

*University  
of Kentucky  
Bulletin*

1977-78

**THE GRADUATE SCHOOL**

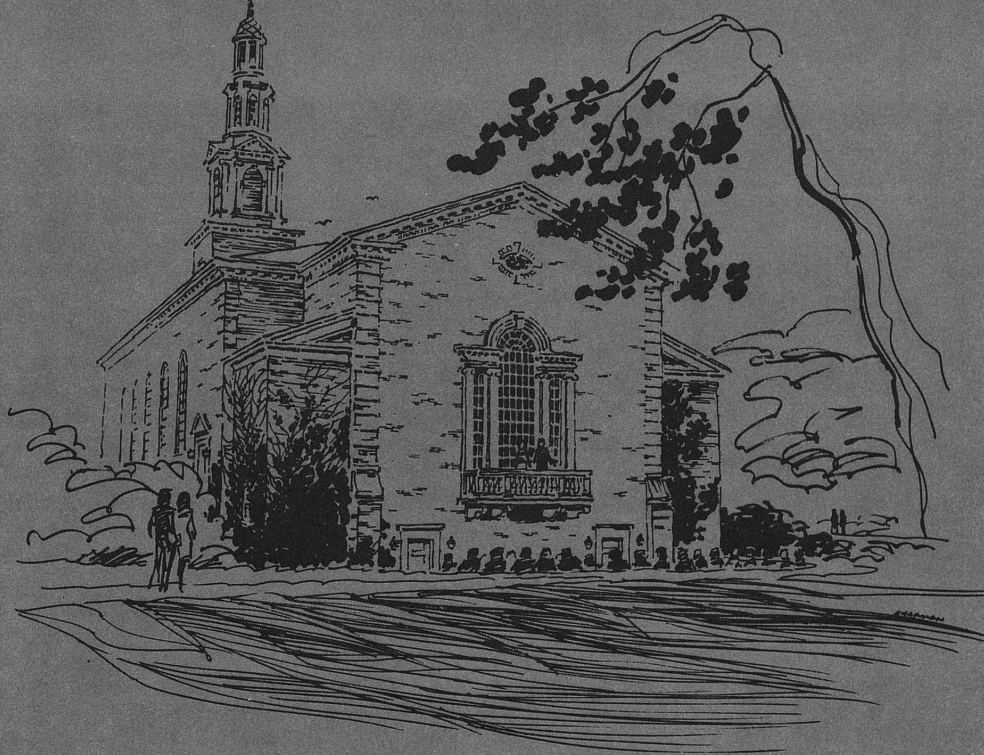


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UNIVERSITY OF KENTUCKY  
**The Graduate School**  
BULLETIN 1977-78

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## CALENDAR

### 1977 Fall Semester

June 15—Wednesday—Last day to apply to the Graduate Admissions Office for admission and readmission for the 1977 Fall Semester  
 August 29—Monday—Registration for new students  
 August 30—Tuesday—Centralized Drop/Add for Advance Registered Students  
 August 31—Wednesday—Class work begins  
 August 31-September 7—Wednesday thru Wednesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A \$20 late fee is assessed students who register late  
 September 5—Monday—Labor Day (Academic Holiday)  
 September 7—Wednesday—Last day to enter an organized class for Fall Semester  
 September 12—Monday—Last day to change from credit to audit or from audit to credit  
 September 12—Monday—Last day to drop a course without a grade  
 September 29—Thursday—Last day for filing application for a December degree in the Graduate School Office  
 September 29—Thursday—Last day for payment of registration fees in order to avoid cancellation of registration  
 September 29—Thursday—Last day for new students to pick up ID cards from Billings and Col-

lections in order to avoid replacement fee  
 October 21—Friday—Last day to withdraw from the University or reduce course schedule and receive any refund  
 October 31—Monday—Last day to pay thesis/dissertation fees for a December degree in Billings and Collections Office  
 October 31—Monday—Last day to apply to the Graduate Admissions Office for admission and readmission for the 1978 Spring Semester  
 November 7-16—Monday through Wednesday—Advance registration for 1978 Spring Semester  
 November 8—Tuesday—Last day to withdraw from a class before finals  
 November 22—Tuesday—Last day to schedule a final examination for candidates for a December degree  
 November 24-26—Thursday through Saturday—Thanksgiving Holiday (Academic Holidays)  
 December 14—Wednesday—Class work ends  
 December 16-22—Friday through Thursday—Final examinations  
 December 22—Thursday—Last day to submit a thesis/dissertation to The Graduate School for candidates for a December degree  
 December 22—Thursday—End of Fall semester.  
 December 26—Monday—All grades due in the Registrar's Office by 12 noon, three days after final examination is administered

### 1978 Spring Semester

January 16—Monday—Registration for new students  
 January 17—Tuesday—Centralized Drop/Add for Advance Registered Students  
 January 18—Wednesday—Class work begins  
 January 18-24—Wednesday through Tuesday—Late registration for returning students who did not advance register and new applicants cleared late for admission. A \$20 late fee is assessed students who register late  
 January 24—Tuesday—Last day to enter an organized class for Spring Semester  
 February 13—Monday—Last day to change from credit to audit or from audit to credit

February 13—Monday—Last day to drop a course without a grade  
 February 16—Thursday—Last day for payment of registration fees in order to avoid cancellation of registration  
 February 16—Thursday—Last day for filing application for a May degree in the Graduate School Office  
 February 16—Thursday—Last day for new students to pick up ID cards from Billings and Collections in order to avoid replacement fee  
 March 10—Friday—Last day to withdraw from the University or reduce course schedule and receive any refund.



March 17—Friday—Last day to pay thesis/dissertation fees for a May degree in Billings and Collections Office  
 March 20-25—Monday through Saturday—Spring Vacation (Academic Holidays)  
 April 1—Saturday—Last day to apply to the Graduate Admissions Office for admission and readmission for all 1978 Summer Sessions  
 April 10-19—Monday through Wednesday—Advance registration for 1978 Fall Semester and both Summer Sessions  
 April 14—Friday—Last day to schedule a final examination for candidates for a May degree  
 April 24—Monday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission for all 1978 Summer Sessions

May 5—Friday—Last day to submit a dissertation to the Graduate School for doctoral candidates who wish to receive a diploma at Commencement  
 May 6—Saturday—Class work ends  
 May 8-13—Monday through Saturday—Final examinations  
 May 12—Friday—Last day to submit a thesis/dissertation to the Graduate School for candidates for a May degree  
 May 13—Saturday—End of Spring Semester  
 May 13—Saturday—Commencement Day  
 May 16—Tuesday—All grades due in Registrar's Office by 4 p.m. three days after final examination is administered  
 June 15—Thursday—Last day to apply to the Graduate Admissions Office for admission and readmission for the 1978 Fall Semester

### 1978 Four-Week Intersession

April 1—Saturday—Last day to apply to the Graduate Admissions Office for admission and readmission for all 1978 Summer Sessions  
 April 24—Monday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission for all 1978 Summer Sessions  
 May 15—Monday—Registration  
 May 16—Tuesday—Class work begins  
 May 19—Friday—Last day to enter an organized class for Four-Week Intersession  
 May 22—Monday—Last day to drop a course without a grade  
 May 22—Monday—Last day to change from credit to audit or from audit to credit

May 29—Monday—Memorial Day (Academic Holiday)  
 May 30—Tuesday—Last day for payment of registration fees in order to avoid cancellation of registration  
 May 30—Tuesday—Last day to withdraw from the University or reduce course schedule and receive any refund  
 June 13—Tuesday—End of Four-Week Intersession  
 June 13—Tuesday—Final examinations  
 June 15—Thursday—Last day to apply to the Graduate Admissions Office for admission and readmission for the 1978 Fall Semester  
 June 16—Friday—All grades due in the Registrar's Office by 4 p.m.

### 1978 Summer Session (Eight-Week)

April 1—Saturday—Last day to apply to the Graduate Admissions Office for admission and readmission for all 1978 Summer Sessions  
 April 24—Monday—Last day for Kentucky Teachers to submit all required documents to the Graduate Admissions Office for admission and readmission for all 1978 Summer Sessions  
 June 13—Tuesday—Registration  
 June 14—Wednesday—Class work begins  
 June 15—Thursday—Last day to apply to the Graduate Admissions Office for admission and readmission for the 1978 Fall Semester  
 June 19—Monday—Last day to enter an organized class for the 1978 Summer Session

June 27—Tuesday—Last day to change from credit to audit or from audit to credit  
 June 27—Tuesday—Last day to drop a course without a grade  
 June 27—Tuesday—Last day to pay registration fees in order to avoid cancellation of registration  
 June 27—Tuesday—Last day for filing application for an August degree in the Graduate School Office  
 July 4—Tuesday—Independence Day (Academic Holiday)  
 July 13—Thursday—Last day to pay thesis/dissertation fees for an August degree in Billings and Collections Office



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

July 18—Tuesday—Last day to schedule a final examination for candidates for an August degree

August 9—Wednesday—Last day to submit a

thesis/dissertation to the Graduate School for candidates for an August degree

August 9—Wednesday—End of Summer Session

August 9—Wednesday—Final examinations

August 14—Monday—All grades due in the Registrar's Office by 12 noon

**Note:** For Graduation and Diploma information see page 15.





Otis A. Singletary, Ph.D.  
President of the University

Wimberly C. Royster, Ph.D., Dean  
Margaret E. W. Jones, Ph.D., Associate Dean  
Roger Eichhorn, Ph.D., Associate Dean



## The Graduate School

The University of Kentucky began offering graduate work in 1870 and awarded its first graduate degrees in 1876. The Graduate School became a distinct unit in the University organization in 1912.

The Graduate School is concerned with advanced study, graduate instruction and research conducted by the faculty and students of all colleges and departments. The total graduate resources of the University are merged under it for the purpose of promoting the acquisition of knowledge in an atmosphere of free and lively inquiry.

Graduate work is offered in most colleges in the University. A general description, tabulation of courses, and name of the Director of Graduate Studies for each of the various programs is given in the Programs and Directors of Graduate Studies section of this bulletin.

The following advanced degrees are conferred:

### Doctor of Philosophy

Offered in following fields:

Agricultural Economics	Germanic Languages
Agricultural Engineering	History
Anatomy	Mathematics
Animal Sciences	Mechanical Engineering
Anthropology	Metallurgical Engineering
Biology	and Materials Science
Biochemistry	Microbiology
Chemical Engineering	Musicology
Chemical Physics	Pharmaceutical Sciences
Chemistry	Pharmacology
Civil Engineering	Physics
Crop Science	Physiology and Biophysics
Diplomacy and International	Plant Pathology
Commerce	Plant Physiology
Economics	Political Science
Educational Psychology	Psychology
Electrical Engineering	Sociology
Engineering Mechanics	Soil Science
English	Spanish
Entomology	Statistics
French	Toxicology
Geography	Veterinary Science
Geology	

### Master of Arts

Offered in following fields:

Anthropology	Economics
Art	English
Botany	French
Classical Languages	Geography
Communications	German
Diplomacy	History

Library Science  
Mathematics  
Music  
Philosophy  
Political Science

Psychology  
Sociology  
Spanish  
Theatre Arts  
Zoology

### Master of Science

Offered in following fields:

Anatomy	Pharmaceutical Science
Agricultural Economics	Physics
Animal Sciences	Physiology and Biophysics
Biochemistry	Health, Physical Education,
Botany	Recreation
Chemistry	Plant Pathology
Computer Science	Plant Physiology
Crop Science	Psychology
Economics	Soil Science
Entomology	Statistics
Geology	Toxicology
Mathematics	Veterinary Science
Microbiology	Zoology
Pharmacology	

### Master of Science in Agriculture

Offered in following fields:

Agricultural Economics	Horticulture
Animal Sciences	Plant Pathology
Crop Science	Sociology
Entomology	Soil Science
Forestry	Veterinary Science

### Other Degrees

Doctor of Business Administration	Master of Science in Dentistry with Specialty in Orthodontics
Doctor of Education	Master of Science in Electrical Engineering
Doctor of Musical Arts in Music Teaching	Master of Science in Engineering Mechanics
Master of Arts in Education	Master of Science in Home Economics
Master of Science in Education	Master of Science in Library Science
Master of Business Administration	Master of Science in Mechanical Engineering
Master of Fine Arts	Master of Science in Medical Radiation Dosimetry
Master of Music	Master of Science in Metallurgical Engineering
Master of Public Administration	Master of Science in Nuclear Engineering
Master of Science in Accounting	Master of Science in Nursing
Master of Science in Agricultural Engineering	Master of Science in Radiological Health—Specialty
Master of Science in Chemical Engineering	Master of Social Work
Master of Science in Civil Engineering	Specialist in Education
Master of Science in Clinical Nutrition	



## ***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 and to the President, or to other administrative officials as appropriate. All rules affecting graduate work and the inauguration of new graduate programs must be approved by the Graduate Faculty.

Any proposed change in the rules of The Graduate Faculty must be included in the agenda of the meeting and circulated to the Graduate Faculty at least 10 days prior to the meeting at which it is to be considered.

New Graduate Faculty members may be proposed to the Dean of The Graduate School at any time by the college deans and department chairmen concerned, or in the case of persons not attached to a college faculty, by the Vice President for Academic Affairs of the University. Eligibility qualifications are as follows:

1. The doctor's degree or its equivalent in scholarly reputation.
2. The rank of assistant professor (or equivalent), or higher.
3. Scholarly maturity and professional productivity as demonstrated by publications, editorial services, research surveys, creative work, or patents; and research in progress at the time of appointment.
4. Definite interest in graduate work and the willingness to participate in the graduate program.

Appointment to the Graduate Faculty is made by the President of the University on nomination by the Dean of The Graduate School after he/she and the Graduate Council have studied the credentials submitted in support of the proposed members.

Associate members of the Graduate Faculty are appointed by the Dean of The Graduate School.

Administrative officers assigning teaching and other duties to members of the Graduate Faculty who are taking an active part in the graduate program (i.e., are heavily engaged in directing theses, carrying on productive research, etc.) should make appropriate reduction in the duties required of such teachers.

### **The Role of the Dean**

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 Dean presides over all meetings of the Graduate Faculty and calls meetings of this faculty whenever he/she thinks it advisable or whenever requested to do so by one-fourth of the membership. He/she makes recommendations to the Graduate Faculty respecting the requirements for advanced degrees, the regulations necessary to insure a high standard of graduate work, and all other aspects of the graduate program. He/she appoints a committee for each graduate student, arranges for final examinations, advises students with regard to their studies and the requirements of The Graduate School, and in all other ways administers the graduate program in the interests of efficient instruction and the highest attainment possible on the part of each graduate student. He/she is responsible for determining and certifying to the Registrar candidates who have fulfilled requirements for advanced degrees.

The President, Vice President for Academic Affairs, and the Dean of the Graduate School are members ex officio of all committees of the Graduate Faculty.

### **The Graduate Council**

The Graduate Council is composed of 13 members and the Dean of The Graduate School, who is chairman. There are eight elected faculty representatives and three faculty members appointed by the Dean of The Graduate School. One of the elected members is from the College of Agriculture, two from the College of Arts and Sciences, one from the College of Business and Economics, two from the College of Education, one from the College of Engineering, and one from the College of Medicine. The member or members from each of these colleges are elected by the Graduate Faculty members in that college. Two graduate student members are selected by the Council from a panel of four submitted by the Graduate and Professional Student Association. The term of office of the elected and appointed members is three years, and that of the graduate students is one year. No member may succeed himself/herself until three years have elapsed since the completion of his/her last term.

The Graduate Council approves or disapproves proposals concerning courses offered for graduate credit, and advises and lends assistance to the Dean in his/her execution of policies and regulations determined by the Graduate Faculty. Specifically, the Council:

1. Studies requests of departments relating to proposed graduate programs.



2. Reviews existing programs and courses.
3. In cooperation with the Dean, initiates recommendations to the Graduate Faculty. (This procedure is not intended to prevent a faculty member from bringing any recommendation or request directly before the Graduate Faculty.)

The Graduate Council has such authority as is herein granted, or such as the Dean or the Graduate Faculty may delegate to it. A majority of the Graduate Council constitutes a quorum for the transaction of business.

#### Directors of Graduate Studies

A Director of Graduate Studies serves as adviser to each student majoring in his/her area until the student has a thesis director. The Director of Graduate Studies then recommends that the thesis director be appointed the student's adviser or committee chairman. In areas where theses are not required, the Director of Graduate Studies is the adviser for all students not writing theses. All student schedules must be endorsed by the student's adviser.

If it is desirable, a Director of Graduate Studies may recommend that additional advisers in the area be appointed. A Director of Graduate Studies who is to be absent from the University for as long as a semester must call this fact to the attention of the Dean so that a substitute may be appointed.

The Dean of The Graduate School, with the advice of the college dean(s) and the approval of the President, may recommend to the Graduate Faculty the areas of graduate study and research into which the University may be divided. (The logical unit for an area is a department. By common consent, however, certain departments may be grouped into an area; and in exceptional cases a department may be divided into two or more areas.) The Directors of Graduate Studies for the various areas are appointed by the Dean of The Graduate School.

#### Establishment and Modification of Graduate Programs

An area which wishes to establish a new graduate program or modify an existing one must submit its program to the Graduate Council, which will make recommendation concerning it to the Graduate Faculty.

### STUDENT RESPONSIBILITY

It is the responsibility of the student to inform himself/herself concerning all regulations and procedures required by the course of study he/she is pursuing. **In no case will a regulation be waived or**

**an exception granted because a student pleads ignorance** of the regulation or asserts that he/she was not informed of it by his/her adviser or other authority. Therefore, the student should become familiar with The Graduate School Bulletin, including (1) the section presenting the requirements for the degree which he/she plans to take, and (2) the offerings and requirements of his/her major department.

The student should consult the Director of Graduate Studies of the department in which he/she will do his/her work concerning course requirements, any deficiencies, the planning of a program, and special regulations. Departments may have degree requirements that are not listed in the Bulletin.

It is to be noted that the Graduate Dean interprets the Graduate Bulletin. Only the Graduate Council may waive requirements stated in this Bulletin.

### Admission

An applicant for admission to the University shall not be discriminated against because of race, color, religion, sex, marital status, or national origin.

Students seeking admission to the University of Kentucky Graduate School must hold a baccalaureate degree from a fully accredited institution of higher learning. A minimum undergraduate grade-point average of 2.5 on the basis of 4.0 is required by The Graduate School. Individual departments may require a higher grade-point average.

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. Requests for waiver of the GRE requirement must be initiated through, and submitted in writing by, the Director of Graduate Studies in the program concerned. If the GRE is waived for admission, it **must** be taken during the first semester of enrollment. The College of Business and Economics may substitute the Graduate Management Admission Test for MBA, DBA and Accounting students. The Medical College Admission Test or the Dental College Admission Test may be substituted with the approval of the program concerned.

Application forms can be obtained by writing:

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

Applications and all supporting documents must be submitted by the stated deadline (See Calendar).



It should be clearly understood that a graduate student may not be able to begin immediately a full graduate program leading to the degree he/she desires; it may be necessary for him/her to satisfy prerequisites which he/she omitted in his/her undergraduate curriculum. Deficiencies are determined by the program in which the major work is to be done. Ordinarily, a graduate student may begin a full program in any field in which he/she has a balanced undergraduate major or its equivalent.

Admission to The Graduate School entitles a student to take such courses as he/she desires, provided he/she has the necessary prerequisites. **However, a student is not a candidate for a graduate degree until he/she has been Admitted to Candidacy.**

Attendance in The Graduate School at the University of Kentucky is not a right. It is a privilege which may be withdrawn by the University or any area of graduate study if it is deemed necessary by the Dean of The Graduate School in order to safeguard the University's standards.

#### FOREIGN APPLICANTS

All non-U.S. citizens except permanent residents of the U.S., should request the Application Form for Foreign Students. Applicants must have excellent grades and rank in the top quarter of their classes. To be considered for entry as a graduate student an applicant must have had four years of university level work. **Indian students:** (a first class record is normally expected although **high second class** holders in non-science areas may be considered if they can offer further evidence of having been in at least the top 10 percent of their graduating class).

When credentials are submitted in support of any application, they should be either the original documents or certified copies (i.e., copies certified as "true copies" by a notary public or a United States Embassy official). An official translation must be attached to these records if they are in a language other than English. Credentials should include a record of all degrees earned, detailing all subjects taken and grades obtained. Grades **must** be listed in the indigenous system. Remember that uncertified photostat copies are not adequate. Applications for admission are not considered complete without official scores for the verbal and quantitative portions of the Graduate Record Examination or the Graduate Management Admissions Test in Business. For information concerning either of the tests write to: Educational Testing Service, Box 955, Princeton, N.J. 08540, or Educational Testing Service, Box 1502, Los Angeles, Cal. 94701.

**English Proficiency Requirement:** The University of Kentucky requires a score of 550 on the Test of English as a Foreign Language (TOEFL) of **all** applicants whose native tongue is not English. The test is given four times each year. To register you must obtain the TOEFL **Bulletin**, which includes a registration form. **Bulletins** are available in many locations outside the U.S., usually at American embassies and consulates, offices of the United States Information Service (USIS), United States educational commissions and foundations, binational centers, and many private organizations such as the Institute of International Education (IIE), African American Institute (AAI), American Friends of the Middle East (AFME), and American Kor-Asian Foundation.

Candidates who plan to take TOEFL in any countries identified below must obtain a copy of the Bulletin from, and must register through, the agency that is responsible for that country or region.

1. All countries in Europe (including Cyprus, Great Britain, Ireland, and Iceland):  
CITO  
Postbus 1034  
Arnhem 6000, Netherlands
2. All countries in the Middle East (except Israel) and North Africa:  
American Friends of the Middle East  
Abou Shakra Building  
Post Office Box 1249  
Amman, Jordan  
or : Any office of AFME in the Middle East or North Africa
3. Hong Kong : Education Department, External Examinations Section  
Canton Road Government Offices  
393, Canton Road, 11th Floor,  
Kowloon, Hong Kong  
or : Institute of International Education  
408 J. Hotung House,  
Fourth Floor  
5/15 Hankow Road,  
Kowloon, Hong Kong
4. India : Bureau of Educational Research  
Ewing Christian College  
Allahabad, U.P., 211003, India
5. Republic of China : Language Center,  
2-1 Hsu-chow Road  
Taipei, Taiwan (100),  
Republic of China



6. Thailand : Institute of International Education  
National Education Commission  
Building  
Sukhotlai Road, Dusit  
Bangkok, Thailand

Students who cannot obtain a TOEFL **Bulletin** and registration form locally should **write, well in advance**, to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08540.

**Financial Resources Requirement.** Graduate applicants must certify that they have at least \$4500 available per year. We estimate that this amount will cover the cost of tuition fees (\$1600), books and supplies (\$200), room and meals (\$2000), health insurance (explained below) and incidentals, **for a single person**, from the end of August to early May. Living and incidental expenses for the summer months will total approximately \$700.

At the beginning of each registration period, the student must have \$1500 on hand to pay for tuition fees, room and board and health insurance. These items are payable in September and January and **cannot** be paid in monthly installments.

**University Housing.** For information on University of Kentucky housing, write well in advance to:

Cooperstown Office  
University of Kentucky  
Lexington, Kentucky 40508

**Health Services.** The University of Kentucky has an excellent health care program for its students. The Student Health Service clinic on campus is staffed with physicians, surgeons, psychiatrists and other health professionals who are specialists in the problems of young adults. Students who must be hospitalized are admitted to University Hospital.

