, B.S., Tennessee, 1964
Julian Mitchell, assistant clinical professor, B.S., Kentucky, 1958
Arthur R. Mlodozeniec, associate adjunct professor, Ph.D., Wisconsin, 1964
Michael Montgomery, clinical instructor, B.S., Kentucky, 1972
Richard E. Murray, clinical instructor, B.S., Cincinnati, 1959
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
Martin D. Parker, clinical instructor, Ph.D., Kentucky, 1972
Myron C. Patrick, clinical instructor, B.S., Kentucky, 1965
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
James A. Pettus, 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
Richard Rolfsen, clinical instructor, B.S., Cincinnati, 1952
Harry J. Russell, assistant clinical professor, B.S., Kentucky, 1951
Robert E. L. Sandlin, clinical instructor, B.S., Kentucky, 1954
Robert S. Scates, clinical instructor, B.S., Kentucky, 1974
Edward L. Schatzman, clinical instructor, B.S., Kentucky, 1956
Don Schraffenberger, clinical instructor, B.S., Kentucky, 1958
Stephen M. Sleight, associate clinical professor, M.S.N., Dakota, 1960
Billy Ray Smith, clinical instructor, B.S., Southern School of Pharmacy, 1955
David Solomon, clinical instructor, Pharm.D., Tennessee, 1970
Larry Spears, clinical instructor, B.S., Kentucky, 1959
William L. Spoo, Jr., clinical instructor, B.S., Kentucky, 1953
Archie A. Stahl, clinical instructor, B.S., Kentucky, 1968
James L. Stehley, clinical instructor, B.S., South Dakota, 1971
Rhonda B. Steil, clinical instructor, B.S., Kentucky, 1974
Janet C. Stewart, clinical instructor, B.S., Kentucky, 1972
Jack Stone, clinical instructor, B.S., Tennessee, 1968
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
Patricia Kirk Sullivan, clinical instructor, B.S., Kentucky, 1975
Ronald L. Sutton, clinical instructor, B.S., Kentucky, 1968
David J. Tanner, clinical instructor, B.S., Kentucky, 1974
James E. Tingstad, adjunct professor, Ph.D., Wisconsin, 1957
Dorothy M. Vincent, clinical instructor, B.S., Florida, 1971
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

HONORS PROGRAM

James P. Chapman, acting director

Paul Ciholas, assistant professor, Ph.D., Strasbourg, France, 1963
John L. Greenway, associate professor, Ph.D., Wisconsin, 1969
Joseph F. Merriman, assistant professor, Illinois, 1975
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

ADMINISTRATION

BOARD OF TRUSTEES

Richard E. Cooper, Somerset, Kentucky, December 31, 1977
Thomas B. Kessinger, Lexington, Kentucky, June 30, 1978
Sally Powell Hermansdorfer, Ashland, Kentucky, December 31, 1978
John R. Gaines, Lexington, Kentucky, December 31, 1978
Zirl A. Palmer, Lexington, Kentucky, June 30, 1979
L. D. Gorman, Hazard, Kentucky, May 1, 1980
George W. Griffin, Jr., London, Kentucky, May 1, 1980
William B. Sturgill, Lexington, Kentucky, May 1, 1980
John R. Woodyard, Covington, Kentucky, June 30, 1980
Albert G. Clay, Mt. Sterling, Kentucky, December 31, 1980
David A. Hull, Lexington, Kentucky, December 31, 1980
A. B. Chandler, Versailles, Kentucky, June 30, 1981
Homer W. Ramsey, Whitley City, Kentucky, December 31, 1981

ALUMNI MEMBERS

Betty Carol Clark, Glasgow, Kentucky, December 31, 1978
William R. Black, Paducah, Kentucky, December, 31, 1980

Frank Ramsey, Jr., Madisonville, Kentucky, December 31, 1981

FACULTY MEMBERS

Michael Adelstein, College of Arts and Sciences, University of Kentucky, June 30, 1980

Constance P. Wilson, College of Social Professions, University of Kentucky, June 30, 1981

STUDENT MEMBER

M. Eugene Tichenor, President, Student Government, May 1979

OFFICERS OF THE BOARD

William B. Sturgill, Chairman
Albert G. Clay, Vice Chairman
Paul G. Sears, Secretary
Betty Carol Clark, Assistant Secretary