**Health Fee.** There are no "free" services but students pay only a nominal fee each semester (it was \$15 in 1976-77) which covers most of the services provided by the student clinic: doctor visits, laboratory services, some drugs, allergy shots, immunizations, etc.

**Health Insurance.** In addition to paying the health fee, students must have **health insurance** to cover the cost of hospitalization, accident care and surgery. These services are not covered by the health fee and since they are very costly in the United States students must protect themselves (and their families if they are married). Foreign students must have insurance that is payable in the United States.

As a service to students who need insurance, the University makes available a Student Group Insurance Plan. The cost is about \$70 per year for a single student and about \$120 per year for a stu-

dent and spouse (without maternity benefits). If there are children in the family, or if maternity benefits are desired, the cost is about \$220 per year to cover the entire family.

The premium for this insurance is paid in two installments at the beginning of each semester. The coverage of the policy begins on August 26 for those enrolling in the fall and it provides benefits anywhere in the world during the period for which premium is paid. Two premium payments provide protection for 12 months.

Additional information about the health fee and health insurance are available at the University's Foreign Student Office and at the Health Service. It should be noted that dental care, examinations for eye glasses and some drugs are not provided by either plan and students must pay for these services themselves.

**Health Report Form.** The Certificate of Eligibility (Form I-20) cannot be accepted for admission until the Graduate Admissions Office has received a completed health form indicating that the student has had a recent physical examination. Health Forms are mailed from the Graduate Admissions Office prior to **final** admission.

**Application Deadline For Foreign Students.** Applications for admission and complete credentials should reach the Admissions Office **at least** six months before the opening of the term the student wishes to enter, that is, February 1 for the fall semester which begins in late August, June 15 for the spring semester which begins in mid-January, and November 1 for all summer sessions.

**Summer Program in English for Foreign Students.** The Program in English for Foreign Students is available only to foreign students who have been admitted to the Graduate School contingent upon successful completion of the program. It is offered by the English Department during the Eight-Week Summer term. No credit hours may be earned for the course. The registration fee of \$275 will cover cost of instruction and certain cultural activities connected with the course; it will not cover room and board (estimated at \$400-500 for the eight-week period). For further information or applications, contact the Chairman of the Department of English, 12th Floor, Patterson Office Tower.

## READMISSION

Former University of Kentucky students in good standing are eligible for readmission. They must file an application for readmission by the stated deadlines (See Calendar). An exception to this rule



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.

Registration forms, which must be prepared in advance for any registration period, are not made for a student after one semester's absence from the University. 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/her the necessary registration forms in time for registration.

### 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 as 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 of 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.

An application 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.

Unclassified graduate students have one month after the start of a semester to be admitted to a degree program in The Graduate School. After this time a student must wait until the next semester. Unclassified graduate students should apply for a program in the Graduate Admissions Office by the Calendar deadlines.

### 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 on all work attempted may register in The Graduate

School with the consent of his/her college dean and the Dean of The Graduate School. Approval of the appropriate Director of Graduate Studies is required if the student is to be an applicant for a degree.

**The total load of such a student may not exceed 12 credit hours.** Graduate credit will be allowed for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. Students applying for admission in The Graduate School under these conditions must fill out in duplicate a petition form listing the course or courses to be taken to complete their undergraduate requirements. Petition forms are available in the undergraduate departmental offices. The petition must be approved by both Deans concerned.

### SCHOLASTIC PROBATION

When a student has completed 12 or more semester hours of graduate course work with an average of less than 3.0, he/she will be placed on scholastic probation and is subject to dismissal from his/her program.

A student will have one semester to remove the scholastic probation by attaining a 3.0 average. 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 Graduate Dean.

### 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.

### *General Requirements for All Advanced Degrees*

#### 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/her adviser's approval of his/her proposed program.

### THE GRADUATE RECORD EXAMINATION

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. This rule may be waived in individual cases upon recommendation of the Director of Graduate Studies in the individual department or program. But in cases where waivers are granted, the GRE scores must be submitted before the end of the first semester of graduate study. The advanced portion of the GRE may be required by individual departments or programs if they so desire. (This excludes students who do not plan to work toward a graduate degree i.e., visiting students, Rank 1, Fifth-year, and Unclassified students.)

The College of Business and Economics may substitute the Graduate Management Admissions Test (GMAT) for the Graduate Record Examination for MBA, DBA and Accounting students.

The Medical College Admission Test or the Dental Admission Test may be substituted for the verbal and quantitative portions of the GRE with the approval of the Dean of The Graduate School.

Students who have earned an academic doctorate are exempt from MCAT or the GRE.

### ADMISSION TO CANDIDACY

Any student expecting to earn a graduate degree at the University must be admitted to candidacy for the degree. A student may not be awarded a degree, even though all of the necessary course work is complete, until he/she is admitted to candidacy.

The following procedure is used to process applications for Admission to Candidacy:

Master's Degree: If the GRE or GMAT is waived for admission, the applicant **must** take the examination during the first semester of graduate study. The application for Admission to Candidacy must be filed with The Graduate School at the end of the first semester of graduate study (fulltime) or when the student has completed 12 hours of graduate work. Applications are available in The Graduate School Office. To qualify for Admission to Candidacy, the student must have completed at least nine hours of graduate work with a minimum 3.0 grade-point average, submitted GRE or GMAT scores, be recommended by his/her Director of Graduate Studies, have no incomplete grades on his/her

record, and have the approval of the Dean of The Graduate School. If the student fails to meet the conditions outlined above, he/she is notified and action is deferred until he/she has completed 18 hours with a minimum 3.0 grade-point average.

Doctoral Degrees: After the student has passed his Qualifying Examination, he is admitted to Candidacy.

### GRADUATE COURSES—GRADE AVERAGE

All courses numbered 500 through 799 may be counted for credit toward a graduate degree provided they are approved as an appropriate part of the student's graduate program by his/her graduate adviser or committee. **Courses numbered 800 or 900 are normally not accepted for credit toward a graduate degree.** Exceptions can be made if permission is granted by the Graduate Council to a program to offer specific professional courses as part of its academic program. Prior approval to take a course must be obtained from the Director of Graduate Studies, the Dean of The Graduate School and the Dean of the Professional College. Without such approval professional courses may not be counted toward satisfying degree requirements. Courses numbered 400 to 499 carry graduate credit for nonmajors only. An over-all average of B on all work carrying graduate credit, must be attained before an advanced degree may be awarded. All graduate level courses (500-799) completed after admission to The Graduate School are computed in the grade-point average. Thus, all work attempted, including repeated courses, are computed in the graduate grade-point average. D grades are not given to graduate students. An "incomplete" (I), unless the Dean of The Graduate School grants an extension of time, must be removed within one calendar year after the close of the term in which the I is assigned if the student is to receive credit.

Courses numbered at the 600 or 700 level shall be taught only by members of the Graduate Faculty or by such other instructors as are approved by the Graduate Dean.

### DROPPING OF COURSES

During the first 10 class days of the term a graduate student may drop a regular course without a grade, provided he has the approval of his Instructor, his Director of Graduate Studies, and the Dean of The Graduate School. Regular courses may not be dropped later in the term without the assignment of a grade: W if a student withdraws passing, E if he



is failing. However, only under very special circumstances may he be allowed to withdraw from a class within five weeks of the final examination period.

## GRADES

The official grades of graduate students are recorded in the office of the Registrar.

The grading in graduate courses is done according to the following scale:

A—high achievement	4 grade points per credit
B—satisfactory achievement	3 grade points per credit
C—minimum passing grade	2 grade points per credit
E—failure	0 grade points per credit
I—incomplete	see explanation following
S—satisfactory	see explanation following

A grade of I (incomplete) may be assigned to a graduate student if a part of the work of a course remains undone and there is a reasonable possibility that a passing grade will result from completion of the work. **No student may graduate with an I on his record without the permission of his adviser and the approval of the Dean of The Graduate School.**

A grade of S (satisfactory work in progress) may be recorded for students in graduate courses which carry no credit and in graduate seminars, independent work courses, and research courses which extend beyond the normal limits of a semester or summer term. The grade may not be given to a student in a course carrying credit if the student has done unsatisfactory work or if he has failed to do a reasonable amount of work. The project must be substantially continuous in its progress. When the work has been completed, a final grade will be substituted for the S.

Once a grade (other than an I or S) has been reported to the Registrar's Office, it may not be changed unless an error was made at the time the grade was given and recorded, and then only upon the written unanimous approval of the instructor, the Registrar, and the Dean of The Graduate School.

## CREDIT EQUIVALENCE

Certain research courses carry no credit hours or grades but do contribute to the residence requirements of graduate degrees. For these courses the credit equivalent is stated in the course descriptions.

## ACADEMIC LOAD

The total semester or term load of a student is the sum of all credits and credit equivalents (e.g., graduate language courses, undergraduate courses, courses audited, etc.) being carried. The normal load of a graduate student during any semester is 12 credit hours or equivalent. Under no circumstances may it exceed 15 credit hours or equivalent. During the summer term, the maximum load for the eight-week term is nine credit hours, and the four-week intersession is four credit hours.

The maximum load for any combination of the four and eight-week terms is 12 credit hours. Students satisfactorily completing nine course credits, or equivalent, of graduate level work during a semester, are classified as full-time students. Students satisfactorily completing six course credits, or equivalent, during a summer term are classified as fulltime. Those completing less than these amounts are classified as part-time except that a teaching or research assistant may be classified as full-time (for residence credit purposes) by taking six semester hours if his/her Director of Graduate Studies recommends and the Dean of The Graduate School approves. For the student who is a full-time teaching assistant or whose service to the University requires approximately 20 hours per week, the load shall not exceed 10 hours. This maximum may be increased to 12 hours for students with lighter service loads upon recommendation of the Director of Graduate Studies and approval of the Dean of The Graduate School.

A full-time student who falls below the minimum full-time equivalent as the result of failing or dropping one or more courses is reclassified as a part-time student for that semester or term.

A master's candidate working on his/her thesis may register for up to the equivalent of six course credits by signing for course 768 in the appropriate department and indicating the desired credit equivalent in parentheses on the registration card.

## DOCTORAL RESIDENCE

To receive a semester of full-time residence credit a doctoral student must satisfactorily complete nine credit hours of graduate level work. To receive a semester of full-time residence credit during the summer, a doctoral student must satisfactorily complete three credit hours during the four-week intersession and nine credit hours during the eight-week term. A doctoral student attending the summer term PRIOR to the Qualifying Examination must complete a minimum of nine credit hours in order to count the summer terms as a full-time term.



Persons holding full-time working or professional assignments, whether employed by the University or not, may not take more than six credit hours (excluding 769 courses) for graduate credit toward a degree in any single semester or term. A student may petition for a waiver of this rule if he/she meets the following conditions: (1) has satisfactorily completed six credit hours of graduate work; (2) has attained higher than national average scores on the aptitude and advanced tests of the Graduate Record Examination; and (3) has appropriate employment facilities and conditions.

### STUDENTS CHANGING PROGRAMS

A student, who plans to change his program, must have the consent of the Director of Graduate Studies in the new program. A letter of acceptance must be sent to The Graduate School.

### SHORT COURSES—WEEKLY COURSES

Short courses are defined as courses of less than a term in length; weekly courses are courses of more than one credit that meet only once a week. A short course may not carry credits greater than the number of weeks during which it is offered. Two short courses of four weeks or less or two full-term courses and a short course may not be taken simultaneously. A total graduate program may not be made up of short courses. Not more than 12 hours of the course work requirements for a degree may consist of courses (resident and extension) that meet only once a week.

### VISITING STUDENTS

University of Kentucky graduate students who attend another Graduate School as a Visiting Student must have the permission of his/her University of Kentucky adviser and the Dean of The Graduate School at the University of Kentucky before the courses are taken in order to transfer credits earned.

Unclassified graduate students are not eligible to be Visiting Students.

A student who is enrolled in a Graduate program at another institution and plans to attend the University of Kentucky as a Visiting Student, need not submit transcripts. He must, however, request a Visiting Student form from the Graduate Admissions Office when filing his/her application. Visiting Student admission is for one semester only and credit earned in that status is not applicable to a University of Kentucky degree.

### TIME LIMIT FOR DEGREES

No course or equivalent credit may be given for graduate study completed more than eight years prior to the end of the semester at which the student expects to receive his/her degree unless such credit or equivalent is specifically validated by the Graduate Council on written recommendation of the appropriate Director of Graduate Studies. No course or equivalent credit may be validated in this manner if completed more than 12 years prior to the end of the semester in which the student expects to receive his/her degree.

### GRADUATION

Advanced degrees may be conferred at the close of any semester or summer session, but commencement exercises are held only at the close of the academic year. Students who are eligible to receive degrees at the end of a first semester or a summer session may participate in the next commencement exercises. Appropriate academic costume must be worn. The thesis and dissertation fees cover the cost of binding of the thesis or dissertation, microfilming, and copyright as appropriate to the degree.

To be eligible for a degree, the student must file an application at the Graduate Office within 30 days after the beginning of the semester or 15 days in the Summer Session in which he/she expects to complete his/her work.

### DIPLOMAS

Diplomas for graduate students are ordered after certification of the degree has been completed. If a letter of certification is needed, please write The Graduate School and one will be provided.

### FEES

Registration fees per semester are \$265 for residents of Kentucky, \$630 for non-residents. Part-time graduate students who are legal residents of the state pay \$30 per semester hour; non-residents pay \$69 per semester hour. Resident students in the summer will pay \$30 per semester hour; non-residents \$70 per semester hour. The Registrar determines the status of one's residence for purposes of assessing fees.

Graduate fellows, graduate assistants, and instructors pay the fees assigned to Kentucky residents.

Doctoral Candidates registering for 769-0 pay no fees.



## **General Requirements for All Masters' Degrees**

(See also General Requirements for All Advanced Degrees)

### **ON-CAMPUS RESIDENCE**

There is **no** Graduate School-wide sustained residence requirement for master's degrees at the University of Kentucky. However, students are advised to consult the special statement of requirements for the programs in which they are interested and consider carefully the statement about the spirit of resident graduate work in the section on residence. Students who contemplate continuing in a doctoral program should take into account at the outset the residence requirements for the doctoral degree.

### **TRANSFER OF CREDITS**

With the approval of his/her graduate adviser, Director of Graduate Studies, and the Dean of The Graduate School, a student may transfer up to nine credit hours of graduate level work from an accredited graduate school to apply toward the minimum requirements for the master's degree. These credit hours must have been earned post-baccalaureate.

### **CORRESPONDENCE WORK**

No graduate credit is given for courses taken by correspondence.

### **COURSES AND CURRICULA**

Graduate students are eligible to take regular courses which meet as organized classes and independent-study or research courses in which each student carries on investigations independent of class meetings. **Independent study or research courses may not duplicate thesis work;** thesis work must be done in addition to the minimum course requirements. **At least two-thirds of the minimum requirements for the master's degree must be in regular courses, and at least half of the minimum requirements must be in courses numbered on the 600 or 700 level.** Exceptions to this rule may be made only with the approval of the Graduate Council.

A student may work toward only one master's degree at a time. He/she must establish at least one year of residence while earning a second master's degree.

### **EXAMINATION**

A final examination (oral and/or written) is given all candidates for master's degrees not later than eight days before the last day of classes of the semester in which the degree is to be awarded. The examination is scheduled by the Graduate Dean and the report is returned to him/her upon completion of the examination, which in no case may be later than two weeks after the start of the examination. The examining committee consists of at least three qualified members recommended by the Director of Graduate Studies and appointed by the Dean of The Graduate School. The recommendation for a final examination must be filed with The Graduate School at least two weeks prior to the date of the examination. If a thesis is written, see the Thesis Section under Requirements for the Degree of Master of Arts and Master of Science for procedures.

If the candidate fails his/her final examination, the committee may recommend to the Graduate Council the conditions under which a second examination may be administered. Insofar as it is practicable the same examining committee gives this examination. In all decisions the majority opinion of the committee prevails. If the committee is evenly divided, the candidate fails. A third examination may not be allowed.

### **Requirements for the Degrees of Master of Arts and Master of Science**

The Graduate School authorizes all graduate programs to permit students to satisfy the requirements for the M.A. and the M.S. degrees by either of two plans.

#### **Plan A**

In addition to meeting all general requirements for masters' degrees (see section on General Requirements for All Advanced Degrees) the candidate must complete at least 24 semester credit hours of graduate course work with a standing of 3.0 (B) or higher, satisfy the language requirements, and write a thesis. A candidate must have a major area (defined usually as an academic department) and must (with the exceptions noted below) take at least two-thirds of his/her courses in this area; the other one-third may be taken in this area or in areas which have a graduate relationship to it. In Education, Agriculture, and Communications only one-half of the work must be in the major area. When the setting up of major topics seems to require it, the Graduate Council may, on recommendation of the appropriate Director of Graduate



Studies, authorize courses taught outside the major to count on the major.

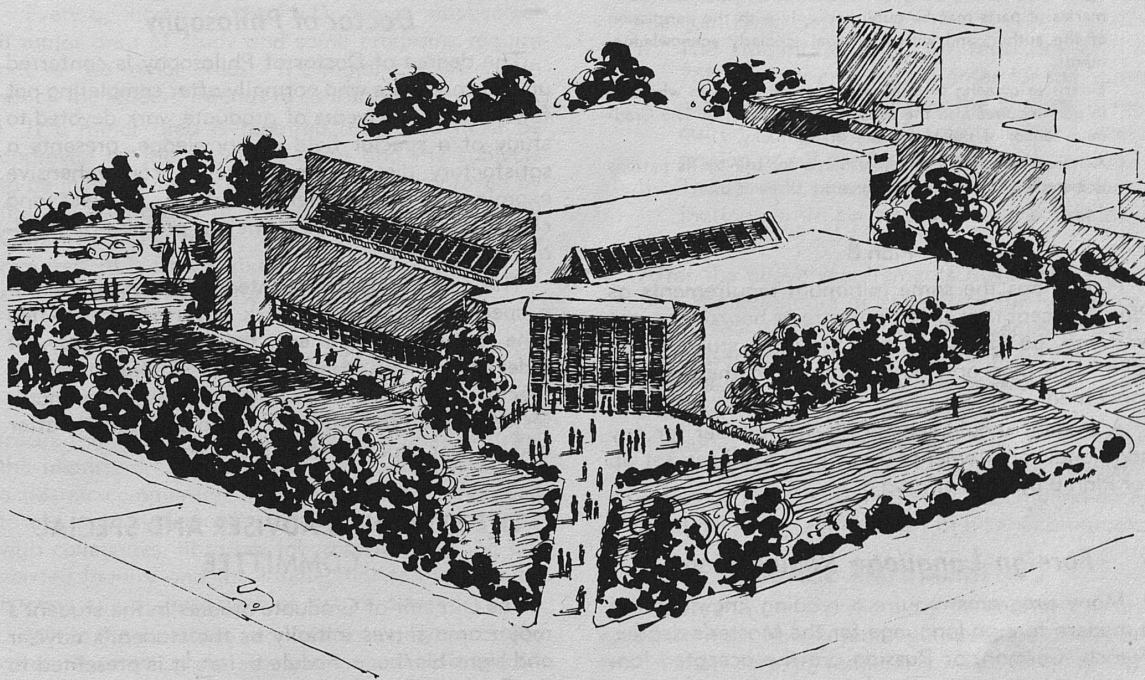
#### THESIS

Theses must be developed under the direction of a member or associate member of the Graduate Faculty. Collaborative effort by two or more graduate students is not forbidden. However, there must be enough independent effort to enable each student to make a separate contribution and to prepare an individual thesis.

Theses must be in conformity with the instructions prepared by The Graduate School. For specific instructions regarding the format of theses, the stu-

dent should obtain a copy of the leaflet, **Instructions For The Preparation of Theses and Dissertations**, from The Graduate School office.

Before the final examination the thesis director and the appropriate Director of Graduate Studies must indicate to The Graduate School that the student's thesis satisfies all requirements of The Graduate School and is complete in content and format with the exception of pagination, and that the student is ready to be examined. If the final examination committee indicates that the student has passed the final examination, he/she must make the modifications in the thesis which the committee specifies.



The final copies are submitted to The Graduate School after the Director of Graduate Studies and the Thesis Director have signed that they are complete.

Theses must be presented and accepted by the Graduate School by the last day of the semester if a student plans to graduate that semester.

Each student will pay a fee for the binding of the thesis. Payment will be made at the Billings and Collection office.

Theses submitted by candidates become the physical property of the University of Kentucky and authors agree that the University may decide the conditions under which they may be used or published. The University protects the authors' rights by placing certain restrictions upon borrowers' use of theses as long as they are unpublished. A copy of the following regulations (to be prepared by the student) is placed before the title page of every thesis:

Unpublished theses submitted for the masters' and doctors' degrees and deposited in the University of Kentucky Library are as a rule open for inspection, but are to be used only with due regard to the rights of the authors. Bibliographical references may be noted, but quotations or summaries of parts may be published only with the permission of the author, and with the usual scholarly acknowledgments.

Extensive copying or publication of the thesis in whole or in part requires also the consent of the Dean of The Graduate School of the University of Kentucky.

A library which borrows this thesis for use by its patrons is expected to secure the signature of each user.

#### Plan B

Plan B has the same minimum requirements as Plan A except that six or more credit hours of course work may be submitted for a thesis. A student may follow this plan only with approval of the program concerned.

A student should consult his/her adviser for any additional requirements that may have been set up for Plan B by his/her area of study.

#### **Foreign Language Requirement**

Many programs require a reading knowledge of a modern foreign language for the Master's degree. French, German, or Russian are the accepted languages. However, another language pertinent to the students' program may be substituted with the approval of the adviser and the Dean of The Graduate School. The language requirement may be satisfied by:

- 1) Completing one of the accelerated graduate level language courses with a B or better grade.
- 2) Completing the Educational Testing Service examination with a minimum score of 550.
- 3) Completing four semesters (or equivalent) of a modern foreign language with a grade-point average of B or better as an undergraduate at the University of Kentucky.
- 4) Completing with a grade of B or better Special Examinations given for the graduate reading courses. Forms may be obtained from the Registrar's Office, Administration Annex. Other types of special examinations are scheduled in The Graduate School Records Office.
- 5) Transferring a language taken to satisfy the requirements for a Master's degree at another university.

A candidate for a degree in the language which is his/her native tongue must complete a full major (one-third of his/her work) in areas in which English is the language used.

#### **Requirements for the Degree of Doctor of Philosophy**

The degree of Doctor of Philosophy is conferred upon a candidate who normally after completing not fewer than three years of graduate work devoted to study of a special field of knowledge, presents a satisfactory dissertation, passes a comprehensive examination on his/her dissertation subject and chosen field, and shows sufficient promise of scholarly attainment.

The doctor's degree is intended to represent not a specified amount of work covering a specified time, but the attainment, through long study, of independent and comprehensive scholarship in a special field. Such scholarship should be manifested by both the student's grasp of subject matter and his/her capacity to do research.

#### **THE STUDENT'S ADVISER AND SPECIAL COMMITTEE**

The Director of Graduate Studies in the student's major area serves initially as the student's adviser and signs his/her schedule before it is presented to the Dean. When the Dissertation Director has been chosen, the student's Special Committee is set up by the Dean after he/she has conferred with the student, the Director of Graduate Studies, and the dissertation director.



The special committee consists of the Dissertation Director as Chairman, two or three other members from the major area, and at least one representative from each minor area if there is a minor area—in all, no fewer than five members. This committee advises the applicant and sets the requirements which the student must meet before he/she may be admitted to the qualifying examination. This special committee keeps minutes of all meetings and sends abbreviated copies to the Dean to be made a part of the student's record. Ordinarily this committee determines when the Qualifying Examination is to be administered, and the Chairman schedules the examination in writing, sending a copy of the announcement to the Dean. The committee is the final judge on a majority basis of the questions to be asked on the qualifying examination and of whether the student passes.

A program which elects to do so may give a uniform departmental qualifying examination to its candidates instead of delegating full responsibility to the Special Committee.

### MAJOR AND MINOR SUBJECTS

Every applicant for the Ph.D. degree must select a major area of study and some programs require one or two minor areas. The major area is one in which the student intends to concentrate his efforts.

If a minor area is required, this area must be approved by the Graduate Dean and the subjects to be included in the minor(s) must be approved by the representatives of the minor(s) on the Special Committee. Normally, when an outside minor is required, at least one-sixth of the student's program should be devoted to study in this area.

### RESIDENCE REQUIREMENTS

The purpose of a residence requirement is to insure that a student's graduate education includes the important component of full contact with the academic community. The requirement is intended to assure that doctoral students are fully involved with colleagues, libraries, laboratories, ongoing advanced inquiry and the intellectual ferment which is generally as important as actual classwork.

While the residence requirement is, by necessity, given in terms of full or part-time enrollment, it should be recognized that the intent of the requirement is to insure that the student is fully involved in University life.

While it is expected that a well-prepared student of good ability may complete the requirements for

the doctorate in three years of full-time residence, more or less than three years may be required. It should be understood, however, that scholarly accomplishment is the basis on which requirements are met, not semester hours completed or time spent in the program.

The following residence requirements must be satisfied:

1. Each student must earn **two consecutive semesters** (fall semester, spring semester) of full-time residence in the program in which he/she plans to be a degree candidate at the University of Kentucky.
2. Each student must earn **two consecutive terms** (nine hours or more) (summer, fall or spring) of residence at the University of Kentucky in full-residence status in the program in which he/she plans to be a degree candidate **prior** to the qualifying examination.
3. Each candidate must register for two full-time semesters of residence credit (769) immediately following the qualifying examination. It is not mandatory that the student be on campus if the requirements of No. 1 have been met. Full-time residence credit is given the semester of the qualifying examination if:
  - a. The student registers for residence credit 769 for nine credits. (In order for the Summer Term to be included the student is required to register for 3 credits in the 4-week session and 9 credits in the 8-week session.)
  - b. The student completes the qualifying examination within six weeks after the first day of classes.
4. After the above requirements have been satisfied, the candidate must register for Residence credit 769 (0 credit hours) each semester until the dissertation is completed and successfully defended unless the student's program requirements differ. No fees will be assessed.
5. It should be understood that the above residence requirements are the **minimum requirements** of The Graduate School. Each candidate must meet the requirements of his/her program.

### LANGUAGE REQUIREMENTS

As stated in the specific program description, an applicant must have a reading knowledge of one or two modern foreign languages. The language or languages accepted are French, German, or Russian. However, with the approval of the student's special committee, the Director of Graduate Studies in the area, and the Graduate Dean, certain substitutions may be made:

1. Another language may be substituted if the student's scholarly needs will be better served and he/she has the approval of his/her adviser and the Dean of The Graduate School.
2. In special cases fluency in one foreign language may be substituted for a reading knowledge of two languages.

If after four semesters of full-time graduate work (i.e., above the A.B.) the student has not satisfied the foreign language requirement, he/she must register for a language course or courses as a part of his/her course load. **The language requirement must be satisfied before the applicant may be admitted to the qualifying examinations.** The acceptable ways for satisfying this requirement are given in the section, "Requirements for the degrees of Master of Arts and Master of Sciences."

### THE QUALIFYING EXAMINATION

A Qualifying Examination is required of all applicants for the doctorate in order to determine whether the applicant should be admitted to candidacy. Normally this examination is prepared by the student's Special Committee (see The Student's Adviser and Special Committee Section) and should be taken during or after the student's fourth semester of full-time graduate study, or the equivalent. The qualifying examination shall be both written and oral. The examination is scheduled in writing. A copy of the announcement is sent to the Dean of The Graduate School. The special committee reports to the Dean the result of the examination within 60 days of the beginning. If the result is failure, the committee recommends the conditions to be met before another examination may be administered. The minimum time before another examination may be given is four months. The same committee, or as many of the members as are available, plus those added by the Dean to fill vacancies, gives the second examination. A third examination may not be allowed.

### THE DISSERTATION

Each candidate must present a dissertation which is the result of original research. The dissertation must be in conformity with the instructions prepared by The Graduate School. For specific instructions regarding the format of the dissertation, the student should obtain a copy of the leaflet, **Instructions For The Preparation Of Theses and Dissertations**, from The Graduate School office.

Each graduating doctoral student will pay dis-

sertation fees. Payment will be made at the Billings and Collection Office.

### COPYRIGHT

If a doctoral candidate believes his dissertation should be copyrighted, he/she may have it registered by (1) signing the Copyright Authorization on the Microfilm Agreement Form which he/she completes after his/her thesis format check in The Graduate School, (2) paying the copyright fee of \$15.00 (this copyright fee is in addition to the \$30.00 dissertation fee), and (3) including a copyright notice in the front of the dissertation. The notice is a single sheet on which is centered the heading:

Copyright by  
(name of student)  
(year)

### THE FINAL EXAMINATION

The student has two options for presenting the dissertation to The Graduate School.

1. Present the completed dissertation to The Graduate School and, after it is accepted, take the final examination. Modifications specified by the committee can be made following the examination.
2. Present an approval sheet signed by a majority of the special committee (including the Director of the Dissertation) to The Graduate School indicating that the special committee has in hand a draft of the dissertation. **This draft must satisfy all requirements of The Graduate School and be complete in content and format with the exception of pagination.** Following the final examination, the student must make modifications which the committee specifies as being necessary. The final copy will be submitted together with an approval form signed by the Chairman of the Special Committee and the Director of Graduate Studies. **The dissertation must be submitted to The Graduate School in final form within two months after the final examination.** If the student plans to graduate the semester in which the final examination is taken, the dissertation must be presented and accepted by The Graduate School by the last day of that semester.

The examining committee consists of a minimum of five persons appointed by the Dean of The Grad-



uate School with the Director of Graduate Studies (or his/her delegate) serving as chairman. Other members include the Dissertation Director, a third representative of the department, a representative of the minor area, if there is a minor area, and one member of the Graduate Faculty associated with neither the major nor minor areas appointed by the Dean of The Graduate School. The President of the University and the Dean of The Graduate School are ex officio members of all examining committees. The final examination includes a defense of the dissertation and may be as comprehensive in the major and minor areas as the committee desires to make it. In all decisions the majority opinion of the committee prevails. If the committee is evenly divided, the candidate fails.

If the candidate fails, the committee may recommend to the Graduate Dean the conditions under which the candidate may have another examination. This examination will be administered by as many of the original committee members as are available, plus new members appointed by the Dean to fill vacancies.

If the student passes this examination, he/she will be recommended for the degree at the next commencement, provided one academic year has elapsed since the qualifying examination.

### **COMBINED MEDICAL AND GRADUATE STUDIES**

A student combining studies toward an M.D. degree and a Ph.D. degree in one of the established programs of The Graduate School must be admitted to both programs. Before applying for admission to The Graduate School the applicant should consult with the Director of Graduate Studies of the graduate area of interest.

Students admitted to combined programs will register both in the College of Medicine and in The Graduate School during each semester in which work applying to both degrees is being taken. Graduate courses (500 level) which are regular parts of the medical curriculum also require dual registration if they are to apply toward the graduate degree. In view of the different grading systems currently employed, instructors of courses requiring dual registration will provide H, P or U grades to the College of Medicine and A, B, C, or E grades to The Graduate School.

Any student enrolled in the regular medical curriculum will pay the tuition and fees of the College of Medicine. When not enrolled in the regular medical curriculum, he/she will pay Graduate School fees in proportion to the amount of graduate work taken.

### **JOINT-DOCTORAL PROGRAMS WITH OTHER UNIVERSITIES**

Doctoral programs in education are offered jointly between the University of Kentucky and the other state universities: Eastern, Morehead, Murray, and Western. These programs permit qualified candidates to complete approximately one year of graduate work above the master's degree at the cooperating university. A minimum of 18 credit hours of course work, the Qualifying Examination and the dissertation must be completed at the University of Kentucky, and a minimum of one academic year must be spent in full-time residence on the Lexington campus. The work of each candidate is directed by a joint faculty committee from both institutions.

Persons interested in these programs should confer with the Dean of The Graduate School at the cooperating university, or the Associate Dean for Graduate Studies in Education at the University of Kentucky. Applications may be filed for review by a joint screening committee. Admission will depend upon academic standing, scores on standardized examinations, and personal references.

There are available joint programs in Musicology and Pharmacology between the University of Kentucky and the University of Louisville. Inquiry should be made to the Director of Graduate Studies at the University of Kentucky.

### **General Statement of Regulations Governing Graduate Work in the College of Education**

#### **Fifth Year, Rank I and II and Masters Degrees in Education**

The College offers the following degrees: Master of Arts in Education, Master of Science in Education (only in the Departments of Curriculum and Instruction, Educational Psychology and Counseling, Higher and Adult Education, and Vocational Education), Master of Science (only in the Department of Health, Physical Education, and Recreation), Specialist in Education, Doctor of Education, and Doctor of Philosophy.

Graduate work is also provided for persons seeking Rank I or II certification.

Rank II certification may be achieved by the completion of a master's degree or the "Planned Fifth Year Program." The "Fifth Year" is a program of 32 semester hours for persons who hold

bachelor's degrees and a teaching certificate. A minimum of 18 hours must be completed at the University of Kentucky. Of the 32 hours at least 12 must be in professional education, at least 12 must be in fields outside education.

Rank I certification is based upon a Planned Fifth Year program plus 30 semester hours of graduate work appropriate for the teacher, or 60 hours of appropriate graduate work including a master's degree.

Each student's graduate curriculum must be a well-rounded program of courses related to the student's major interest and approved by the adviser. In cases of deficient preparation the adviser, with the approval of the Associate Dean for Graduate Studies in Education, determines prerequisite undergraduate courses to be taken. Each department has designated one or more faculty members to direct graduate studies in that department. Specific questions regarding programs may be referred to the Directors of Graduate Studies.

The two plans which lead to the degree of Master of Arts in Education or Master of Science in Education are Plan A and B.

#### Plan A

1. A minimum of 24 semester hours of graduate work must be completed and a thesis must be presented.
2. At least 12 semester hours of graduate work must be in education.
3. At least 12 semester hours of graduate work must be in courses numbered 600 or 700.
4. In most M.A. in Education programs at least 12 semester hours must be outside the field of education.
5. The total number of credits presented in education, undergraduate and graduate, must be at least 30 semester hours for most MA in Education programs.
6. A standing of 3.0 (an average of B) or better must be made on all graduate work attempted.
7. Nine semester hours (if recommended by the graduate adviser and approved by the Dean of The Graduate School) may be completed in other graduate schools.
8. All applicants for admission to degree programs must submit their scores on the verbal and quantitative portions of the Graduate Record Examination. This rule may be waived in cases of very extenuating circumstances upon recommendation of the Director of Graduate Studies in the individual department and the Associate Dean for Graduate Studies in the College of Education. In cases where waivers

are granted, however, the GRE scores must be submitted prior to the conclusion of the first semester of graduate study.

9. A final examination, either written or oral, or both is required of all master's candidates. This examination is to be taken during the session in which the degree is to be conferred.
10. MA in Education Students should meet the requirements for a teaching certificate. If deficiencies are found, they should be overcome before proceeding with graduate work. Requirements for certification can be determined in the Office of Education and Certification in the College of Education. The work required to overcome these deficiencies is in addition to the minimum graduate requirements for the degree. (Exceptions are in Higher Education, Rehabilitation Counseling, and Psychometry.)
11. The student must apply to The Graduate School for admission to candidacy at the end of the first semester of graduate study or when the student has completed 12 hours of graduate work.

#### Plan B

1. A minimum of 30 semester hours of graduate work must be completed. (Several programs)
2. At least 12 semester hours of graduate work must be in education.
3. At least 15 semester hours must be in courses numbered 600 or 700. (See requirements 4 through 11 in Plan A for remaining requirements.)

### **Requirements for the Degree of Doctor of Education**

The requirements for the degree of Doctor of Education are the same as for the degree of Doctor of Philosophy with the following exceptions:

1. No foreign languages are required for the Ed.D. degree.
2. A minimum of 72 credit hours is required beyond the baccalaureate with a distribution providing for:
  - a. Completion of at least 21 credit hours within a single area of concentration. (See section on Education for options.)
  - b. At least 18 additional credit hours in supporting departments within Education, with a minimum of six hours in each of two departments outside the area of concentration.



- c. At least 24 credit hours in disciplines outside Education which are supportive to the area of concentration.
  - d. A minimum of nine credit hours in research tool studies appropriate for this program.
3. Applicants shall declare at least one area outside the area of concentration at the time their special committees are appointed in order to facilitate the appointment of a committee member from outside Education.

The Committee on Graduate Admissions and Standards of the College of Education and the Graduate Dean will evaluate credits and residence to be allowed transfer students. It is understood, however, that the special committee may accept only such courses as contribute to the graduate program of the student.

#### **The Special Committee**

Each special committee for the Ed.D. degree will consist of the following:

1. A committee chairman from the department in which the candidate is majoring.
2. Two other Graduate Faculty members from the College of Education. At least one of these will come from a department outside of the student's major area.
3. Two other Graduate Faculty members. At least one of these must be outside the field of Education.
4. Three of the committee members must be full members of the Graduate Faculty.

#### **The Final Committee**

Each final examination committee for the Ed.D. degree shall have:

1. A chairman who is either the Director of the Dissertation or the Chairman of the Special Committee. If neither of the above are members of the student's department, the Director of Graduate Studies will serve as chairman.
2. Two other faculty members from the College of Education without regard to department affiliation.
3. At least one faculty member from the student's minor area.
4. One person from outside the College of Education who is not connected with the minor field. This person is the traditional outside member or The Graduate School representative.
5. Five committee members must be Full or Associate members of the Graduate Faculty and,

at least, three members must be Full members of the Graduate Faculty

#### **Doctor of Philosophy (Education)**

The Doctor of Philosophy degree in the field of education is offered only in educational psychology and counseling. (See requirements for the Ph.D.)

### **Requirements for the Degree of Specialist in Education**

The degree of Specialist in Education is conferred upon a candidate who satisfactorily completes a post master's planned program in education under the general requirements of The Graduate School and the following special requirements:

#### **Admission**

The student, prior to admission to the program must (1) have a master's degree, (2) ordinarily have a standing of 3.4 or higher on his/her graduate work, (3) meet the requirements for a teaching certificate or have credentials appropriate to his/her field of specialization, and (4) have at least 30 credit hours in courses in education (undergraduate and graduate).

The student should file application with the Associate Dean for Graduate Studies in Education. The application will be considered by the department and by an admissions committee of the college. A student must be recommended by the program in which he/she plans to major, as well as by the Admissions Committee.

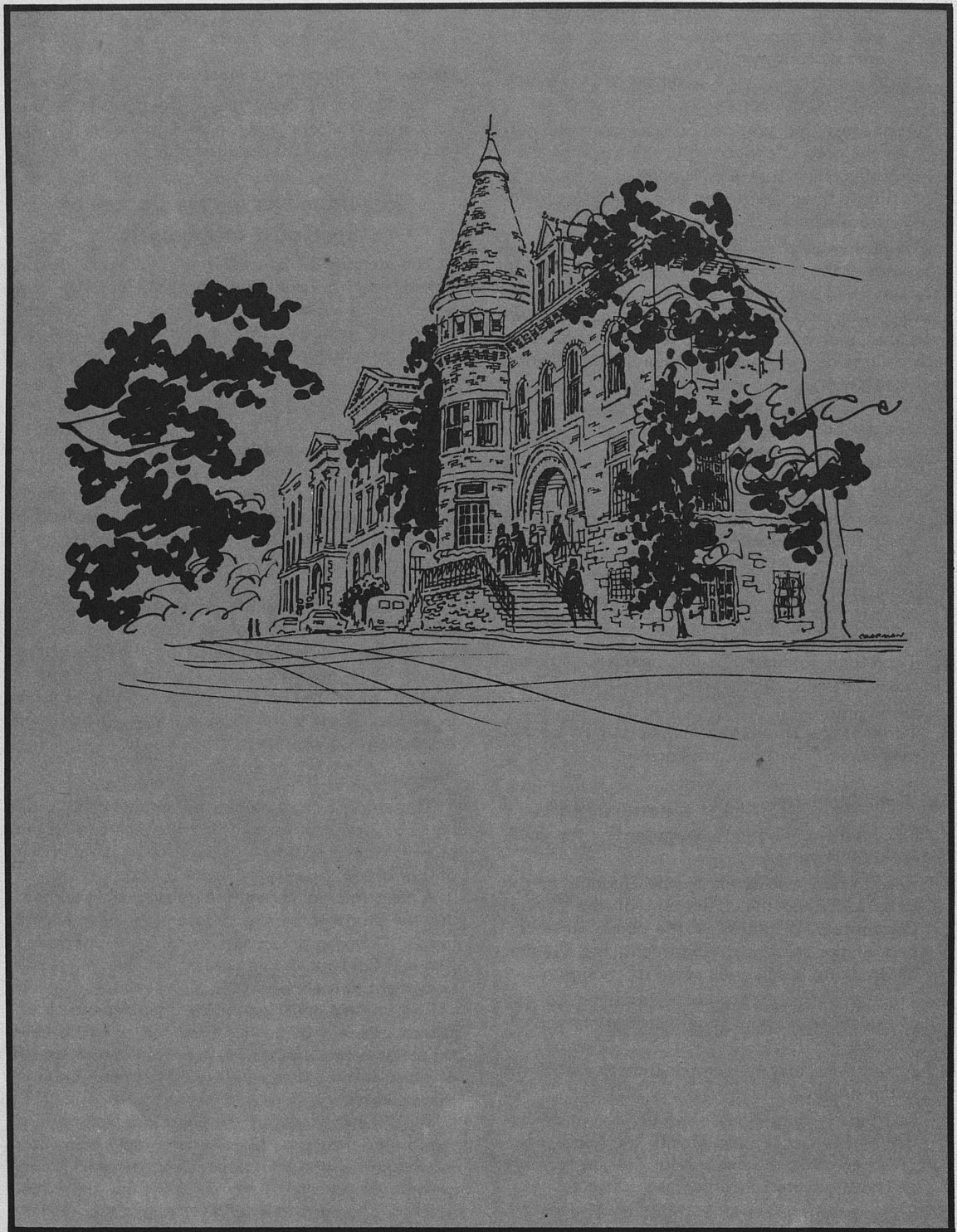
#### **Program\***

The student must earn a minimum of 30 credit hours of graduate work beyond the master's degree, of which at least 15 must be in courses numbered 600 or above.

A departmental committee is responsible for helping the students plan a program to meet his/her needs. The program should contribute to specialization in a field but should not neglect the broader development of the individual.

The student must complete an independent research problem (equal to three but not to exceed six credit hours) and submit a written report, a copy of which is to be filed with the department directing the research.

With the approval of the Graduate Dean and of the major program, the student may transfer a maximum of nine hours of residence credit earned beyond the master's degree from an institution which is approved to offer work above the master's level.





### **Final Examination**

The final examination required of all candidates is administered by an examining committee consisting of at least three qualified members recommended by the adviser and the Director of Graduate Studies and appointed by the Dean of The Graduate School.

\* The Specialist in Education degree is offered in Curriculum and Instruction, Educational Psychology and Counseling, Social and Philosophical Studies, Special Education, and Vocational Education.

### **Visiting Scholars and Advanced Study**

When appropriate resources are available at the time desired, the President of the University, upon the recommendation of the Dean of The Graduate School and the department affected, will welcome visiting scholars as guests of the University, and will grant the privilege of auditing seminars and research courses and of carrying on research in laboratories and libraries. Normally there will be no charge except for laboratory expenses. Negotiations for such arrangements should be conducted in advance through the Graduate Office.

### **POSTDOCTORAL FELLOWSHIPS**

Post-doctoral fellowships may be available in various research departments. Information concerning the terms of the fellowships is available in the department. Post-doctoral fellows are required to register with the Graduate School through their department.

### **THE ACADEMIC COMMON MARKET**

Kentucky is a participating state in The Academic Common Market, an interstate agreement among Southern states for sharing academic programs. Students who qualify for admission may enroll in a specific program in another A.C.M. state on an in-state tuition basis. At present, the agreement has been limited to unusual graduate programs. For information write to: Southern Regional Education Board, 130 Sixth Street N.W., Atlanta, Georgia 30313.

### **Research Program at Oak Ridge Associated Universities**

The University is one of the sponsoring universities of the Oak Ridge Associated Universities located at Oak Ridge, Tennessee. Through this association, the University of Kentucky has available to it the facilities of the National Laboratories in Oak Ridge and of the research staffs of these

laboratories. When masters and doctoral candidates have completed their course work, it is possible by special arrangement for them to go to Oak Ridge to work on their research problems and prepare their theses. In addition, it is possible for staff members of the University to go to Oak Ridge for varying periods, usually for not less than three months, for advanced study in their particular fields.

Among ORAU's activities are competitive programs to bring undergraduates, graduate students and faculty members to work on research problems at the research facilities of the Energy Research and Development Administration. Participants are selected by ORAU and the staffs of the facilities participating in the ORAU programs, which are Oak Ridge National Laboratory; the Oak Ridge Y-12 Plant; the Oak Ridge Gaseous Diffusion Plant; the Atmospheric Turbulence and Diffusion Laboratory in Oak Ridge; the Savannah River Laboratory and Savannah River Ecology Laboratory in Aiken, S.C.; the Comparative Animal Research Laboratory in Oak Ridge; the Puerto Rico Nuclear Research Center; and the Energy Research Centers at Bartlesville, Okla., Pittsburgh, Pa., and Morgantown, W.Va. The ORAU Institute for Energy Analysis, the Special Training Division, the Medical and Health Sciences Division and its other programs are also open to qualified students and faculty members.

Students on Oak Ridge Graduate Fellowships receive stipends which vary according to the number of their dependents and the level of work they are doing. Staff members may work in Oak Ridge on stipends commensurate with their present salary and rank.

Information concerning stipends and other matters may be obtained from the office of The Graduate School or from the Chairman of the University Relations Division of the Oak Ridge Associated Universities, Box 117, Oak Ridge, Tennessee 37831.

Bulletins may be obtained by writing to the University Programs Office, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, Tennessee, 37830.

### **Southern Regional Training Program in Public Administration**

Since 1945 the University of Kentucky, the University of Alabama, and the University of Tennessee have conducted a joint program in public administration leading to a master's degree. Part of the course work is completed at each institution, and three months of successful internship are required. Detailed information concerning the pro-

gram may be obtained from the Department of Political Science of the University of Kentucky.

### ***Nonservice Fellowships***

The Graduate School administers a number of nonservice fellowships available to outstanding graduate students. Forms for making application may be obtained from The Graduate School Fellowship Office (329 Patterson Tower) and must be submitted not later than February 1 of each year, except that the deadline for dissertation year fellowships is February 23 and for summer fellowships, April 11. All fellowship applicants must submit scores on the GRE, or GMAT or MCAT examinations (verbal and quantitative) as part of their application.

Scholarships for fellowship recipients valued at \$365 per semester to be applied toward the cost of are awarded to non-resident students. Tuition for resident and non-resident students is \$265 and \$630 per semester respectively for the 1977-78 academic year.

Recipients of fellowships must register as full-time students.