ADMINISTRATIVE ORGANIZATION

Otis A. Singletary, President
Jack C. Blanton, Vice President for Business Affairs and Treasurer of the University
Peter P. Bosomworth, Vice President for the Albert B. Chandler Medical Center
Donald B. Clapp, Vice President for Administration
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Raymond R. Hornback, Vice President for University Relations
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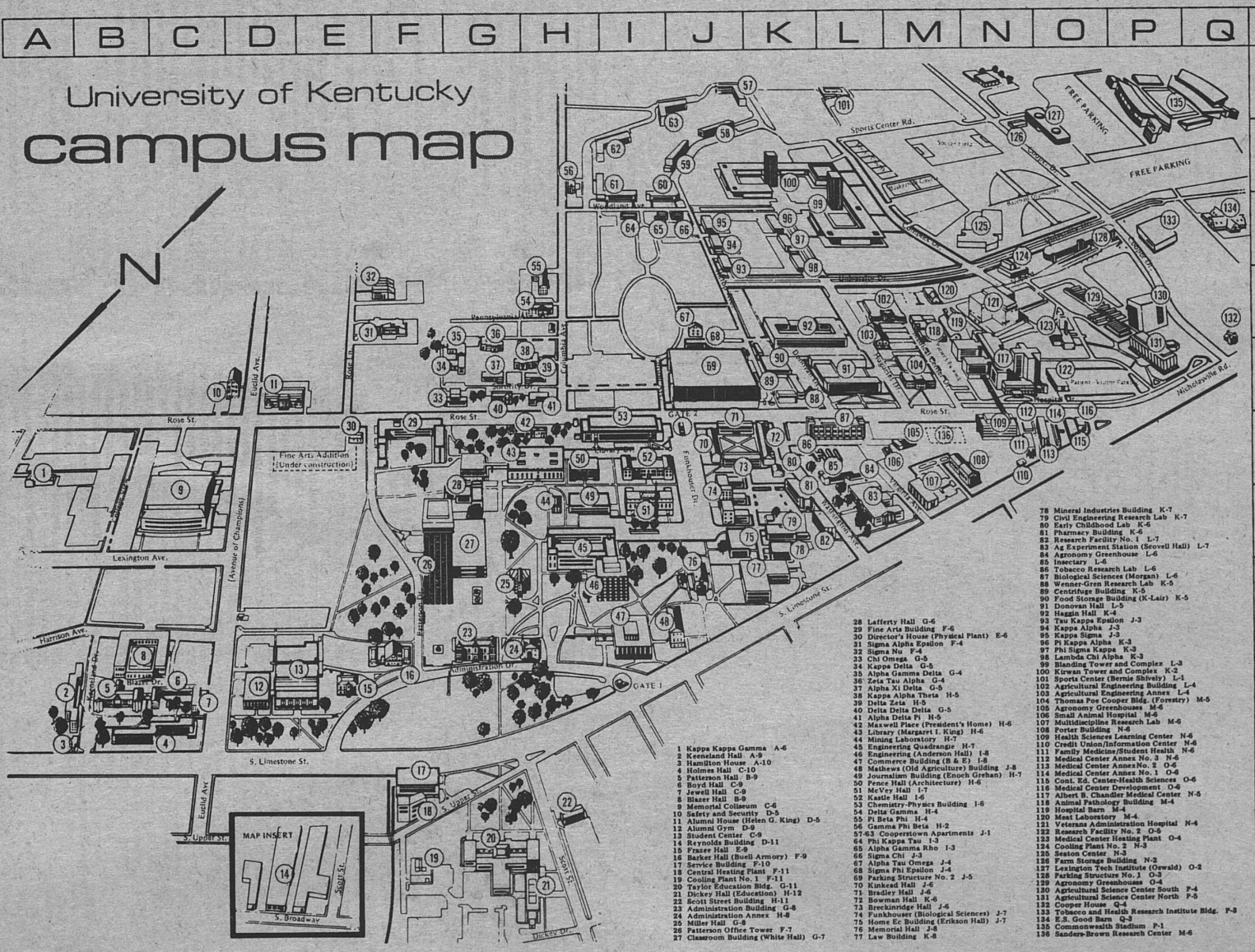
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