**Graduate School Fellowships:** These fellowships are for one academic year and are competitively renewable. The stipend is \$3000 per academic year.

**Haggin Fellowships:** These fellowships, endowed by Margaret Voorhis Haggin in memory of her father, George Voorhis, have a stipend of \$3000 per academic year. Each has a tenure of one academic year and is competitively renewable.

**University of Kentucky Research Foundation Fellowships:** The University of Kentucky Research Foundation supports fellowships of \$3600 for one academic year to assist graduate programs in recruiting outstanding students. While the awards are not generally renewable, recipients may apply for other fellowships awarded by The Graduate School.

**Dissertation Year Fellowships:** Academic year fellowships open to doctoral students who have passed the qualifying examination and will be working fulltime on their dissertation. Each fellowship has a stipend of \$3200 per academic year and is not renewable.

**Patterson Fellowships in Diplomacy and International Commerce:** Patterson Fellowships are available from an endowment established by President James K. Patterson, the first president of the University. Eligibility requires an enrollment in grad-

uate programs of Diplomatic History, International Government, or International Economics. The fellowship stipend is \$3000 per academic year and is competitively renewable.

**The Dr. Paul I. Murrill Memorial Scholarship:** This scholarship was established by Mrs. Paul I. Murrill in memory of her husband, who was a graduate of the University of Kentucky. It pays a stipend of \$4000 for one academic year to a student who possesses outstanding qualities of character and aptitude for graduate work. Preference is given to scholars in the field of chemistry.

**The Robert N. Jeffrey Fellowships:** These fellowships are supported by the Jeffrey Memorial Endowment Fund set up by Mrs. Helen Lasby Jeffrey in honor of her husband, Robert N. Jeffrey, who was formerly Plant Physiologist at the Agricultural Experiment Station. These fellowships pay a variable stipend up to \$4000 per academic year and are subject to renewal if the progress of the student is satisfactory. They are open to Ph.D. students in all areas of the University concerned with tobacco research. The fellows' dissertation research must apply directly to tobacco.

**The George W. Pirtle Fellowship:** A grant of \$1000 per year is given by Mr. Pirtle, the first student to obtain the Master's Degree in Geology from the University, to a graduate student majoring in Geology. The award is made upon the recommendation of the faculty of the Department of Geology and is based on need and promise of future achievement in the geological field.

**Summer Fellowships:** These fellowships are available for the two summer months (July, August) on a competitive basis to students who have been enrolled in The Graduate School for a minimum of two semesters. The stipend is \$300 per month.

### ***Research and Teaching Assistantships***

Most departments employ part-time teaching and research assistants whose holders pay the same fees as are assessed Kentucky residents. The stipends vary with the departments. Information concerning assistantships may be obtained from the various departments.

### ***Miscellaneous Financial Support***

Students may request funds from The Graduate School to defray partially certain expenses relating



to their graduate education. These include funds for travel expenses necessary to dissertation research; certain dissertation costs, e.g., obtaining microfilm, reproducing and mailing questionnaires, etc.; for travel expenses incurred in presenting papers based on dissertation research at national meetings. Application forms are available in the Fellowship office.

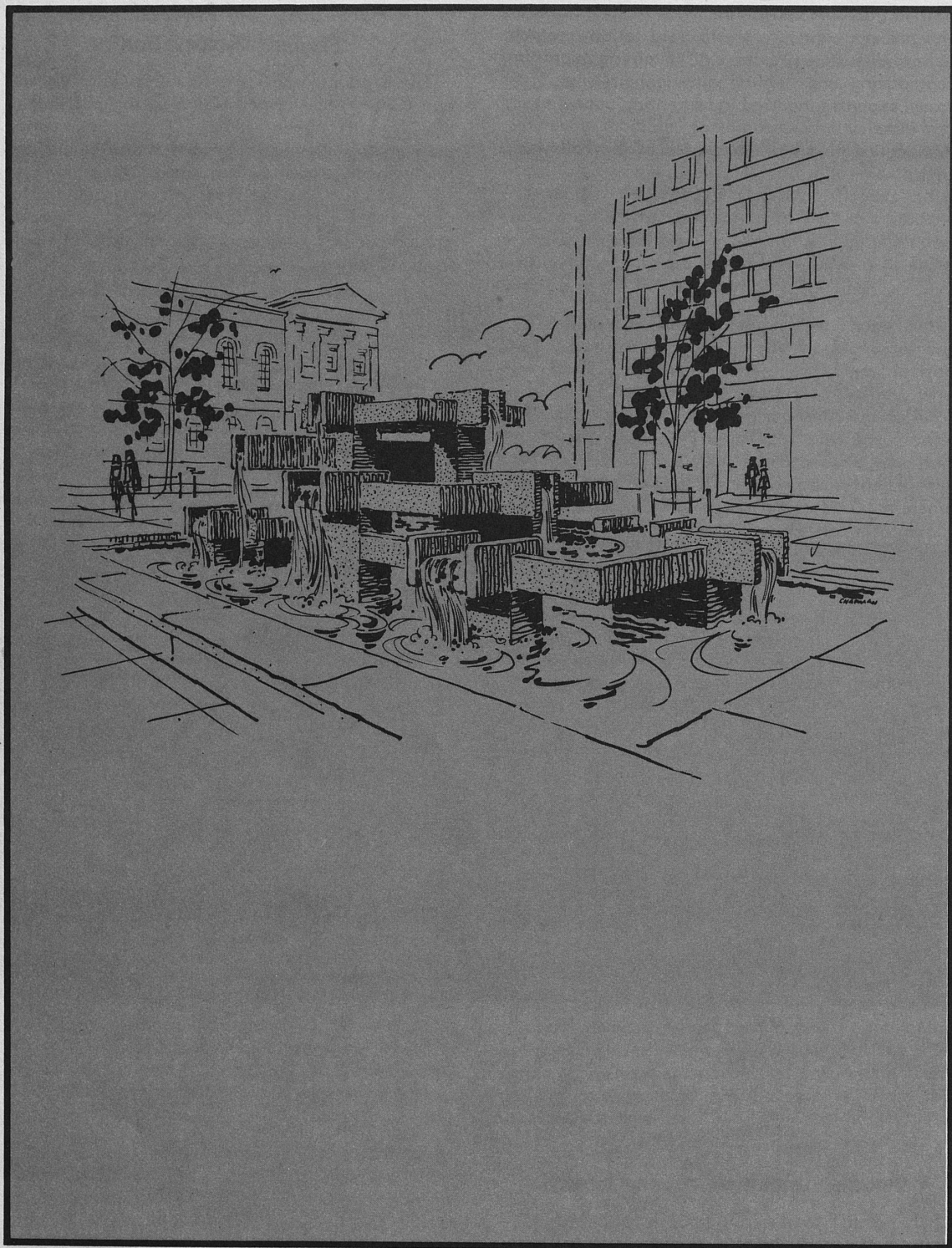
### ***Graduate and Professional Student Association***

The Graduate and Professional Student Association (GPSA) was formed in the spring of 1969 to provide a permanent channel for communication between the administration and the graduate and professional students. The Association promotes friendship and the exchange of ideas among students of the various disciplines and encourages all graduate and professional students to participate in its activities.

#### **GRADUATE COUNCIL**

##### **1977-1978**

Henry P. Cole (Educational Psychology and Counseling) .....	1975-1978
A. Edward Blackhurst (Special Education) .....	1975-1978
George W. Schwert (Biochemistry) .....	1975-1978
William J. Stober (Economics) .....	1976-1979
Robert W. Kiser (Chemistry) .....	1976-1979
John A. Deacon (Civil Engineering) .....	1976-1979
William Dennen (Geology) .....	1977-1980
George Mitchell (Animal Sciences) .....	1977-1980





# PROGRAMS AND DIRECTORS OF GRADUATE STUDIES

## College of Agriculture

Dean—Charles E. Barnhart  
Associate Dean for Research and Graduate Studies—Oran Little

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Chairman—Robert W. Rudd	
Director of Graduate Studies—Kurt Ansel	
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Chairman—A. J. Hiatt	
Directors of Graduate Studies—	
Glenn Collins, Crop Science	
R. E. Phillips, Soil Science	
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Chairman—Virgil Hays	
Directors of Graduate Studies—Virgil Hays,	
George E. Mitchell, Jr.	
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Forestry .....	62
Director of Graduate Studies—	
George Coltharp	
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Director of Graduate Studies—Raymond Lockhard	
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Stephen Diachun	
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Director of Graduate Studies—Robert W.	
Darlington	

## College of Allied Health Professions

Dean—Joseph Hamburg

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Paul Thornton	
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Chairman—Joe Fred Sills

Health Radiation Sciences ..... 68

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Joseph Sayeg

## College of Arts and Sciences

Dean—Art Gallaher, Jr.

Associate Dean—Donald E. Sands

### Programs

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Director of Graduate Studies—John van Willigen	
Thomas H. Morgan School of	
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Wagner, Fletcher Gabbard	
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Classical Languages and Literature .....	47
Chairman—Hubert Martin, Jr.	
Director of Graduate Studies—Louis J. Swift	
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Chairman—Thaddeus Curtz	
Director of Graduate Studies—Michael McCord	
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Phillip Duncan	
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Karl B. Raitz	
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Director of Graduate Studies—William R. Brown	

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Chairman—John Mack Director of Graduate Studies—Donald Coleman	
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Dean—W. W. Ecton  
Associate Dean—John L. Madden

##### **Programs**

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#### **College of Communications**

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Dean—Romona R. Rush Director of Graduate Studies—Lewis Donohew	

#### **College of Dentistry**

Dentistry .....	53
Dean—Merrill W. Packer Chairman—Robert Biggerstaff Director of Graduate Studies—Stanley Saxe	

#### **College of Education**

Dean—George W. Denemark  
Associate Dean for Graduate Studies—Edgar Sagan

##### **Programs**

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Chairman and Director of Graduate Studies— Charles Faber	
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#### **College of Engineering**

Dean—James Funk  
Associate Dean for Graduate Studies—  
Robert Grieves

##### **Programs**

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Chairman—John Walker Director of Graduate Studies—I. J. Röss	



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Chairman—(See Mechanical Engineering)	
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Civil Engineering .....	46
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Director of Graduate Studies—Millard F. Beatty	
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Director of Graduate Studies—Robert DeAngelis	

#### College of Fine Arts

Dean—J. Robert Wills, Jr.	
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Chairman—Joseph Fitzpatrick	
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Chairman and Director of Graduate Studies— Robert Wills	

#### College of Home Economics

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Dean and Coordinator of Graduate Studies— Marjorie Stewart	
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Lisa Barclay, Human Development and Family Relations .....	72
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Abby Marlatt, Nutrition and Food Science ..	81
Marjorie Stewart, Textile Clothing and Merchandising .....	97

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Dean—Timothy W. Sineath	
Director of Graduate Studies, Thomas J. Waldhart	

#### College of Medicine

Dean—D. Kay Clawson

##### Programs

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Chairman and Director of Graduate Studies— Harold Parks	
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Pathology .....	81
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Acting Chairman—Donald Diedrich	
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#### College of Nursing

Nursing .....	80
Dean—Marion McKenna	
Director of Graduate Studies and Assistant Dean for Graduate Education—Juanita Fleming	

#### College of Pharmacy

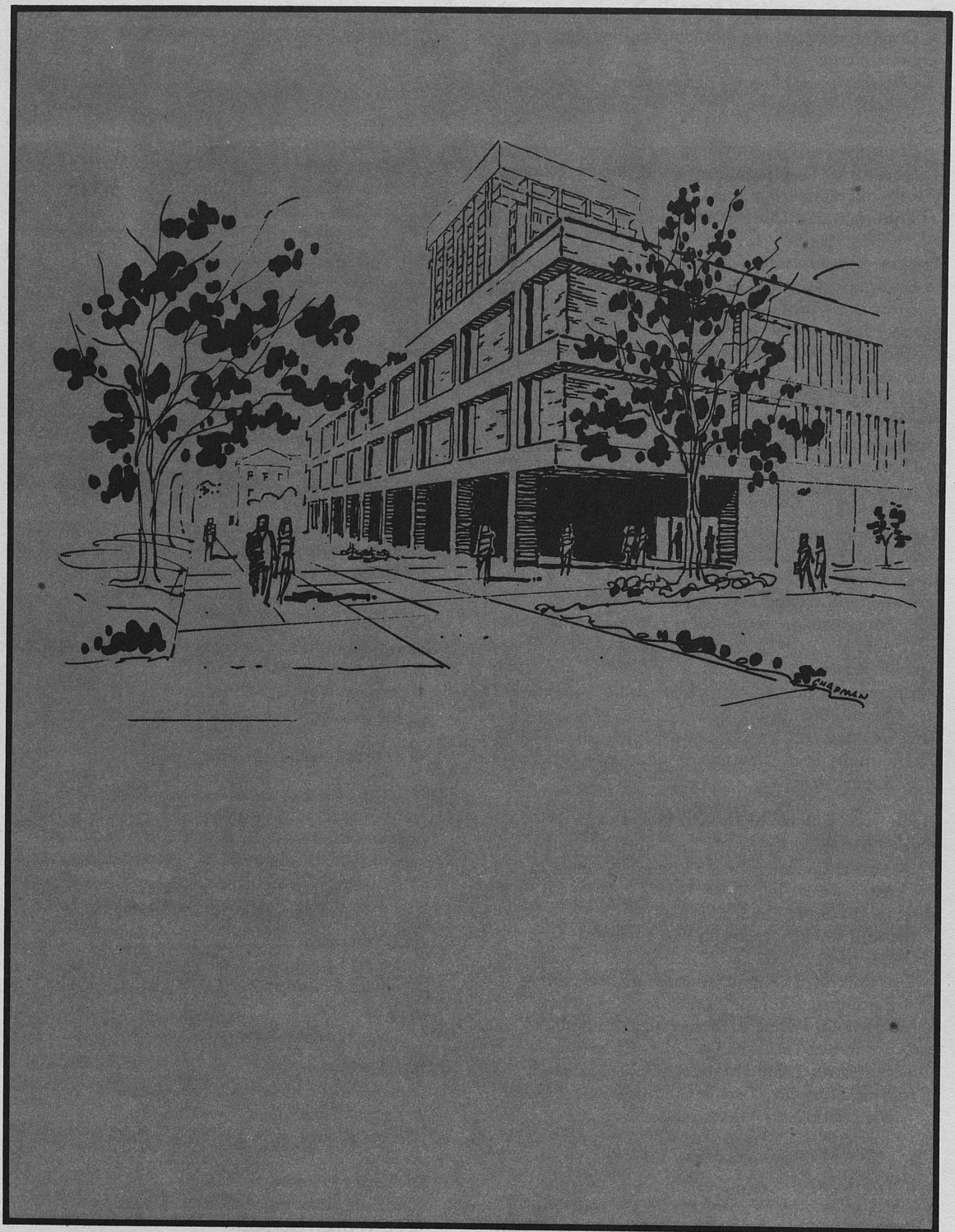
Pharmacy .....	81
Dean—Joseph Swintosky	
Associate Dean for Research and Director of Graduate Studies—H. B. Kostenbauder	

#### College of Social Professions

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Dean and Director of Graduate Studies— Ronda S. Connaway	

#### The Graduate School

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Director of Graduate Studies—Merlin Hackbart	
Assistant Director of Graduate Studies— John Wanat	
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Director of Graduate Studies—T. Z. Csaky	
Associate Director of Graduate Studies— H. Wyman Dorough	





# The Graduate School Programs

## COURSE LISTINGS

The course listings in The Graduate School Bulletin include all courses approved through February 1977.

**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 the instructor.

## ACCOUNTING

**Graduate Faculty:** Professors Paul M. Davis, William W. Ecton (Dean), James A. Knoblett (Chairman), Donald L. Madden (Director of Graduate Studies), Levis D. McCullers (Associate Dean), Albert W. Patrick, Associate Professor Relmond P. VanDaniker.

### The Degree of Master of Science in Accounting

#### Objectives:

The principal objectives of the Master of Science Program in Accounting are to develop the ability to perform, and report upon, significant research and to further the understanding of the relationship between accounting and other disciplines. Since the specific needs of individuals for advanced study differ, the program has been structured to provide maximum flexibility. Plan B is offered.

#### Requirements:

1. Admission to the advanced degree program is open to students who hold a bachelor's degree from any accredited college or university, an undergraduate grade-point average of 2.7 or above, and at least 450 on the Graduate Management Admission Test.
2. Graduate study in accounting presumes a minimal preparation in economics and business, including the following areas (undergraduate credit can be applied). In certain cases, these areas may be satisfied within the M.S. program upon approval of the Director of Graduate Studies:

	Crs.
Principles of Economics	6
Principles of Accounting	6
Statistical Method	6
Business Finance	3
Marketing	3
Management	3
Business Policy	3

Additional minimal preparation is one course each in intermediate accounting, cost accounting, income taxation, and auditing.

3. A minimum of 30 semester hours must be presented in courses carrying graduate credit.

At least 18 semester hours must be in courses reserved exclusively for graduate students and at least 12 of these must be in accounting.

4. The course requirements are:
  - a. One course in each of the following fields:  
Advanced Managerial Accounting  
Income Taxation  
Attest Function  
Accounting Theory
  - b. At least six semester hours of graduate credit outside the Department of Accounting, three of which must be production related.
  - c. A course in Computer Science or Data Processing.
5. The candidate must submit evidence of competence in statistics (successful completion of six semester hours of course work at the upper division level).
6. Minimal average of grade B in all courses attempted for graduate credit after being admitted to Graduate School. A minimal average of grade B must similarly be achieved for all accounting courses attempted after being admitted to Graduate School. Students obtaining two grades of C below a B average will be dropped by the Department.
7. Successful completion of a comprehensive examination.

401 ACCOUNTING THEORY .....	(3)
403 AUDITING .....	(3)
408 COST ACCOUNTING .....	(3)
410 ACCOUNTING FOR INSTITUTIONS AND REGULATED INDUSTRIES .....	(3)
416 ACCOUNTING FOR BUSINESS COMBINATIONS .....	(3)
417 INCOME TAXATION .....	(4)
419 INTERNSHIP IN ACCOUNTING .....	(3)
422 FUNCTIONS OF ACCOUNTING .....	(3)
515 C.P.A. PROBLEMS .....	(3)
517 CORPORATE TAXATION .....	(2)
518 CONTROLLERSHIP .....	(3)
527 TAXATION OF PARTNERSHIP AND SUBCHAPTERS CORPORATIONS .....	(2)
537 ESTATE AND GIFT TAXATION .....	(2)
547 STATE AND LOCAL TAX ACCOUNTING .....	(2)
601 RESEARCH IN ACCOUNTING THEORY .....	(3)
603 ATTEST FUNCTION .....	(3)
608 ADVANCED MANAGERIAL ACCOUNTING .....	(3)
615 ADVANCED PROFESSIONAL PROBLEMS .....	(3)
617 INCOME TAX DEVELOPMENT .....	(3)
619 INDEPENDENT STUDY IN ACCOUNTING .....	(1-3)
624 ACCOUNTAMETRICS .....	(3)
628 ACCOUNTING FOR CONTROL AND PLANNING .....	(3)
701 SEMINAR IN ACCOUNTING .....	(3)
703 TOPICAL SEMINAR IN AUDITING .....	(1)
704 TOPICAL SEMINAR IN DATA PROCESSING .....	(1)
705 TOPICAL SEMINAR IN STATISTICAL AND MATHEMATICAL APPLICATION IN ACCOUNTING .....	(1)
706 TOPICAL SEMINAR IN ACCOUNTING THEORY .....	(1)
707 TOPICAL SEMINAR IN TAXATION .....	(1)
708 SEMINAR IN MANAGEMENT ACCOUNTING .....	(3)
709 TOPICAL SEMINAR IN NOT-FOR-PROFIT AND REGULATORY ACCOUNTING .....	(1)
795 INDEPENDENT STUDY IN ACCOUNTING .....	(1-6)

## ADMINISTRATION AND SUPERVISION

**Graduate Faculty:** Professors Charles Faber (Chairman and Director of Graduate Studies), James B. Kincheloe, James Ogletree.

The Department of Administration and Supervision offers programs leading to the Specialist in Education (Ed.S.) degree and the Doctor of Education (Ed.D.) degree. These advanced degree programs are designed to prepare candidates for leadership positions in public schools and other educational agencies or for the professorship in educational administration. The Department participates in a Joint Doctoral Program with regional universities.

In addition, the Department also offers programs leading to professional certification and to Rank I classification (for Kentucky salary purposes) for various types of administrative and supervisory positions, as follows:

1. Superintendent of Schools
2. Elementary Principal
3. Secondary Principal
4. Supervisor of Instruction
5. Director of Pupil Personnel Services

All certification programs require that the candidate must have earned a master's degree in an appropriate teaching field prior to completion of the program in administration and supervision.

The University of Kentucky is an active member of the University Council for Educational Administration, which was formed to promote, through inter-institutional cooperation, improvement in the professional preparation of administrative personnel. A number of services are available to graduate students through this membership.

The University is a partner with the University of Louisville and the Jefferson County Public Schools in the operation of the Jefferson County Education Consortium, which provides a laboratory for research and development work in urban education. Internships for graduate students can be arranged with public school systems and other educational agencies.

A limited number of graduate assistantships are available through the Department. These involve up to 20 hours per week of service to the Department or some other unit of the University, designed in such a way that the work contributes to the educational development of the student. A modest stipend is paid for this service. The University also provides some financial aid, in the form of loans and fellowships.

For further information, write to the Director of Graduate Studies in the Department of Administration and Supervision, College of Education, University of Kentucky, Lexington, Kentucky 40505, requesting one or more of the following sets of materials:

1. Admissions Procedures and Forms
2. Requirements for Professional Certificate and Rank I Programs
3. Requirements for the Specialist in Education degree
4. Information on Doctoral Study in Administration and Supervision

502	THE ADMINISTRATION OF PUPIL PERSONNEL .....	(3)
601	ADMINISTRATION OF EDUCATIONAL ORGANIZATIONS .....	(3)
602	ORGANIZATION AND ADMINISTRATION OF AMERICAN EDUCATION .....	(3)
603	CONSTITUTIONAL AND LEGAL BASIS OF PUBLIC SCHOOL ADMINISTRATION .....	(3)
604	SCHOOL BUILDINGS AND EQUIPMENT .....	(3)
608	INTERNSHIP IN EDUCATIONAL ADMINISTRATION AND SUPERVISION .....	(3)
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634	ADMINISTRATION OF EDUCATIONAL PERSONNEL ..	(3)
635	BUSINESS ADMINISTRATION AND FINANCE OF PUBLIC EDUCATION .....	(3)
639	THE SUPERVISOR .....	(3)
649	THE SCHOOL SUPERINTENDENCY .....	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
771	SEMINAR IN ADMINISTRATION .....	(1-3)
772	SEMINAR IN EDUCATION .....	(1)
785	INDEPENDENT WORK IN SCHOOL ADMINISTRATION	(3)
792	RESEARCH IN EDUCATIONAL ADMINISTRATION AND SUPERVISION .....	(3)

## AGRICULTURAL ECONOMICS

**Graduate Faculty:** Professors Kurt Anschel (Director of Graduate Studies), Garrett Bradford, Russell Brannon, Fred Justus, John Redman, Robert Rudd (Chairman), Milton Shuffett, Eldon Smith. Associate Professors Robert Beck, Barry Bobst, Frank Bordeaux, David Debertin, Harry Tall, Loys Mather, and Alan Randall. **Associate Members:** Assistant Professors Joe Davis, Larry Jones, Harold Love (Extension), Angelos Pagoulatos, and Lynn Robbins.

The degrees of Master of Science, Master of Science in Agriculture (Plan B available), and Doctor of Philosophy may be earned with a major in agricultural economics. The student is expected to concentrate, in addition to agricultural economics, in economics and subjects relating to research methodology. Those without sufficient background or training are expected to make up deficiencies indicated by the department.

The beginning graduate student is advised to choose between two program emphases, applied or research, according to his career interests. The applied sequence prepares the student broadly in subjects that will have a continuing usefulness in farm management, agri-business, business,



agricultural program administration, extension, foreign service and the like. Students in the applied program are not required to submit theses but must complete 36 graduate credits. The applied emphasis is designed for those who do not plan to undertake Ph.D. programs. The research emphasis in the M.S. program involves more work in the basic fields of economic theory, statistics and research methodology and is designed to prepare the student for the Ph.D.-level work or a research related career. Students in the research program must submit a thesis and complete 24 graduate credits. Those with the applied emphasis in the M.S. Program will ordinarily require an additional semester of study to eliminate deficiencies in the basic fields if they decide to pursue Ph.D. work.

All students seeking the Ph.D. must satisfactorily complete a core curriculum of courses in statistics, economics, and agricultural economics, and demonstrate a reading knowledge of one modern foreign language. A dissertation must be completed. UK graduates with Ph.D. degrees in agricultural economics are now employed in administrative positions in academic institutions, business, government programs for agriculture, and foreign technical assistance in addition to those holding research, teaching, or extension appointments in academic institutions.

Study areas which the Ph.D. or Master's student may emphasize include agricultural marketing and price analysis, farm management and production economics, agricultural policy, resource, and environmental economics, and economic development. In addition to taking courses in these areas within agricultural economics, the student may select courses from a broad array of agricultural and social science disciplines which will complement his particular professional career interest. A graduate student handbook is available which provides information on the department's graduate program and details the Ph.D. core curriculum and the recommended content of the two emphases in the Master's Degree program.

#### AGRICULTURAL MARKETING

501 ECONOMICS OF AGRICULTURAL MARKETING .....	(3)
606 ADVANCED AGRICULTURAL MARKETING .....	(3)

#### AGRICULTURAL POLICY AND LAND ECONOMICS

445 INTRODUCTION TO RESOURCE AND ENVIRONMENTAL ECONOMICS .....	(3)
540 AGRICULTURAL POLICY .....	(3)
545 NATURAL RESOURCE AND ENVIRONMENTAL ECONOMICS .....	(3)
640 ADVANCED AGRICULTURAL POLICY .....	(3)

#### FARM MANAGEMENT

408 FARM RECORDS AND BUSINESS ANALYSIS .....	(3)
502 ADVANCED FARM MANAGEMENT .....	(3)
516 RURAL REAL ESTATE .....	(3)

#### PRODUCTION ECONOMICS

520 PRODUCTION ECONOMICS .....	(3)
620 ADVANCED ECONOMICS .....	(3)
621 ADVANCED PRODUCTION ECONOMICS II .....	(3)

#### AGRICULTURAL PRICES AND FINANCE

441 AGRICULTURAL PRICES AND FINANCE MANAGEMENT .....	(3)
531 AGRICULTURAL PRICE ANALYSIS .....	(3)
650 ADVANCED AGRICULTURAL PRICES .....	(3)

#### ECONOMIC DEVELOPMENT

535 ECONOMIC DEVELOPMENT OF RURAL REGIONS OF THE UNITED STATES .....	(3)
626 AGRICULTURE AND ECONOMICS DEVELOPMENT ....	(3)

#### GENERAL AGRICULTURAL ECONOMICS

480 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (3)	
580 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS .....	(1-3)
590 INTRODUCTION TO QUANTITATIVE ECONOMICS ....	(3)
660 RESEARCH METHODS IN AGRICULTURAL ECONOMICS .....	(3)
661 PROGRAMMING MODELS IN AGRICULTURAL ECONOMICS .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
770 AGRICULTURAL ECONOMIC SEMINARS .....	(0)
780 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS .....	(1-3)

#### RESOURCE ECONOMICS

645 NATURAL RESOURCE ECONOMICS .....	(3)
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## AGRICULTURAL ENGINEERING

**Graduate Faculty:** Professors Tom Haan, Blaine Parker, Joe Ross (Director of Graduate Studies), John Walker (Chairman). Associate Professors Billy Barfield, Joe Bunn, Tom Haan, Wiley Henson, Edward Smith, Gerald White.

**Associate Members:** Assistant Professor Otto Loewer (Extension), Linus Walton, Larry Wells.

The Agricultural Engineering Department offers programs leading to the M.S. in Agricultural Engineering (Plan A and Plan B available) and the Ph.D. degree.

The agricultural engineering graduate program has as its objectives the development of:

1. The ability to plan and conduct research and design involving the application of the engineering science to biological and agricultural systems.
2. The understanding of the mathematical, physical, and biological sciences to permit the reading and understanding of the present and future literature in these and related fields.
3. The skills required to use precision instruments, techniques and computers useful in research and design.
4. The ability to make sound engineering and management decisions.
5. The ability to teach college level courses in

agricultural engineering, particularly at the doctoral level.

In the attainment of the above objectives the graduate student will combine courses in agricultural engineering, the physical sciences, other engineering fields, and the biological sciences in developing his/her program of study. The advanced degrees, however, are primarily research degrees awarded for significant creative research accomplishment, not for the completion of a specified number of courses. Therefore, the program concentrates on a strong thesis or dissertation problem done under the supervision of the graduate faculty of the department. Strong course support is essential if the thesis or dissertation problem is to be properly undertaken and completed.

The design-oriented non-thesis option is available for the Master's degree.

400	FARMSTEAD PLANNING AND MECHANIZATION .....	(3)
405	PROPERTIES OF SOILS AND BIOLOGICAL MATERIALS AS RELATED TO ENGINEERING .....	(3)
406	PHYSICS OF PLANT AND ANIMAL ENVIRONMENT ..	(3)
410	FARM POWER AND MACHINERY .....	(3)
417	ENERGY SOURCES AND MACHINERY FOR AGRICULTURE .....	(3)
427	FUNCTIONAL DESIGN OF AGRICULTURAL STRUCTURES .....	(3)
430	FARM WATER MANAGEMENT .....	(3)
431	WATERSHED HYDROLOGY .....	(3)
437	SOIL AND WATER CONSERVATION ENGINEERING ..	(3)
447	AGRICULTURAL PROCESSING AND ELECTRIFICATION .....	(3)
450	SPECIAL PROBLEMS .....	(1-3)
503	ANIMAL WASTE MANAGEMENT .....	(3)
505	ENGINEERING ANALYSIS .....	(3)
519	PLANT, SOIL AND MACHINERY RELATIONSHIPS .....	(3)
525	ENVIRONMENTAL DESIGN FOR BIOLOGICAL SYSTEMS .....	(3)
535	ADVANCED SOIL AND WATER CONSERVATION ENGINEERING .....	(3)
548	ADVANCED AGRICULTURAL PROCESSING .....	(3)
599	TOPICS IN AGRICULTURAL ENGINEERING .....	(2-3)
606	MICROMETEOROLOGY .....	(3)
618	ADVANCED PLANT, SOIL, AND MACHINERY RELATIONSHIPS .....	(3)
628	ADVANCED DESIGN OF STRUCTURES FOR BIOLOGICAL SYSTEMS .....	(3)
635	APPLIED STATISTICAL METHODS IN WATER RESOURCES .....	(3)
645	ELECTROMAGNETIC RADIATION IN AGRICULTURAL ENGINEERING .....	(3)
648	ENERGY AND MASS TRANSFER IN AGRICULTURAL PROCESSING .....	(3)
658	INSTRUMENTATION IN AGRICULTURAL ENGINEERING RESEARCH .....	(3)
660	SIMILITUDE IN ENGINEERING .....	(3)
750	SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING .....	(1-3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)
775	SEMINAR .....	(0)
795	THESIS .....	(0)

## AGRONOMY

The Department of Agronomy offers graduate work leading to the Master of Science and the Doctor of Philosophy degrees with majors in Crop Science or Soil Science. The Department also participates in an interdepartmental graduate program leading to the Ph.D. degree with a major in Plant Physiology.

See Crop Science, Soil Science, or Plant Physiology for detailed information about these graduate programs.

## ANATOMY

**Graduate Faculty:** Professors Robert Benton, William Cotter, Ira Fowler, Harold Parks (Chairman and Director of Graduate Studies), Harold Traurig, Miroslava Winer. Associate Professors William Elwood, Roger Lambson, Daniel Matulionis, Stephen Smith.

**Associate Members:** Assistant Professors William Martin and Raymond Papka.

Professor Peter Bosomworth and Associate Professors William Gocheur and Norman Goodman are unassigned members of the Graduate Faculty from the College of Medicine.

The program of graduate studies in Anatomy is intended to provide educational opportunities for people with several different objectives. Some students will pursue graduate work in Anatomy with the intention of teaching in departments of anatomy; some will have already obtained a professional degree, such as an M.D. or D.M.D., and may be interested in obtaining specific training in some region or system of the body to complement their professional education. Others may study in Anatomy as a minor or simply for specific credit.

Preparation for graduate work in anatomy should include some course work in biological science along with other grounding in the sciences to the minimal extent of course work in quantitative analysis and organic chemistry, a term of calculus, and a year of college physics. Students with deficiencies in any of these areas may be admitted, but will be expected to complete their background early in the course of their graduate studies.

The Department is prepared to offer the M.S. and Ph.D. degrees with major training in gross human anatomy, microscopic human anatomy, embryology, endocrinology, genetics, and neuroanatomy. Also, a major interest can center in tissues, organs, regions or systems of the body, in which, for example, professional graduates such as dentists or orthopedic surgeons might wish to take specific training. Certain students with special needs will, with permission of the Director of Graduate Studies, be permitted to work toward the M.S. degree on Plan B, however, in most cases students will follow Plan A.

Potential applicants for graduate work in Anatomy are requested to write directly to the Chairman of the Department of Anatomy.

503	INDEPENDENT WORK IN ANATOMY .....	(3)
511	INTRODUCTION TO ANATOMY .....	(2)
512	MICROSCOPY AND ULTRASTRUCTURE .....	(3)



513	DEVELOPMENTAL ANATOMY .....	(2)
516	ANATOMY OF THE NERVOUS SYSTEM .....	(3)
529	CONCEPTS OF MORPHOLOGY .....	(2)
530	COMBINED HISTOLOGY AND SPECIAL ORAL MICROANATOMY .....	(5)
532	SYSTEMIC GROSS ANATOMY .....	(2)
533	ORAL HISTOLOGY .....	(2)
534	ANATOMY OF THE HUMAN HEAD AND NECK .....	(3)
536	HUMAN EMBRYOLOGY, AN ABBREVIATED COURSE ..	(1)
538	HUMAN NEUROANATOMY, AN ABBREVIATED COURSE .....	(1)
611	REGIONAL GROSS ANATOMY .....	(8)
629	TECHNIQUES OF ANATOMICAL RESEARCH .....	(2)
631	ADVANCED GROSS ANATOMY .....	(3-5)
633	ADVANCED DEVELOPMENTAL ANATOMY .....	(2-5)
634	ADVANCED ENDOCRINOLOGY .....	(2-5)
636	ADVANCED NEUROANATOMY .....	(3-5)
638	THE GENETIC BASIS OF HUMAN MORPHOLOGY .....	(2)
651	SPECIAL PROJECTS IN ANATOMY OF HEAD AND NECK CORRELATED WITH NEUROANATOMY .....	(3-5)
662	ULTRASTRUCTURAL ANATOMY .....	(2-5)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)

## ANIMAL SCIENCES

**Graduate Faculty:** Professors John Baker, Charles Barnhart, James Boling, Neil Bradley, Gary Cromwell, Ray Dutt, Donald Ely Virgil Hays (Chairman and Co-Director of Graduate Studies), Roger Hemkin, James Kemp, Bruce Lang Lois, Oran Little, George Mitchell (Co-Director of Graduate Studies), William Moody, Durward Olds, Patch Woolfolk. Associate Professors, John Begin, Leonard S. Bull, Joe Fox, Dal Kratzer, Robert Goodwill, Gerald Schelling, Paul Thornton, Frederick Thrift, Ray Tucker.

**Associate Members:** Professor Nelson Gay. Assistant Professor Clair Hicks.

The degrees of Master of Science, Master of Science in Agriculture (Plan A and B are available) and Doctor of Philosophy are available with majors in the animal sciences. Programs in the Department are divided in the disciplinary areas of Animal Nutrition, Food Science, Genetics and Physiology. Special interests in beef cattle, dairy cattle, horses, poultry, sheep, swine, meats, muscle biology, animal behavior, dairy technology and food microbiology may be pursued within these areas.

Candidates for the Ph.D. degree are required to have a reading knowledge of one modern foreign language and to declare a minor outside the Department. On approval of the student's special committee, a minimum of 12 credits in not more than two departments may be substituted for the minor.

404	SHEEP SCIENCE .....	(3)
406	BEEF CATTLE SCIENCE .....	(3)
408	SWINE SCIENCE .....	(3)
410	HORSE SCIENCES .....	(3)
412	HORSE HUSBANDRY PRACTICES .....	(3)
420	DAIRY CATTLE SCIENCE .....	(2-3)
430	SENSORY EVALUATION OF FOODS .....	(3)
442	POULTRY SCIENCE .....	(3)
462	ARTIFICIAL INSEMINATION AND FERTILITY OF FARM ANIMALS .....	(2)
470	ANIMAL SCIENCE SEMINAR .....	(1)
530	FOOD MICROBIOLOGY .....	(4)
532	ADVANCED FOOD MICROBIOLOGY .....	(5)
536	FOOD CHEMISTRY .....	(4)
534	FOOD PROCESSING .....	(4)
538	FOOD FERMENTATION AND THERMAL PROCESSING ..	(4)
562	ADVANCED GENETICS .....	(3)

564	MILK SECRETION .....	(3)
580	PRINCIPLES OF ANIMAL NUTRITION .....	(3)
600	METHODS AND TECHNIQUES IN ANIMAL SCIENCES ..	(3)
630	ADVANCED MEAT SCIENCE .....	(4)
660	PHYSIOLOGY OF REPRODUCTION .....	(3)
662	POPULATION GENETICS .....	(3)
664	ADVANCED ANIMAL BREEDING .....	(3)
680	LABORATORY METHODS IN ANIMAL NUTRITION AND MEATS .....	(4)
681	ENERGY METABOLISM .....	(2)
683	PROTEIN METABOLISM .....	(2)
684	ADVANCED RUMINANT NUTRITION .....	(3)
685	MINERAL METABOLISM .....	(2)
686	ADVANCED NONRUMINANT NUTRITION .....	(3)
687	VITAMIN METABOLISM .....	(2)
688	EQUINE NUTRITION .....	(2)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)
771	ANIMAL SCIENCE SEMINAR .....	(1)
780	SPECIAL PROBLEMS IN ANIMAL DERIVED FOODS ..	(1-4)
781	SPECIAL PROBLEMS IN GENETICS OR PHYSIOLOGY ..	(1-4)
782	SPECIAL PROBLEMS IN ANIMAL NUTRITION .....	(1-4)
790	RESEARCH IN ANIMAL DERIVED FOODS .....	(1-6)
791	RESEARCH IN GENETICS OR PHYSIOLOGY .....	(1-6)
792	RESEARCH IN ANIMAL NUTRITION .....	(1-6)

## ANTHROPOLOGY

**Graduate Faculty:** Professors William Adams (Chairman), Philip Drucker, Art Gallaher, Jr., Donald Hochstrasser, Marion Pearsall. Associate Professors Albert Bacdayan, Robert Biggerstaff, Michael Collins, Lathel Duffield, John Van Willigen (Director of Graduate Studies), Richard Warren.

**Associate Members:** Assistant Professors: Susan Abbott, Kenneth Barger, Richard Levy, Eugenie Scott, Helen Wiese.

The Department of Anthropology offers courses and research options leading to the Ph.D. degree in the special areas of Ethnology, Culture History (Ethno-history and Archaeology), Applied Social Anthropology, Developmental Change, Education, and Medicine. The department also offers the M.A., a general degree certifying a broad background in anthropology, plus research competence in the collection and processing of primary data.

All incoming graduate students without the M.A. (Plan A available) in anthropology are treated initially as candidates for this degree. These students are expected to satisfy the requirements for the M.A. program, and take the M.A. comprehensive examination or the equivalent topical courses specified by the Department. Students who (1) excel in this program, (2) pass the M.A. comprehensive examination with a high score, and (3) demonstrate satisfactory research competence, may petition to by-pass the master's thesis. A reading knowledge of one modern foreign language is required for the M.A. degree in anthropology. The Ph.D. program requires either a reading knowledge of two foreign languages or a high degree of proficiency in reading, writing, and speaking one foreign language.

Incoming students who have earned a Master's Degree at other institutions will be expected to demonstrate the same broad background in anthropology as is required to earn the M.A. at the University of Kentucky. If deficient in this

regard they may be required to take appropriate course work which is normally part of the M.A. program, before proceeding to work toward the Ph.D.

The following areas are represented in the individual research experience of members of the anthropology faculty: Oceania, Southeast Asia, South Asia, North Africa and the Near East, Sub-Saharan Africa, Europe, Latin America, and North America. Several members of the faculty have expertise in the study of rural English-speaking sub-cultures.

The department participates in interdisciplinary research in the University's Center for Developmental Change and in the Water Resources Institute. The Department of Behavioral Science, College of Medicine, includes anthropologists on its staff, and students with interests in medical anthropology are encouraged to take the behavioral science concentration. Anthropology graduate students with appropriate interests are eligible for assistantships in the above fields.

Department standards for admission to graduate work in anthropology include an undergraduate department over-all average of B or better, a satisfactory score on the verbal and quantitative tests of the Graduate Record Examination, completion of a separate departmental application form, and three letters of recommendation. Write the Chairman, Admissions Committee, Department of Anthropology for additional information on departmental requirements and opportunities for financial assistance.

402	HUMAN IDENTIFICATION .....	(2)
421	NORTH AMERICAN INDIANS .....	(3)
428	CONTEMPORARY CULTURES AND SOCIETIES IN SOUTHEAST ASIA .....	(3)
430	COMPARATIVE RELIGIOUS SYSTEMS .....	(3)
438	ETHNOLOGY OF THE NEAR EAST AND NORTH AFRICA .....	(3)
442	NEW WORLD PREHISTORY .....	(3)
490	PRE-FIELD STUDY SEMINAR .....	(3)
510	HISTORY OF ANTHROPOLOGICAL THEORY .....	(3)
512	COMPARATIVE CIVILIZATIONS .....	(3)
515	PHONOLOGICAL ANALYSIS .....	(3)
516	GRAMMATICAL ANALYSIS .....	(3)
518	LANGUAGE IN CULTURE .....	(3)
519	HISTORICAL LINGUISTICS .....	(3)
520	NORTH AMERICAN INDIAN LANGUAGES .....	(3)
523	ETHNOLOGY OF OCEANIA .....	(3)
524	MYTHOLOGY .....	(3)
525	APPLIED ANTHROPOLOGY .....	(3)
526	CULTURE AND PERSONALITY .....	(3)
527	CULTURE CHANGE .....	(3)
529	SURVEY OF MEDICAL ANTHROPOLOGY .....	(3)
530	CONTEMPORARY LATIN AMERICAN CULTURES .....	(3)
531	CULTURES AND SOCIETIES OF SUB-SAHARAN AFRICA .....	(3)
532	LEGAL AND POLITICAL ANTHROPOLOGY .....	(3)
533	SOCIAL ANTHROPOLOGY .....	(3)
534	THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION .....	(3)
536	PEASANT SOCIETIES .....	(3)
538	ECONOMIC ANTHROPOLOGY .....	(3)
541	ARCHAEOLOGICAL THEORY AND METHOD .....	(3)
542	NORTH AMERICAN ARCHAEOLOGY .....	(3)
546	PREHISTORIC MESO-AMERICA AND PERU .....	(3)
548	EUROPEAN AND NEAR EASTERN ARCHAEOLOGY .....	(3)
550	FIELD STUDIES IN ANTHROPOLOGY .....	(1-6)

555	EASTERN NORTH AMERICAN ARCHAEOLOGY .....	(3)
560	ETHNOGRAPHIC PRINCIPLES AND PRACTICE .....	(3)
570	REGIONAL NEW WORLD ETHNOGRAPHY .....	(3)
580	TOPICS IN ANTHROPOLOGY .....	(3)
581	INDEPENDENT WORK IN ANTHROPOLOGY .....	(1-4)
582	TUTORIAL SEMINAR .....	(3)
585	FIELD LABORATORY IN ARCHAEOLOGICAL RESEARCH .....	(3-6)
605	SEMINAR IN METHOD AND THEORY IN ANTHROPOLOGY .....	(3)
610	HISTORY OF ANTHROPOLOGY .....	(3)
611	SEMINAR IN ETHNOLOGY .....	(3)
612	SEMINAR IN CULTURE HISTORY .....	(3)
613	SEMINAR IN PHYSICAL ANTHROPOLOGY .....	(3)
614	FIELD METHODS IN LINGUISTICS .....	(3)
670	SEMINAR ON ROLE THEORY .....	(3)
690	ADVANCED PRE-FIELD STUDY SEMINAR .....	(3)
710	SEMINAR IN PHYSICAL ANTHROPOLOGY .....	(3)
720	SEMINAR IN CULTURAL ANTHROPOLOGY .....	(3)
721	SEMINAR IN REGIONAL ETHNOGRAPHY .....	(3)
725	SEMINAR IN APPLIED ANTHROPOLOGY .....	(3)
727	SEMINAR ON SOCIO-CULTURAL CHANGE .....	(3)
731	SEMINAR IN COMPARATIVE SOCIAL ORGANIZATION .....	(3)
741	SEMINAR IN REGIONAL ARCHAEOLOGY .....	(3)
742	ADVANCED SEMINAR IN CULTURE HISTORY .....	(3)
750	GRADUATE FIELD STUDY IN ANTHROPOLOGY .....	(1-6)
764	TOPICAL SEMINAR IN PSYCHOLOGICAL ANTHROPOLOGY .....	(3)
765	RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY .....	(3)
767	PRACTICUM IN APPLIED ANTHROPOLOGY .....	(1-6)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
770	SEMINAR .....	(3)
790	RESEARCH PROBLEMS IN ANTHROPOLOGY .....	(3)

## ART

**Graduate Faculty:** Professors James Pierce, John Tuska (Director of Graduate Studies for Studio). Associate Professors Gerald Ferstman, Elizabeth Finkendaedt (Director of Graduate of Studies for Art History), Deborah Frederick, Lowell Jones, Robert Tharsing, Derrick Woodham.

**Associate Members:** Assistant Professors Arthur Jones, Jane Peters.

The Department of Art requires as prerequisite to the Master of Arts degree undergraduate work equivalent to that offered in the department for its art majors. Work toward the master's degree may be undertaken in two areas: (1) art history and criticism, and (2) art education.

Students admitted to the graduate program in art history are expected to have completed course work equivalent to an undergraduate major in art history (in no case, less than 18 hours of art history or less than six hours of art studio). Work toward the master's degree is undertaken under Plan A (see Requirements for the Degrees of Master of Arts and Master of Sciences, Plan A) with a total of 24 hours including the required Graduate Art History Seminar (A-H 750). At least two-thirds of the required hours must be in Art History or Museum Training courses. A satisfactory thesis must be presented and a final examination passed. It is also required that the student offer either course work or substantial proof of ability to use more than one foreign language.

The program for the master's degree in art education is undertaken under Plan A with a thesis based on substantial research, or theory in art education. No courses required for certifica-



tion in a 48-hour area of concentration may be admitted as course work relevant to the master's degree in art education.

### Requirements for the Degree of Master of Fine Arts

Application for admission to graduate work leading to the degree, Master of Fine Arts, must be accompanied by a portfolio of creative work or photographs, or transparencies of such work. This material must be submitted by March 15th. In no case will this requirement be waived. Undergraduate art work must be substantially equal in quality, scope, and number of hours to the undergraduate major at the University of Kentucky.

The degree, Master of Fine Arts (M.F.A.), will be awarded on the completion of 45 hours of graduate courses. Of this, 36 hours must be in studio and closely related work; six hours must be in art history, and three hours must be in the Graduate Studio Seminar (A-S 793), which must be taken for three semesters.

The student will designate his/her major area, with the advice of a senior professor, at the outset of his/her graduate work and will carry at least 12 hours in that area under the guidance of one professor selected as thesis adviser. Up to nine hours in relevant work outside the department may be elected by the student in consultation with his/her adviser. A foreign language will not be required.

The degree, Master of Fine Arts, will be awarded not solely on the basis of work in formal courses, but also on the basis of creative work resulting in a satisfactory thesis exhibition, and the preparation of a written and photographic record in proper form for submission to the Graduate School. A-S 767 (Studio Thesis Project) to a total of six credits will be required for the preparation of the thesis. Work toward the thesis exhibition will begin at a time determined by the department.

Candidates for the M.F.A. degree who hold an M.A. degree in studio work from another school will be required to complete a year's residence and 18 credits of graduate work at the University, including two semesters of Graduate Studio Seminar (A-S 793) and all other requirements for the degree.

#### GENERAL COURSE

- 501 BASIC MUSEUM TRAINING: HISTORICAL ART ..... (3)  
502 BASIC MUSEUM TRAINING: CONTEMPORARY ART .. (3)

#### ART EDUCATION

- 572 ART EDUCATION WORKSHOP ..... (1-6)  
575 ART IN ELEMENTARY SCHOOLS ..... (3)  
577 ART IN SECONDARY SCHOOLS ..... (3)

- 579 SEMINAR IN ART EDUCATION ..... (2)  
599 INDEPENDENT WORK: ART EDUCATION ..... (1-3)  
670 SCHOOL AND COMMUNITY ART ..... (3)  
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)

#### ART-HISTORY

- 450 SEMINAR IN ART HISTORY ..... (3)  
510 STUDIES IN ANCIENT ART ..... (3)  
520 STUDIES IN MEDIEVAL ART ..... (3)  
530 STUDIES IN RENAISSANCE ART ..... (3)  
540 STUDIES IN MODERN ART ..... (3)  
550 SELECTED TOPICS IN THE HISTORY OF  
PHOTOGRAPHY ..... (3)  
590 TOPICAL STUDIES IN ART HISTORY ..... (3)  
592 AESTHETICS ..... (3)  
594 CRITICISM OF ART ..... (3)  
599 INDEPENDENT WORK: ART HISTORY ..... (3)  
610 PROBLEMS IN ANCIENT ART ..... (3)  
620 PROBLEMS IN MEDIEVAL ART ..... (3)  
630 PROBLEMS IN RENAISSANCE ART ..... (3)  
640 PROBLEMS IN MODERN ART ..... (3)  
690 TOPICAL PROBLEMS IN ART HISTORY ..... (3)  
750 GRADUATE ART HISTORY SEMINAR ..... (3)  
799 INDEPENDENT WORK: ART HISTORY ..... (3)

#### ART-STUDIO

- 502 ADVANCED DRAWING ..... (3)  
510 PAINTING III ..... (3)  
520 PRINTMAKING III ..... (3)  
540 ADVANCED FIBER ..... (3)  
550 SCULPTURE III ..... (3)  
570 CERAMICS III ..... (3)  
571 CERAMICS IV ..... (3)  
595 INDEPENDENT WORK: PAINTING, PRINTMAKING .... (3)  
596 WORKSHOP ..... (1-6)  
597 INDEPENDENT WORK: ADVANCED SCULPTURE  
AND OTHER THREE-DIMENSIONAL MEDIA ..... (3)  
610 TRADITIONAL AND EXPERIMENTAL MEDIA  
IN PAINTING ..... (3)  
740 PROBLEMS IN FIBER ..... (3)  
750 PROBLEMS IN SCULPTURE ..... (3)  
767 M.F.A. STUDIO THESIS PROJECT ..... (1-6)  
770 PROBLEMS IN CERAMICS ..... (3)  
780 PROBLEMS IN DESIGN ..... (3)  
793 GRADUATE STUDIO SEMINAR ..... (1)  
799 PROBLEMS IN PAINTING AND PRINTMAKING ..... (3)

## BEHAVIORAL SCIENCE

**Graduate Faculty:** Professors Eugene Gallagher, John Haley, Garth Olde, Marion Pearsall, Robert Straus (Chairman). Associate Professors Russell Jones (Director of Graduate Studies), Thomas Garrity, Philip Moody.

**Associate Members:** Assistant Professors Jon Hendricks, Helen Wiese.

A program of concentration or a minor in medical behavioral science is offered for doctoral candidates in sociology, anthropology, psychology or other behavioral science disciplines through the Department of Behavioral Science in the Medical Center. The concentration has three objectives:

1. Research training in a health-medical setting, designed to afford each student an opportunity to learn the basic skills and approaches to research design, data acquisition, and data analysis, through personalized, supervised participation in one or more research projects. Such training is arranged to include experimental, survey, and case-study methods, to insure the integration of research training with a student's program of courses and to culminate in a health-related topic for the doctoral dissertation. As far as possible, students in the concentration are provided office space in the Medical Center so

that they may have ready access to resources and events.

2. An orientation to medical settings, including an enculturation to the social structure, attitudes, beliefs, values and objectives of health personnel and organizations, and the nature of behavioral science research in these areas.

3. An orientation to the several behavioral sciences; to their areas of overlap and interrelation as well as to their discrete contents, theories and methods.

Students may elect to minor in medical behavioral science by taking a group of approved courses with the sponsorship and guidance of a designated faculty member.

The concentration is partially supported by a training grant from the National Institute of Mental Health for Research Training in the Social Sciences, under which selected students are provided with traineeship stipends.

527 SOCIETY AND HEALTH .....	(3)
529 SURVEY OF MEDICAL ANTHROPOLOGY .....	(3)
546 SOCIAL FACTORS IN MENTAL HEALTH .....	(3)
670 SEMINAR ON ROLE THEORY .....	(3)
738 SEMINAR: DRUG USE AS DEVIANT BEHAVIOR .....	(3)
761 INTERPERSONAL PROCESSES IN CRITICAL SITUATIONS .....	(3)
764 TOPICAL SEMINAR IN PSYCHOLOGICAL ANTHROPOLOGY .....	(3)
765 RESEARCH PROBLEMS IN MEDICAL ANTHROPOLOGY .....	(3)
766 CONCEPTS IN MEDICAL SOCIOLOGY .....	(3)
767 RESEARCH PROBLEMS IN MEDICAL SOCIAL PSYCHOLOGY .....	(3)
772 TOPICAL SEMINAR IN MEDICAL BEHAVIORAL SCIENCE .....	(1-3)
776 SEMINAR IN DEPENDENCY BEHAVIOR .....	(3)
777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY .....	(3)
778 BEHAVIORAL FACTORS IN SELECTED DISEASES .....	(3)
790 RESEARCH IN MEDICAL BEHAVIORAL SCIENCE ..	(1-6)

## BIOCHEMISTRY

**Graduate Faculty:** Professors Charles Ambrose, Fred Bollum, Alfred Hu, John Hutton, Robert Lester (Chairman and Director of Graduate Studies), George Schwert. Associate Professors S. K. Chan, Alfred Winer.

**Associate Members:** Assistant Professors Mary Barkley, Roger Laine, and Robert Rhoads.

The program of graduate studies in biochemistry is designed primarily for doctoral candidates who plan to pursue a research career in this field. Creative research in biochemistry requires broader training and more extensive laboratory experience than can be achieved at the master's level. Therefore, candidates for the master's degree will be accepted only under unusual circumstances.

As preparation for graduate work in biochemistry, students should have completed courses in chemistry through physical chemistry, in mathematics through the calculus and must have had

one year of work in physics and in one of the biological sciences. Although students who have deficiencies in their preparation may be admitted to graduate study in the Department of Biochemistry, the time necessary for completion of their work will necessarily be lengthened. Although programs of study will be fitted to the preparation and interests of individual students, it is anticipated that most students will take advanced courses in chemistry and in physiology, cell biology, microbiology, zoology or botany.

Inquiries concerning availability of financial support for graduate students should be addressed to the chairman of the department.

789 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
780 TOPICS IN BIOCHEMISTRY .....	(1-3)
401 FUNDAMENTALS OF BIOCHEMISTRY .....	(3)
501 GENERAL BIOCHEMISTRY .....	(3)
502 GENERAL BIOCHEMISTRY .....	(3)
503 PLANT BIOCHEMISTRY .....	(2)
517 EXPERIMENTAL METHODS IN BIOCHEMISTRY .....	(4)
610 BIOCHEMISTRY OF LIPIDS AND MEMBRANES .....	(3)
611 BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS .....	(3)
612 STRUCTURES AND FUNCTIONS OF PROTEINS AND ENZYMES .....	(3)
618 SEMINAR IN BIOCHEMISTRY .....	(1)
619 SEMINAR IN BIOCHEMISTRY .....	(1)
640 RESEARCH IN BIOCHEMISTRY .....	(1-15)

## Thomas Hunt Morgan School of Biological Sciences

The Thomas Hunt Morgan School of Biological Sciences provides a program in biology leading to the degree of Doctor of Philosophy. The program draws upon the various courses and faculty members in the biological sciences. The purpose of this graduate program is to train participants as well-rounded biologists familiar with the main branches of the biological sciences and the auxiliary fields of mathematics, physics, and chemistry. Only one modern foreign language is required.

A student who receives his/her degree under this program also will be sufficiently well-trained in one of the major branches of biology to be able to conduct research in that special field, as well as broadly enough trained to participate in the teaching program of a department of biology. Students will be expected to have a background of course work in the principal areas of biology, calculus and organic chemistry before starting their doctoral program.

Major work under the biological sciences program would be arranged to suit the preparation, needs and interests of the individual student. The work could be, for example in genetics and cytogenetics, ecology and evolution, vertebrate zool-



ogy, invertebrate zoology, entomology, developmental biology, histology, parasitology, plant physiology, plant morphogenesis, algology, systematic botany, mycology, cellular biology, radiation biology, ultrastructure, etc.

Laboratory facilities and equipment are excellent for doctoral work in all branches of biology. A very good biology library containing over 29,000 volumes, and including many important American and foreign periodicals is available and is supplemented by over 200,000 volumes concerned with biology in the libraries of the College of Agriculture, the College of Medicine and the Departments of Chemistry, Physics, and Geology.

For appropriate courses see the listings in the various areas of biology.

Additional graduate programs offered within the Thomas Hunt Morgan School of Biological Sciences are Master of Arts or Science Degree programs in Botany and Zoology, and a Master of Science and Ph.D. program in Microbiology.

## BIOLOGY

**Graduate Faculty:** Professors R. W. Barbour, T. C. Barr, W. J. Birge, S. F. Conti (Director), E. C. Crawford, W. H. Davis, J. E. Siskin. Associate Professors J. M. Baskin, J. C. Calkins, N. K. Das, D. O. Harris, J. J. Just, R. A. Kuehne, W. Meijer, N. J. Pisacano, G. Rosenthal, P. S. Sabharwal.

**Associate Members:** Assistant Professors, J. D. Clark, W. S. Cohen, R. S. Hakim, D. J. Prior, J. M. Rawls, G. Uglem.

The Thomas Hunt Morgan School of Biological Sciences provides a program in biology leading to the degree of Doctor of Philosophy.

Major work under the biological sciences program would be arranged to suit the preparation, needs and interests of the individual student. The work could be, for example in genetics and cytogenetics, ecology and evolution, vertebrate zoology, invertebrate zoology, entomology, developmental biology, histology, parasitology, plant physiology, plant morphogenesis, algology, systematic botany, mycology, cellular biology, radiation biology, ultra structure, animal physiology, neurobiology, etc.

The Director of Graduate Studies in Biology also serves as director of the Master of Science and Master of Arts Programs in Botany and Zoology.

404 PRINCIPLES OF GENETICS .....	(3)
411 MODELS IN MATHEMATICAL BIOLOGY .....	(3)
420 BIOLOGICAL MACROMOLECULES AND LIFE PROCESSES .....	(3)
451 INTRODUCTORY ECOLOGY .....	(4)
465 ECONOMIC BOTANY .....	(2)
476 GENERAL BACTERIOLOGY .....	(2)
490 APPLIED BACTERIOLOGY .....	(2)
502 PRINCIPLES OF PHYSIOLOGY LECTURES .....	(4)

503 EXPERIMENTAL METHODS .....	(2)
504 HEREDITY .....	(4)
508 EVOLUTION .....	(3)
515 GENERAL CELL BIOLOGY .....	(3)
516 PLANT CYTOLOGY .....	(4)
517 PLANT MICROTECHNIQUE .....	(3)
519 INTRODUCTION TO HEREDITY .....	(3)
522 INDEPENDENT WORK IN ZOOLOGY .....	(3)
523 ZOOLOGY SEMINAR .....	(1)
524 BOTANY SEMINAR .....	(1)
525 SPECIAL PROBLEMS IN BOTANY .....	(1-3)
529 DEVELOPMENTAL BIOLOGY .....	(3)
530 PLANT PHYSIOLOGY .....	(3)
531 PLANT PHYSIOLOGY LAB. ....	(2)
535 COMPARATIVE NEUROBIOLOGY AND BEHAVIOR .....	(3)
540 GENERAL RADIATION BIOLOGY .....	(4)
542 GENERAL HISTOLOGY .....	(4)
544 EMBRYOLOGY .....	(5)
545 EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES .....	(3)
546 LABORATORY STUDIES OF THE EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES .....	(2)
547 EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES .....	(3)
548 LABORATORY STUDIES OF THE EMBRYOLOGY AND MORPHOLOGY OF VERTEBRATES .....	(2)
549 COMPARATIVE ENDOCRINOLOGY .....	(3)
550 COMPARATIVE PHYSIOLOGY .....	(5)
551 PLANT AUTECOLOGY .....	(4)
552 TAXONOMY OF VASCULAR PLANTS .....	(4)
553 ICHTHYOLOGY .....	(4)
554 MAMMALOLOGY .....	(4)
555 VERTEBRATE ZOOLOGY .....	(4)
557 HERPETOLOGY .....	(4)
559 ORNITHOLOGY .....	(4)
560 GENERAL ENTOMOLOGY .....	(4)
561 MEDICAL ENTOMOLOGY .....	(4)
562 EXTERNAL MORPHOLOGY OF INSECTS .....	(4)
563 PARASITOLOGY .....	(4)
564 INSECT TAXONOMY .....	(4)
565 LIMNOLOGY .....	(4)
568 PROTOZOOLOGY .....	(4)
569 HELMINTHOLOGY .....	(4)
570 INVERTEBRATE ZOOLOGY .....	(4)
571 ALGOLOGY .....	(4)
573 MYCOLOGY .....	(4)
574 ANATOMY OF VASCULAR PLANTS. ....	(4)
575 PLANT PATHOLOGY .....	(3)
576 GROWTH AND DEATH OF BACTERIA .....	(4)
580 METABOLISM OF MICROORGANISMS .....	(4)
582 VIROLOGY .....	(3)
585 PATHOGENIC BACTERIOLOGY .....	(4)
590 GNOSTOTIC METHODOLOGY .....	(2)
594 IMMUNOLOGY AND SEROLOGY .....	(5)
615 MOLECULAR BIOLOGY .....	(3)
617 ADVANCED MICROTECHNIQUE .....	(3)
619 CYTOGENETICS .....	(4)
620 GENETICS STRUCTURE OF POPULATIONS .....	(3)
621 TOPICS IN MODERN BOTANY .....	(1-3)
625 SEMINAR IN ANIMAL NAVIGATION .....	(2)
630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY .....	(3)
632 PLANT MORPHOGENESIS .....	(5)
635 INSECT PHYSIOLOGY .....	(4)
640 BIOLOGICAL EFFECTS OF RADIATION .....	(3)
645 SPECIAL TOPICS IN ENDOCRINOLOGY .....	(2)
655 VERTEBRATE NATURAL HISTORY .....	(4)
660 ADVANCED ANIMAL ECOLOGY .....	(3)
665 INSECT ECOLOGY AND BEHAVIOR .....	(3)
667 PRINCIPLES OF ANIMAL SYSTEMATICS .....	(3)
670 SPECIATION .....	(3)
672 GENERAL ACAROLOGY .....	(4)
673 EXPERIMENTAL MYCOLOGY .....	(4)
678 STATISTICAL GENETICS .....	(3)
690 BACTERIOLOGY OF WATER AND SEWAGE .....	(4)
694 BACTERIOLOGY OF FOODS .....	(4)
707 CONTEMPORARY TOPICS IN IMMUNOLOGY .....	(3)
714 MICROBIAL GENETICS .....	(4)
716 METABOLISM OF MICROORGANISMS .....	(4)
718 HISTORY OF BACTERIOLOGY .....	(2)
720 BACTERIAL ANATOMY, TAXONOMY AND NOMENCLATURE .....	(3)
728 DEVELOPMENTAL GENETICS .....	(3)
732 MINERAL NUTRITION OF PLANTS .....	(3)
734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT .....	(3)
735 PLANT METABOLISM .....	(3)
740 MAMMALIAN RADIATION BIOLOGY .....	(2)
755 BIOSYSTEMATICS .....	(3)
BIO 768 RESIDENCE CREDIT FOR MASTER'S DEGREE ..	(1-6)
BIO 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE ..	(0-12)
770 GRADUATES SEMINAR IN ZOOLOGY .....	(1)
771 SEMINAR IN BOTANY .....	(1)
772 SEMINAR IN MICROBIOLOGY .....	(0-1)
773 SEMINAR IN PLANT PHYSIOLOGY .....	(1)

774 SEMINAR IN GENETICS .....	(1)
782 ADVANCED VIROLOGY .....	(3)
795 RESEARCH IN ZOOLOGY .....	(1-6)
796 RESEARCH IN BOTANY .....	(1-6)
797 RESEARCH IN BACTERIOLOGY .....	(3-6)
798 RESEARCH IN BACTERIOLOGY .....	(3-6)
BOT 768 RESIDENCE CREDIT FOR MASTER'S DEGREE .....	(1-6)
BOT 769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE .....	(1-12)
MB 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
MB 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(1-12)
ZOO 768 RESIDENCE CREDIT FOR MASTER'S DEGREE .....	(1-6)
ZOO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(1-12)

## BIOMEDICAL ENGINEERING

Biomedical engineering activity at the University of Kentucky has evolved from more than 15 years experience and includes collaborative efforts of faculty and students in many departments. Within this broad spectrum of instructional and investigational activity, maximum flexibility is preserved and a complete range of options is available for both breadth and depth in education and research.

Research programs now underway include the study of physiological and behavioral responses to environmental stress (i.e., acceleration, rotation, etc.), characteristics and modeling of biological tissue and systems, development of instrumentation for biological monitoring, and related problems. Research is conducted in the laboratories of the Medical Center and the College of Engineering. Coordination of the Program is facilitated by the proximity of the two colleges.

Participating students enroll in, and fulfill the requirements of, the department of their major interest. Guidance is obtained through interaction with the departmental Director of Graduate Studies and the student's Special Committee. Programs of study leading to Master's or Doctoral degrees may be conducted in fields such as physiology and biophysics, mechanical, electrical, chemical, civil, and metallurgical engineering and materials science. Further information may be obtained by writing to the Director of Graduate Studies in the student's area.

## BOTANY

**Graduate Faculty:** Professors S. F. Conti, Eugene C. Crawford. Associate Professors, J. M. Baskin, D. O. Harris, W. Meijer, G. Rosenthal, P. S. Sabharwal.

**Associate Member:** Assistant Professor J. D. Clark.

Graduates of accredited colleges with a bachelor's degree in Botany or Biological Sciences who satisfy the requirements of the graduate school may apply for admission to the graduate

program for work leading to degrees of Master of Science or Master of Arts in Botany, or a Doctor of Philosophy in Biology (see Thomas Hunt Morgan School of Biological Sciences). Plan A is ordinarily required for the master's degree but Plan B is permitted under certain circumstances. Two semesters of a limited, but meaningful teaching experience are required of all degree candidates. The teaching experience is designed to complement the formal studies and the precise nature of this experience is subject to approval by the student.

A reading knowledge of one foreign language is required for the master's degree.

Fields of study within the program include algology, plant anatomy, cytology, morphogenesis, mycology, plant ecology, plant physiology and systematics.

(See courses in Biology.)

## BUSINESS ADMINISTRATION

**Graduate Faculty:** Professors James H. Donnelly, James L. Gibson (Chairman), Joseph L. Massie (Director of Graduate Studies), Lawrence X. Tarpey. Associate Professors Philip K. Berger, Andrew Grimes, Joseph Guiltinan, Keith Johnson, Martin Solomon, M. Lynn Spruill, Marc Wallace.

**Associate Members:** Associate Professor Donald Shannon. Assistant Professors John J. Bernardo, John E. Dittrich, Wesley Jones, Linda Krefting, Lawrence K. Lynch, Tony McAdams, Richard Oliver, Ronda Paul, Ralph Steuer, Carl B. Tower, David E. Upton.

### The Degree of Master of Business Administration

Objectives:

The program leading to the Master of Business Administration degree has two basic objectives: (1) to enable the candidate to acquire an educational foundation contributory to his/her long-range development for socially responsible business administration and (2) to equip him/her for professional employment in some functional or other field of business upon completion of the program.

To attain these objectives, the program is designed to provide the student with the appropriate knowledge, understanding, skills and abilities, including:

1. An understanding of the processes of business administration and of the methods needed by business administrators when effectively coping with uncertainty.
2. A knowledge of the economics of business enterprise and of the dynamic environment



- and culture in which business firms operate.
3. An understanding of quantitative methods of analysis in business decision making, including the use of mathematical, statistical, and accounting approaches.
  4. A knowledge of organizational relationships and behavior in business enterprises and of ways for promoting effective human relations, including contributions of the behavioral sciences.
  5. The ability to solve complicated and realistic business problems by utilizing economics, business, and other professional literature and the specialized knowledge of other people, both in and out of the business firm, in order to present these findings effectively in both written and oral reports.
  6. An understanding of the functional problems involved in operating a business enterprise, such as those pertaining to production, marketing and finance, and a knowledge in depth of the concepts, research findings, and currently useful generalizations within some functional area.

#### Requirements:

1. Minimal requirements for admission are a bachelor's degree from any accredited college or university, and the total of a four-year grade-point average times 200 plus GMAT score must exceed 950; or total of junior senior grade-point average times 200 plus GMAT score in excess of 1000.
2. Since the MBA program is a 30 hour (1 year) program, entrance to the program presumes the following minimal prerequisites: (examples of acceptable courses at the University of Kentucky are given in parentheses):
  - Principles of Economics (ECO 260 and ECO 261)
  - Principles of Accounting (ACC 201 and ACC 202)
  - Statistical Method (STA 291 and ECO 391) or STA 670)
  - Business Finance (BA 345)
  - Marketing (BA 330)
  - Management (BA 335)
  - Introduction to Calculus (MA 123)

Some of the prerequisites and course work may be satisfied by taking BA 600, the MBA module program offered each summer. Contact the MBA program coordinator for details.
3. Graduate Courses: Crs.
  - BA 635 Managerial Economics 3

BA 636 Research and Report Writing	3
ACC 628 Accounting for Control and Planning	3
BA 637 Administrative Behavior	3
BA 645 Corporate Financial Policy	3
BA 630 Advanced Marketing Management	3
BA 639 Business Policy and Strategy	3
One of the following:	
BA 652 Production Management	3
BA 650 Management Science I	3
Electives: Six hours of courses giving graduate credit	6
<b>Total</b>	<b>30</b>

Master of Business Administration with Area Specialization: Six-hour sequences of courses may be approved for those students wishing to specialize beyond the core in the following fields: Marketing, Finance, Management Science, Managerial Accounting, Managerial Economics, and International Business.

#### Additional requirements are:

1. Residence for at least two semesters at the University of Kentucky as a full-time student, or its equivalent as a part-time student.
2. Minimal average of grade B in all courses attempted for graduate credit after being admitted to Graduate School. Students receiving two grades of C below a B average will not be permitted to continue the MBA program.
3. Successful completion of a comprehensive final examination.

### The Degree of Doctor of Business Administration

The basic purpose of the program leading to the Doctor of Business Administration degree is to enable persons who are seeking careers in collegiate business teaching, business research, or business consultation in acquiring a comprehensive, professional education appropriate to their goals.

#### Objectives:

The Doctor of Business Administration degree is designed for persons who are seeking careers in collegiate teaching, business research, or business consultation. A basic purpose of the program is to develop a broad understanding of business administration, economic analysis, and

related behavioral and quantitative disciplines. An appreciation of the administrator's point of view in decision making within an organizational setting, and the development of scientific methods and techniques in research investigations will be emphasized.

#### Requirements:

#### 1. Background Training in Business and Business Related Areas.

The D.B.A. is designed to provide specialization beyond the master's level. The educational background of each candidate will be reviewed by an admissions committee which will identify any deficiencies. In most cases, an M.B.A. from an accredited institution (A.A.C.S.B. accreditation) provides the background.

Applicants with previous graduate credits are evaluated generally according to the following rules, but each case is individually examined. A minimal grade-point average of 3.2 is required on all previous graduate credits. Also, students without GMAT scores must take these exams before admission, with minimal score of 500.

#### 2. Core Requirements (21 credit hours):

##### a. Three hours of course work in administrative science

BA 735, Administrative Science I

##### b. Six hours of course work in research

BA 762, Research Methodology

A graduate course in research techniques appropriate to major interest

##### c. Six hours of course work selected from

ECO 660, Advanced Microeconomic Theory

ECO 661, Advanced Macroeconomic Theory

A graduate course directly supporting major research interest

##### d. Six hours of course work in quantitative analysis

BA 650, Management Science I

BA 750, Management Science II

#### 3. Major and Minor Field Requirements:

The major field will consist of at least 12 hours of graduate credit course work. The minor field will consist of at least six hours of graduate credit course work. The currently available fields include:

Accounting

Finance

Human Resource Administration

#### Management and Organizational Behavior Management Science Marketing

In addition, fields from an outside department closely related to the major field, e.g., sociology, statistics, computer science, international economics, may be selected as a minor field. This course work must be approved by the D.B.A. Coordinator of the Department of Business Administration.

4. No foreign language is required.
5. Written and oral comprehensive examinations are required in the major and minor fields.
6. The dissertation will be based on original research on a significant topic. The dissertation will be defended in an oral examination
7. Minimal average of grade B for graduate credit and in all courses attempted after being admitted to Graduate School. Students obtaining two grades of C below a B average will be dropped by the department.

431	CONTEMPORARY MARKETING PROBLEMS	(3)
432	MARKETING STRATEGY AND PLANNING	(3)
434	RESEARCH IN MARKETING	(3)
435	ANALYSIS OF ORGANIZATIONAL BEHAVIOR	(3)
439	BUSINESS POLICY	(3)
441	BUSINESS LAW II	(3)
445	FINANCIAL MANAGEMENT	(3)
446	INVESTMENTS	(3)
447	LIFE INSURANCE	(3)
448	PROPERTY AND CASUALTY INSURANCE	(3)
450	QUANTITATIVE ANALYSIS IN MANAGEMENT	(3)
456	WORLD BUSINESS	(3)
536	APPLIED PERSONNEL MANAGEMENT	(3)
537	CONTEMPORARY PROBLEMS IN INDUSTRIAL RELATIONS	(3)
551	ADVANCED BUSINESS DATA PROCESSING AND INFORMATION SYSTEMS	(3)
556	INTERNATIONAL COMMERCIAL POLICY	(3)
584	FINANCIAL MARKETS AND INSTITUTIONS	(3)
585	BANK MANAGEMENT	(3)
600	FUNDAMENTALS OF BUSINESS ADMINISTRATION	(12)
630	ADVANCED MARKETING MANAGEMENT	(3)
631	CONSUMER BEHAVIOR	(3)
632	DISTRIBUTION CHANNEL SYSTEM	(3)
633	QUANTITATIVE AND STATISTICAL METHODS IN MARKETING DECISION MAKING	(3)
635	MANAGERIAL ECONOMICS	(3)
636	RESEARCH AND REPORT WRITING	(3)
637	ADMINISTRATIVE BEHAVIOR	(3)
638	COMPARATIVE INTERNATIONAL MANAGEMENT	(3)
639	BUSINESS POLICY AND STRATEGY	(3)
642	BUSINESS AND SOCIETY	(3)
645	CORPORATE FINANCIAL POLICY	(3)
646	INVESTMENT MANAGEMENT	(3)
650	MANAGEMENT SCIENCE I	(3)
651	TOPICS IN OPTIMIZATION	(3)
652	PRODUCTION MANAGEMENT	(3)
655	MANPOWER ADMINISTRATION	(3)
656	INTERNATIONAL MARKETING	(3)
695	INDIVIDUAL WORK IN BUSINESS ADMINISTRATION	(1-6)
730	SEMINAR IN MARKETING THEORY	(3)
731	SEMINAR IN CONSUMER BEHAVIOR	(3)
732	SEMINAR IN MARKETING MANAGEMENT	(3)
735	ADMINISTRATIVE SCIENCE I	(3)
736	ORGANIZATIONS AND EXTERNAL SYSTEMS	(3)
737	ORGANIZATIONS AND INDIVIDUAL BEHAVIOR	(3)
745	SEMINAR IN FINANCIAL THEORY	(3)
746	SEMINAR IN MANAGERIAL FINANCE	(3)
747	DECISION MODELS IN FINANCE	(3)
750	MANAGEMENT SCIENCE II	(3)
751	SEMINAR IN MANAGEMENT SCIENCE	(3-6)
761	SEMINAR IN MANAGERIAL ECONOMICS	(3)
762	RESEARCH METHODOLOGY	(3)



768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
771 SEMINAR	(0)
780 SPECIAL PROBLEMS IN CHEMICAL ENGINEERING	(3)
763 RESEARCH, DESIGN AND ANALYSIS	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
771 SEMINAR IN BUSINESS ADMINISTRATION	(3)
772 ORGANIZATIONAL DEVELOPMENT	(3)
773 SEMINAR IN ORGANIZATION THEORY	(3)
774 SEMINAR IN HUMAN RESOURCE MANAGEMENT	(3)
781 INDEPENDENT WORK IN BUSINESS ADMINISTRATION	(1-6)

## CENTER FOR LEARNING RESOURCES FOR ALLIED HEALTH

Through a cooperative program with the College of Education and the Departments of Curriculum and Instruction, Educational Psychology and Counseling, and Higher Education, the Center makes available the Master of Science in Education degree. Also, in these departments and others, the Doctor of Education Degree is available to allied health specialists.

Persons with a baccalaureate degree in an allied health profession, with two years work experience in their discipline and a desire to teach in or administer an allied health education program, and who meet The Graduate School and departmental requirements, are eligible to make application for entry into these graduate programs.

Inquiries should be directed to: Center for Learning Resources for Allied Health, Medical Center Annex 1, Room 20, University of Kentucky, Lexington, Kentucky 40506.

## CHEMICAL ENGINEERING

**Graduate Faculty:** Professors Robert Grieves (Chairman and Director of Graduate Studies), Richard Kermode, Peter Skelland. Associate Professors William Conger, Charles Hamrin, Jr., Edward Moorhead, Thomas Schrodt.

**Associate Members:** Associate Professor George Crewe. Assistant Professors Leonard Peters, John Uamanis.

The Department of Chemical Engineering provides programs leading to the M.S. in Chemical Engineering and Ph.D. degrees. For the M.S. in Chemical Engineering, 24 hours of course work plus an acceptable thesis are required (Plan A). In certain exceptional cases, the thesis may be replaced by six additional hours of course work. Unique and highly specialized M.S. programs are available in energy engineering, air quality engineering, and environmental pollution control. There is no language requirement for the M.S. in Chemical Engineering. For the Ph.D.,

a reading knowledge of French, German, or Russian is required.

The doctoral student may specialize in one or more of the following areas:

- Atmospheric pollution control
- Biomedical mass transfer and kinetics
- Chemical reactor design
- Coal conversion processes
- Energy engineering
- Environmental engineering
- Non-Newtonian fluid mechanics
- Process control
- Thermodynamics
- Transfer processes
- Water pollution control

A wide selection of thesis topics is available under the direction of the Chemical Engineering faculty. For further information on financial aid, requirements, and departmental laboratories and facilities, contact the Department Chairman.

412 STAGED MASS TRANSPORT PROCESSES	(2)
422 RATE MASS TRANSFER PROCESSES	(3)
430 ADVANCED PROBLEMS IN CHEMICAL ENGINEERING	(2)
431 CHEMICAL ENGINEERING LABORATORY I	(1)
432 CHEMICAL ENGINEERING LABORATORY II	(3)
455 CHEMICAL ENGINEERING PROCESS DESIGN I	(2)
456 CHEMICAL ENGINEERING PROCESS DESIGN II	(2)
462 PROCESS CONTROL	(3)
505 ANALYSIS OF CHEMICAL ENGINEERING PROBLEMS	(3)
515 AIR POLLUTION CONTROL	(3)
520 EQUILIBRIUM THERMODYNAMICS	(3)
530 TRANSPORT I	(3)
550 CHEMICAL REACTOR DESIGN	(3)
552 POLYMERIC MATERIALS	(3)
555 ADVANCED CHEMICAL ENGINEERING PROCESS DESIGN I	(3)
560 NON-NEWTONIAN FLOW AND HEAT TRANSFER	(3)
565 ENERGY ENGINEERING	(3)
570 CHEMICAL SEPARATION AND MEASUREMENT FOR CHEMICAL ENGINEERS	(3)
580 DESIGN OF RATE AND EQUILIBRIUM PROCESSES FOR WATER POLLUTION CONTROL	(3)

**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.

615 ADVANCED AIR POLLUTION CONTROL	(3)
617 AIR SAMPLING AND ANALYSIS	(3)
619 COMMUNITY HEALTH ASPECTS OF AIR POLLUTION CONTROL	(3)
621 NONEQUILIBRIUM THERMODYNAMICS	(3)
625 PROPERTIES OF GASES AND LIQUIDS	(3)
631 TRANSPORT II	(3)
633 DIFFUSIONAL MASS TRANSFER OPERATIONS	(3)
635 STAGED MASS TRANSFER OPERATIONS	(3)
637 BIOMEDICAL MASS TRANSFER	(3)
638 TRANSPORT PHENOMENA IN PACKED AND FLUIDIZED BEDS	(3)
642 ADVANCED PROCESS CONTROL I	(3)
643 ADVANCED PROCESS CONTROL II	(3)
650 ADVANCED CHEMICAL REACTOR DESIGN	(3)
665 EQUILIBRIUM AND RATE PROCESSES OF COAL CONVERSION	(3)
671 BASIC ELECTRODE PROCESSES IN ELECTROCHEMICAL ENGINEERING	(3)
680 BIOCHEMICAL ENGINEERING	(3)

## CHEMICAL PHYSICS

**Directors of Graduate Studies**—William F. Wagner and  
Fletcher Gabbard

The Department of Chemistry and the Department of Physics and Astronomy jointly provide a program in chemical physics leading to the degree of Doctor of Philosophy. Chemical physics is an overlapping area of the fields of chemistry and physics and, because of its relevance to such fields as Astrophysics, Thermonuclear physics, and Biophysics, it currently enjoys a position of considerable esteem at a number of institutions. Experience shows that most exciting progress is made when members of the traditional fields of chemistry and of physics join together to form an operating unit of wide scope without the sacrifice of depth in the specialized areas. Students of either department are encouraged to follow a broader and richer curriculum by crossing departmental boundaries, both in the selection of courses and in the pursuit of independent research. The program encourages exchange of information in the following research components: atomic and molecular theory, atomic and molecular processes, solid state theory and experiments, surface state physics, crystallography, nuclear magnetic resonance, statistical mechanics, biophysics, and mass spectroscopy. Course offerings in chemistry and in physics, including the special offerings in chemical physics (CHE 755 or PHY 755, Topics in Chemical Physics) are listed under the Department of Chemistry and the Department of Physics and Astronomy.

## CHEMISTRY

**Graduate Faculty:** Professors Henry Bauer, Audrey Companion, Paul Corio, William Ehmann, Robert Kiser, Kurt Niedenzu, John Patterson, Donald Sands, Paul Sears, Walter Smith, Jr., William Wagner (Chairman and Director of Graduate Studies). Associate Professors: Rodney Black, Robert Guthrie, Merle Pattengill, William Plucknett, Stanford Smith, Joseph Wilson.

**Associate Members:** Assistant Professors Thomas Attig, Carolyn Brock, Allan Butterfield, Douglas Nae, James O'Reilly, Steven Yates.

The Department of Chemistry offers the Master of Science and the Doctor of Philosophy degrees. Plan A or Plan B may be used to satisfy the requirements for the M.S. degree. Students may major in areas of chemistry such as analytical, chemical physics, inorganic, organic, physical, and radio-nuclear. All candidates for the Ph.D. degree are required to serve as a teaching assistant for one semester.

A satisfactory reading knowledge of German is required for the M.S. degree. A satisfactory reading knowledge of either French, German or Russian is required for the Ph.D. degree. Foreign language reading requirements may be satisfied by any of the means specified by The Graduate School.

All new graduate students must take proficiency examinations in analytical, inorganic, organic, and physical chemistry. The results of these examinations are used as a guide in establishing the student's program of courses.

440	PHYSICAL CHEMISTRY	(3)
441	PHYSICAL CHEMISTRY LABORATORY	(2)
442	PHYSICAL CHEMISTRY	(3)
443	PHYSICAL CHEMISTRY LABORATORY	(3)
444	PHYSICAL CHEMISTRY	(3)
490	CHEMISTRY FOR HIGH SCHOOL TEACHERS	(3)
510	ADVANCED INORGANIC CHEMISTRY	(3)
512	INORGANIC CHEMISTRY LABORATORY	(3)
520	RADIOCHEMISTRY	(3)
522	INSTRUMENTAL ANALYSIS	(4)
532	SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS	(1)
533	QUALITATIVE ORGANIC ANALYSIS	(2)
538	PRINCIPLES OF ORGANIC CHEMISTRY	(3)
547	ADVANCED PHYSICAL CHEMISTRY I	(3)
548	ADVANCED PHYSICAL CHEMISTRY II	(3)
550	PHYSIOLOGICAL CHEMISTRY	(4)
552	PHYSIOLOGICAL CHEMISTRY	(4)
572	SEMINAR	(1)
580	TOPICS IN CHEMISTRY	(2)
582	CHEMICAL LITERATURE	(1)
610	CHEMISTRY OF THE TRANSITION METALS	(3)
612	INORGANIC CHEMISTRY OF THE NON-METALS	(3)
616	NUCLEAR CHEMISTRY	(3)
625	OPTICAL METHODS OF ANALYSIS	(3)
626	ADVANCED ANALYTICAL CHEMISTRY	(3)
633, 635	ADVANCED ORGANIC CHEMISTRY	(3 ea.)
640	ELECTROCHEMISTRY	(2)
645	CHEMICAL THERMODYNAMICS	(3)
646	CHEMICAL KINETICS	(3)
647	QUANTUM CHEMISTRY	(3)
710	TOPICS IN INORGANIC CHEMISTRY	(2-4)
714	NON-AQUEOUS SOLUTIONS	(2)
720	ELECTROCHEMICAL METHODS OF ANALYSIS	(3)
726	TOPICS IN ANALYTICAL CHEMISTRY	(1-3)
736	TOPICS IN ORGANIC CHEMISTRY	(2-4)
743	MOLECULAR STRUCTURE	(3)
744	STATISTICAL THERMODYNAMICS	(3)
746	TOPICS IN PHYSICAL CHEMISTRY	(2-4)
747	ADVANCED QUANTUM CHEMISTRY	(3)
755	TOPICS IN CHEMICAL PHYSICS (Subtitle required.)	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
776	GRADUATE SEMINAR	(1)
780	INDIVIDUAL WORK IN CHEMISTRY	(1-5)
790	RESEARCH IN CHEMISTRY	(1-5)

## CIVIL ENGINEERING

**Graduate Faculty:** Professors S. F. Adams, J. A. Dearinger, H. Gesund, B. O. Hardin (Chairman), Y. H. Huang (Director of Graduate Studies), J. W. Hutchinson, R. A. Lauderdale, R. S. Mateer, D. J. Wood, F. D. Wright. Associate Professors S. B. Biggers, J. A. Deacon, V. P. Drnevich, E. G. Foree, D. Kao, R. S. Mateer, S. T. Wang.

**Associate Members:** Assistant Professors R. C. Howell, V. Kalyanaraman, J. G. Rose.

The Department of Civil Engineering offers the Master of Science in Civil Engineering (Plan A and Plan B available) and Ph.D. with specialization in the following areas:

Environmental engineering  
Fluid mechanics and applied hydraulics



Geotechnical engineering  
 Rock mechanics and mining engineering  
 Structural engineering  
 Surveying and photogrammetry (M.S. Only)  
 Transportation engineering  
 Water quality and water resources engineering

These programs utilize courses from other departments and such inter-departmental programs are encouraged. Engineering Mechanics, Mechanical Engineering, Chemical Engineering, Agricultural Engineering, Mathematics, Geology, Biology, and Chemistry are some of the departments whose offerings contribute to the programs in Civil Engineering.

In addition to satisfying general Graduate School and College of Engineering admissions requirements, applicants for admission to the M.S.C.E. and Ph.D. degree programs in Civil Engineering must have been awarded a Bachelor of Science degree from an engineering program accredited by the Engineers' Council for Professional Development. This requirement may be waived for those who have been awarded Bachelor of Science degrees in science areas or from unaccredited engineering programs (including those offered by foreign institutions) if the applicant has received an acceptable score on the Advanced Engineering Test of the Graduate Record Examination.

Neither the M.S.C.E. degree nor the Ph.D. degree in Civil Engineering will be conferred unless the candidate has successfully completed, during his undergraduate and/or graduate careers, at least one basic course in at least four of the following seven areas: civil engineering materials, fluid mechanics, geotechnical engineering, surveying, structural or solid mechanics, transportation engineering, and water quality engineering.

The Department of Civil Engineering has many well equipped laboratories with active research programs in most areas. The research programs provide financial assistance for graduate students. In addition financial assistance is also available through teaching assistantships and a limited number of traineeships, fellowships and scholarships. Also it is sometimes possible to arrange a cooperative work program with a local engineering firm.

Additional information about the graduate program in Civil Engineering can be obtained by writing the Director of Graduate Studies, Department of Civil Engineering.

425 SOIL MECHANICS .....	(3)
435 MINE PLANT AND MACHINERY .....	(3)
487 STEEL STRUCTURES .....	(3)

489 DESIGN OF STRUCTURES .....	(3)
492 REINFORCED CONCRETE .....	(3)
515 ADVANCED SURVEYING .....	(3)
523 PHOTOGRAMMETRY .....	(3)
528 GEOTECHNICAL ENGINEERING .....	(3)
529 INTERMEDIATE FLUID MECHANICS .....	(3)
531 COAL PREPARATION I .....	(3)
532 COAL PREPARATION II .....	(3)
533 ROCK MECHANICS .....	(3)
540 PAVEMENT ANALYSIS AND DESIGN .....	(3)
543 DEVELOPMENT OF TRANSPORTATION FACILITIES ..	(3)
545 CIVIL ENGINEERING MATERIALS II .....	(3)
550 ENGINEERING HYDRAULICS .....	(3)
553 HYDROLOGY .....	(3)
554 HYDRAULIC STRUCTURES .....	(3)
555 ENGINEERING ECONOMY .....	(3)
559 WATER QUALITY CONTROL FACILITIES DESIGN ....	(3)
568 WATER QUALITY CONTROL LABORATORY I .....	(3)
580 ADVANCED STRUCTURAL MECHANICS .....	(3)

**PREREQUISITE FOR GRADUATE WORK:** Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics. For major work, a candidate must hold a bachelor's degree in Civil Engineering or its equivalent.

599 TOPIC IN CIVIL ENGINEERING .....	(2-3)
621 TERRAIN ANALYSIS .....	(3)
623 FINITE ELEMENT APPLICATIONS IN ENGINEERING ..	(3)
624 EXPERIMENTAL METHODS IN SOIL MECHANICS ....	(3)
625 ADVANCED SOIL MECHANICS .....	(3)
626 GROUNDWATER AND SEEPAGE .....	(3)
628 ADVANCED GEO-TECHNICAL ENGINEERING .....	(3)
629 SOIL DYNAMICS .....	(3)
631 ADVANCED PROSPECTING .....	(3)
633 MINE ORGANIZATION .....	(3)
634 ADVANCED MINE ENGINEERING .....	(3)
635 APPLIED STATISTICAL METHODS IN WATER RESOURCES .....	(3)
639 AIR TRANSPORT ENGINEERING .....	(3)
640 HIGHWAY ADMINISTRATION, ECONOMICS AND FINANCE .....	(3)
641 HIGHWAY TRAFFIC CHARACTERISTICS .....	(3)
643 URBAN TRANSPORTATION PLANNING .....	(3)
644 OPERATIONAL EFFECTS OF GEOMETRICS IN TRANSPORTATION .....	(3)
645 HIGHWAY DESIGN, CONSTRUCTION AND MAINTENANCE .....	(3)
646 MULTIDISCIPLINARY ACCIDENT INVESTIGATION AND RECONSTRUCTION .....	(3)
648 TRAFFIC LAW, ORDINANCES AND CONTROLS .....	(3)
652 OPEN CHANNEL FLOW .....	(3)
655 WATER-RESOURCES PLANNING .....	(3)
660 ADVANCED WATER QUALITY CONTROL FACILITIES DESIGN .....	(3)
662 FUNDAMENTALS OF WATER QUALITY CONTROL I ..	(3)
663 WATER QUALITY CONTROL LABORATORY II .....	(3)
664 FUNDAMENTALS OF WATER QUALITY CONTROL II ..	(3)
669 WATER QUALITY IN SURFACE WATERS .....	(3)
674 MECHANICS OF LIQUID FLOW IN PIPES .....	(3)
678 FLUID DYNAMICS OF MULTIPHASE SYSTEMS .....	(3)
681 DYNAMICS OF STRUCTURES .....	(3)
682 EXPERIMENTAL STRUCTURAL ANALYSIS .....	(3)
683 OPTIMUM DESIGN IN CIVIL ENGINEERING .....	(3)
686 ADVANCED METAL STRUCTURES .....	(3)
691 ADVANCED REINFORCED CONCRETE THEORY .....	(3)
692 SLAB AND FOLDED PLATE STRUCTURES .....	(3)
693 SHELL STRUCTURES .....	(3)
694 ADVANCED STRUCTURAL ANALYSIS I .....	(3)
695 ADVANCED STRUCTURAL ANALYSIS II .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
771 SEMINAR .....	(0)
780 SPECIAL DESIGN PROBLEMS IN CIVIL ENGINEERING .....	(1-6)
790 SPECIAL RESEARCH PROBLEMS IN CIVIL ENGINEERING .....	(1-6)

## CLASSICAL LANGUAGES AND LITERATURES

**Graduate Faculty:** Professors Hubert Martin, Jr. (Chairman), Lawrence Thompson. Associate Professor Louis Swift (Director of Graduate Studies)

**Associate Member:** Assistant Professor Jane Phillips.

The Department offers the M.A. degree under both Plan A and Plan B. While there are no specific course prerequisites for admission, a strong

undergraduate concentration in at least one Classical language is recommended. The Department offers a limited number of teaching assistantships.

Each student will normally elect either Latin literature, Greek literature, or a combination of the two as an area of concentration. Individualized course programs, however, are arranged for students who are preparing themselves for secondary school teaching or who have an additional interest in a field other than the Classics. A comprehensive examination is required of all degree candidates; and, except under special circumstances, they are expected to demonstrate either a reading knowledge of a modern foreign language or a substitute skill approved by the Department. Most students complete their M.A. program in an academic year and a summer.

The University maintains an affiliation with the American School of Classical Studies at Athens and the American Academy in Rome, and the meetings of the Kentucky Society of the Archaeological Institute of America are regularly held on the University of Kentucky campus.

#### LATIN

425 THE HEROIC IDEAL: GREEK AND ROMAN EPIC ....	(3)
501 LUCRETIVS AND EPICUREANISM .....	(3)
502 ROMAN HISTORICAL WRITERS .....	(3)
503 CICERO .....	(3)
504 ROMAN SATIRE .....	(3)
505 VIRGIL AND THE ROMAN EPIC .....	(3)
506 MEDIEVAL LATIN .....	(3)
507 ROMAN DRAMA .....	(3)
509 ROMAN LAW .....	(3)
511, 512 STUDIES IN ROMAN PHILOLOGY .....	(3 ea.)
530 THE TEACHING OF LATIN .....	(3)
603 STUDIES IN LATIN LITERATURE OF THE REPUBLIC .....	(3)
604 STUDIES IN LATIN LITERATURE OF THE EMPIRE ....	(3)

#### GREEK

424 GREEK LITERATURE IN TRANSLATION .....	(3)
426 CLASSICAL DRAMA: TRAGEDY AND COMEDY IN GREECE AND ROME .....	(3)
480 THE CLASSICAL TRADITION IN MANUSCRIPT AND PRINTED BOOK .....	(3)
500 LATIN LYRIC POETRY .....	(3)
552 GREEK EPIC AND LYRIC POETRY .....	(3)
553 GREEK PHILOSOPHICAL LITERATURE .....	(3)
556 GREEK DRAMATIC LITERATURE .....	(3)
557 GREEK HISTORICAL LITERATURE .....	(3)
561, 562 STUDIES IN GREEK PHILOLOGY .....	(3 ea.)
601 STUDIES IN GREEK LITERATURE I .....	(3)
602 STUDIES IN GREEK LITERATURE II .....	(3)

#### CLASSICS IN GENERAL

580 INDEPENDENT WORK IN CLASSICS .....	(3)
600 BIBLIOGRAPHY OF CLASSICAL SCHOLARSHIP .....	(3)
605 COMPARATIVE GREEK AND LATIN GRAMMAR .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
790 RESEARCH IN THE TEACHING OF CLASSICAL LANGUAGES .....	(3)

## CLINICAL NUTRITION

**Graduate Faculty:** Professor Paul Thornton (Director of Graduate Studies).

The Master's Degree Program in Clinical Nutrition provides an opportunity for graduate study in the fundamentals of clinical nutrition. Plan B is offered. The curriculum is designed specifically to provide practical experience in nutrition in the

treatment of illness and the maintenance of health and to deepen the student's foundation in the sciences fundamental to nutrition. It is intended primarily for those who wish to undertake careers in dietetics and clinical nutrition in university hospitals, large community hospitals, and medical centers; for those who intend to teach in the field of clinical dietetics; and for those who plan careers as members of a research team in clinical nutrition and metabolism.

The program is interdisciplinary in nature. The faculty is drawn from the basic sciences as well as the clinical departments—medicine, pediatrics, community medicine. The University Hospital and its related clinical facilities will be used for clinical instruction.

A minimum of 30 credit hours will be required to complete the degree. No language is required.

#### I. Required Courses

		Crs.	Sem.
CNU 601	Clinical Nutrition	4	I
CNU 602	Current Trends in Nutrition	1	II
CNU 701	Advanced Clinical Nutrition	2	I
CNU 702	Advanced Clinical Nutrition	2	II
CNU 780, 781, 782	Independent Study	1 ea. I, II, S	
		12	

II. Suggested courses to complete the 30-hours' credit. (In consultation with the program director or adviser the student will select certain of the courses listed.)

BCH 401	Fundamentals of Biochemistry	3	I
CNU 502	Principles of Human Phys- iology, same as PGY 810)	5	II
CNU 504	Principles of Human Physiology Lectures	4	II
ASC 534	Chemistry of Animal Products	4	
BSC 772	Topical Seminar in Medi- cal Behavioral Science	1-3	II
	Electives sufficient to com- plete 30 credits as required		

502	PRINCIPLES OF HUMAN PHYSIOLOGY .....	(5)
504	PRINCIPLES IN HUMAN PHYSIOLOGY LECTURES ....	(4)
601	CLINICAL NUTRITION .....	(4)
602	CURRENT TRENDS IN NUTRITION .....	(1)
701	ADVANCED CLINICAL NUTRITION .....	(2)
702	ADVANCED CLINICAL NUTRITION .....	(2)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE IN CLINICAL NUTRITION .....	(1-6)



CNU 780, 781, 782 INDEPENDENT STUDY .....	(1 ea.)
CM 601 PRINCIPLES OF NUTRITION IN POPULATION GROUPS .....	(2)

## CLINICAL PASTORAL COUNSELING

Students wishing to pursue graduate studies through the Department are referred to the Department of Educational Psychology and Counseling, College of Education. Completion of Masters level work in a counseling program is required of those seeking certification as a Fellow of the American Association of Pastoral Counselors. Students wishing further information are invited to consult the Department Chairman.

501 PERSPECTIVES IN RELIGION AND HEALTH .....	(3)
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## COMMUNICATION

**Graduate Faculty:** Professors Robert Bostrom, Lewis Donohew (Director of Graduate Studies), Robert Murphy (Acting Dean), Joseph Ripley, Bruce Westley. Associate Professors John Baseheart, Leonard Tipton, Norman Van Tubergen.

**Associate Members:** Assistant Professors Phillip Palmgreen, Kristin Valentine.

The faculties of the departments of Human Communication and the School of Journalism offer a program leading to the Master of Art degree. Emphasis of the program is on the study of communication behavior. It includes study of the cognitive system and other components of an individual's communication system, interpersonal communication in small groups, and communication at the mass or social system level. The program is designed to serve the needs of students whose goals may include teaching and academic research, professional research, or professional work in the mass media. Students with no previous work in a communication area may be required to take from five to 10 hours of undergraduate work without graduate credit.

All students will be required to take nine core hours consisting of Proseminar in Communication (COM 601), Communication Theory (COM 651), and Communication Research Methods (COM 665), plus Statistics 670 or its equivalent as determined by the Director of Graduate Studies. A total of 30 hours of graduate level course credit is required, plus a research submission or thesis. The research submission may follow one of four tracks:

1. Academic Research (Pre-Ph.D.)—Thesis
2. Professional Research—Thesis or research report
3. Professional management or message preparation—Thesis or position paper
4. Academic teaching below university level—

Thesis or summary and evaluation of research on a given topic

Additionally, it is required that a minimum of 18 hours of the total 30 must be at the 600 level or above.

Students may elect, with approval of their adviser, to work under any one of the four tracks listed above. After completion of the core courses students have 18 elective hours which they may take inside or outside the Department of Human Communication.

All students will be required to take a written comprehensive examination upon or near completion of the four core courses, and before being examined on the thesis/research submission.

Near the end of their last semester, students will take an oral comprehensive examination covering their thesis/research submission.

Courses in Human Communication which are available for graduate credit include:

### COMMUNICATION

550 INTRODUCTION TO COMMUNICATIONS RESEARCH ..	(3)
551 THE COMMUNICATIONS PROCESS .....	(3)
553 MASS COMMUNICATION AND SOCIAL ISSUES .....	(3)
554 SEMINAR IN COMMUNICATIONS .....	(2)
581 COMMUNICATION PROCESSES IN SMALL GROUPS ..	(3)
582 PERSUASION .....	(3)
605 INTRODUCTION TO INFORMATION SCIENCE .....	(3)
607 EVALUATING AND COMMUNICATING INFORMATION	(3)
608 MASS COMMUNICATIONS AND SOCIETY .....	(3)
614 INFORMATION STORAGE AND RETRIEVAL SYSTEMS	(3)
615 INFORMATION SYSTEMS DESIGN .....	(3)
650 SIGNS AND SIGN BEHAVIOR .....	(3)
651 COMMUNICATIONS THEORY .....	(3)
665 COMMUNICATIONS RESEARCH METHODS .....	(3)
705 SEMINAR: INFORMATION SCIENCES .....	(3)
721 SEMINAR IN INTRAPERSONAL COMMUNICATION ....	(2)
730 SEMINAR IN MASS MEDIA AND PUBLIC POLICY ....	(2)
731 SEMINAR IN INTERPERSONAL COMMUNICATION ....	(3)
741 SEMINAR IN MULTI-ACTIONAL COMMUNICATION ..	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
781 DIRECTED STUDY IN COMMUNICATION .....	(1-6)

Courses in related program areas, such as journalism, speech, or telecommunication, may be drawn upon as appropriate, depending upon the student's emphasis as worked out with his/her adviser. Courses in the above areas are:

### JOURNALISM

501 NEWS REPORTING .....	(3)
503 COPYREADING AND EDITING .....	(3)
507 FEATURE WRITING .....	(3)
509 MAGAZINE ARTICLE WRITING .....	(3)
511 EDITORIAL WRITING .....	(2)
513 SUPERVISION OF HIGH SCHOOL PUBLICATIONS ..	(1-3)
531 LAW OF THE PRESS .....	(3)
535 HISTORY OF JOURNALISM .....	(3)
537 SEMINAR IN PUBLIC OPINION .....	(3)
539 REPORTING PUBLIC AFFAIRS .....	(3)
541 PUBLIC RELATIONS .....	(3)
561 NEWSPAPER AND MAGAZINE ADVERTISING .....	(3)
563 ADVERTISING PROCEDURES .....	(3)
575 TYPOGRAPHY .....	(2)
581 INTRODUCTION TO PRESS PHOTOGRAPHY .....	(3)
599 ADVANCED WRITING FOR THE MASS MEDIA .....	(3)

### SPEECH

488 INTERPRETATION OF POETRY .....	(3)
500 SPEECH ANALYSIS AND PERCEPTION .....	(3)
583 STUDIES IN ARGUMENTATION .....	(3)
584 TEACHING OF SPEECH .....	(3)
585 AMERICAN PUBLIC ADDRESS TO 1865 .....	(3)
586 AMERICAN PUBLIC ADDRESS SINCE 1865 .....	(3)

588 ORAL INTERPRETATION OF DRAMA .....	(3)
589 DIRECTION OF FORENSIC ACTIVITIES .....	(3)
687 STUDIES IN ANCIENT AND MEDIEVAL RHETORIC ..	(3)
688 STUDIES IN RENAISSANCE AND MODERN RHETORIC	(3)
780 DIRECTED STUDIES .....	(3)
782 SPECIAL TOPICS IN SPEECH .....	(3)

#### TELECOMMUNICATION

432 FILM PRODUCTION .....	(2)
500 TELECOMMUNICATIONS AUDIENCE ANALYSIS .....	(3)
501 TELECOMMUNICATIONS REGULATIONS .....	(3)
504 TELESYSTEMS .....	(3)
505 TELECOMMUNICATIONS PROGRAM POLICIES .....	(2)
507 THE PUBLIC AFFAIRS PROGRAM .....	(2)
510 BROADCAST ADVERTISING .....	(3)
511 TELECOMMUNICATIONS INSTRUCTIONAL SYSTEMS	(3)
512 TELETECTONICS .....	(3)
530 PRO-SEMINAR IN RADIO AND TELEVISION .....	(2)
599 TELECOMMUNICATIONS TOPICAL SEMINAR .....	(2)

## COMMUNITY HEALTH

**Graduate Faculty:** Professor Joe Fred Sills (Chairman).

The Master of Science in Public Health has been discontinued. Persons interested in graduate education in Community Health should contact the Department directly.

420 CURRENT ISSUES IN COMMUNITY HEALTH	
EDUCATION .....	(3)
481 COMMUNITY HEALTH PRACTICE .....	(4-8)
500 PUBLIC HEALTH SANITATION .....	(3)
501 PUBLIC HEALTH .....	(3)
511 INDEPENDENT STUDY IN COMMUNITY HEALTH ..	(1-3)
515 COMMUNICABLE DISEASES .....	(3)
520 MENTAL HYGIENE .....	(3)
521 COMMUNITY HEALTH .....	(3)
522 SCHOOL AND COMMUNITY HEALTH .....	(2)
600 EPIDEMIOLOGY .....	(3)
603 PUBLIC HEALTH RECORDS .....	(2)
604 MATERNAL AND CHILD HEALTH .....	(2)
612 PUBLIC HEALTH ADMINISTRATION .....	(3)
613 PUBLIC HEALTH ADMINISTRATION .....	(2)
618 VITAL STATISTICS .....	(3)
619 VITAL STATISTICS .....	(3)
770 SEMINAR .....	(1)

## COMPUTER SCIENCE

**Graduate Faculty:** Professors Thaddeus B. Curtz (Chairman), A. C. R. Newbery, Henry Thacher, Jr. Associate Professors Ronald Alter, Frank Brown, Michael C. McCord (Director of Graduate Studies), Garth Olde.

**Associate Members:** Assistant Professors Anthony Baxter, Johnson Hart, Chung Wang.

The Department of Computer Science grants the M.S. degree.

In order to be admitted, candidates who meet the University requirements must present the Calculus and the knowledge of a higher level programming language such as FORTRAN, COBOL, PL/I or ALGOL. In addition, to enter the program without being required to take additional undergraduate training, the candidate is expected to have completed four of the following at the undergraduate level:

- An assembly language programming course.
- A course in discrete mathematics or data structures.
- A course in linear algebra.
- A course in logic or logical design.

A course in numerical analysis.

A course in probability or statistics.

Students who enter the program having undergraduate credit for fewer than four of the listed items will be required to take appropriate steps to establish competence in a minimum of four.

The Master's degree is offered under both Plans A and B. However, generally the Department encourages the use of Plan A. Students are required to establish competence in one modern foreign language and to complete at least two thirds of their course work in approved courses within the Department which must include the CS Problem Seminar.

An oral and written comprehensive examination is required of all candidates.

415 GRAPHY THEORY .....	(3)
416 PRINCIPLES OF OPERATIONS RESEARCH I .....	(3)
420 ALGORITHMIC LANGUAGES AND COMPILERS .....	(3)
421 ELEMENTARY NUMERICAL ANALYSIS I .....	(3)
445 COMPUTING AND THE HUMANITIES .....	(3)
472 SEMINAR .....	(2)
482 DISCRETE METHODS AND MODELS IN APPLIED	
MATHEMATICS .....	(3)
502 USE AND MANAGEMENT OF MINI-COMPUTERS .....	(3)
505 DATA BASE MANAGEMENT SYSTEMS .....	(3)
510 DISCRETE COMPUTER MATHEMATICS I .....	(3)
515 STUDY OF COMPUTER ARITHMETIC .....	(3)
520 FUNDAMENTALS OF PROGRAMMING LANGUAGES ..	(3)
525 ANALOG AND HYBRID COMPUTER TECHNIQUES ..	(3)
530 COMPUTATIONAL METHODS .....	(3)
532 FINITE PRECISION ARITHMETIC .....	(3)
538 ELEMENTARY NUMERICAL ANALYSIS II .....	(3)
540 SYSTEMS SIMULATION .....	(3)
541 ADVANCED COMPILER DESIGN I .....	(3)
550 INTRODUCTION TO CODING THEORY .....	(3)
560 NON-NUMERICAL APPLICATIONS OF COMPUTERS ..	(3)
562 NUMERICAL LINEAR ALGEBRA .....	(3)
570 COMPUTERS AND PROGRAMMING SYSTEMS .....	(3)
575 FORMAL LANGUAGE THEORY .....	(3)
585 INTERMEDIATE TOPICS IN COMPUTER SCIENCE ...	(3)
605 ADVANCED INFORMATION PROCESSING .....	(3)
611 DISCRETE COMPUTER MATHEMATICS II .....	(3)
612 INDEPENDENT WORK IN COMPUTER SCIENCE .....	(1-3)
620 NUMERICAL APPROXIMATION AND CURVE-FITTING	
630 NUMERICAL EVALUATION OF TRANSCENDENTAL	
FUNCTIONS .....	(3)
631 ERROR ANALYSIS AND CERTIFICATION .....	(3)
641 ADVANCED COMPILER DESIGN II .....	(3)
650 PROBLEM SEMINAR .....	(3)
670 NATURAL LANGUAGE PROCESSING .....	(3)
680 SEMINAR IN COMPUTER SCIENCE .....	(2)
682 SWITCHING THEORY .....	(3)
683 AUTOMATA THEORY .....	(3)
685 SPECIAL TOPICS IN COMPUTER SCIENCE .....	(3)
687 SPECIAL TOPICS IN SOFTWARE .....	(3)
689 SPECIAL TOPICS IN NUMERICAL COMPUTING .....	(3)
690 ADVANCED PROGRAMMING SYSTEMS I .....	(3)
691 ADVANCED PROGRAMMING SYSTEMS II .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)

## CROP SCIENCE

**Graduate Faculty:** Professors R. C. Buckner, G. B. Collins, (Director of Graduate Studies), V. C. Finkner, A. J. Hiatt, M. J. Kasperbauer, P. D. Legg, G. W. Schneider, N. L. Taylor, T. H. Taylor, W. C. Templeton. Associate Professors P. L. Cornelius, D. L. Davis, D. B. Egli, D. Knavel, C. G. Poneleit, C. Rieck.

**Associate Members:** Professor J. H. Smiley (Extension). Associate Professors M. J. Bitzer, A. J. Powell (Extension), D. M. Tekrony. Assistant Professors R. M. Hayes, D. A. Reicosky, Wayne Vian.



The Crop Science graduate program offers graduate work leading to the Master of Science and the Doctor of Philosophy degrees with options in plant breeding and genetics, crop ecology and management, crop physiology, seed technology and weed science. For the M.S. degree, 24 hours of course work plus an acceptable thesis are required (Plan A). In certain exceptional cases, the thesis may be replaced by six additional hours of course work. Work leading to advanced degrees must conform to the general rules and regulations of The Graduate School. A reading knowledge of one foreign language is required for the Ph.D. degree.

Individual programs are developed to include a strong course work component and a meaningful research experience. A strong undergraduate background in the agricultural and biological sciences is required of all degree candidates.

404 WEED SCIENCE .....	(3)
406 PLANT BREEDING .....	(3)
408 TOBACCO .....	(3)
412 GRAIN CROPS .....	(3)
502 ECOLOGY OF ECONOMIC PLANTS .....	(3)
510 ECOLOGY AND UTILIZATION OF GRASSLAND .....	(4)
554 ADVANCED CROP SCIENCE .....	(3)
556 SEED TECHNOLOGY .....	(3)
560 SOIL-PLANT RELATIONSHIPS .....	(3)
599 SPECIAL PROBLEMS IN AGRONOMY .....	(1-4)
620 GENETIC STRUCTURE OF POPULATIONS .....	(3)
630 EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY .....	(3)
658 ADVANCED WEED SCIENCE .....	(3)
666 ADVANCED PLANT BREEDING .....	(3)
678 STATISTICAL GENETICS .....	(3)
697 SPECIAL TOPICS IN CROP SCIENCE .....	(1-3)
730 GRASSLAND RESEARCH .....	(3)
732 MINERAL NUTRITION OF PLANTS .....	(3)
734 PHYSIOLOGY OF GROWTH AND DEVELOPMENT .....	(3)
736 PHYLOGENY OF CULTIVATED PLANTS .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
770 AGRONOMY SEMINAR .....	(1)
799 RESEARCH IN AGRONOMY .....	(1-4)

## CURRICULUM AND INSTRUCTION

**Graduate Faculty:** Professors Harry Barnard (Chairman), George Denemank, James Moore, Theodore Mueller, Earl Rankin. Associate Professors Ronald Atwood, Virginia Atwood, Lowell Eberwein, Phil Nacke, William Peters, Leland Smith, Kathy Thornburg.

**Associate Members:** Associate Professors Daniel Arnold, Frank Colton, Bruce Petty.

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.

### Master of Arts in Education (Elementary)

For a Master of Arts in Education, a minimum of 12 semester hours of graduate work shall be selected from at least three of the following areas of professional education in accordance with the needs of the individual teacher. This program qualifies the teacher for a Standard Certificate if he/she has completed the four-year undergraduate curriculum. The specific courses listed below under each area shall be used to meet the requirements:

Area I. Research Methodology

EDP 522, EDP 656, and EDP 657.

Area II. The Psychology of Learning

EDP 548, EDP 602, and EDP 658.

Area III. Foundations in Education

EDF 640, EDF 645, EDF 650, or EDF 651, or EDF 652, EDF 655, and EDF 661.

Area IV. A seminar in Instruction Devoted to the Method of Teaching. Any general course in methods or any specific course in methods in subject matter areas may be taken to meet this requirement.

Area V. A General Study of Curriculum Development.

EDC 712, and EDC 732.

Area VI. Advanced Study in Human Growth and Development.

EDP 600, EDP 601, and EDP 759.

Area VII. Advanced Study in Reading (required unless waived on basis of previous advanced study in reading)

EDC 540, EDC 619, EDC 641, and EDC 642.

### Master of Arts in Education (Secondary)

For a Master of Arts in Education, a minimum of 12 semester hours of graduate work shall be selected from at least three of the following areas of professional education in accordance with the needs of the individual teacher. This program qualifies the teacher for a Standard Certificate if he/she has completed the four-year undergraduate curriculum.

Area I. Research and Methodology\*

EDP 522, EDP 656, and EDP 657.

Area II. The Psychology of Learning\*\*  
EDP 548, EDP 602, and EDP 658.

Area III. Foundations in Education\*  
EDF 640, EDF 645, EDF 650, or EDF 651, or  
EDF 652, EDF 655, and EDF 661.

Area IV. A Seminar in Instruction Devoted to  
Methods of Teaching\*

Any general course in methods or any specific  
course in methods in subject matter areas may  
be taken to meet this requirement.

Area V. A General Study of Curriculum Develop-  
ment

EDC 714,\* EDC 717, EDC 732,\* and EDC 735.

Area VI. Advanced Study in Human Growth and  
Development\*\*

EDP 600, EDP 601, and EDP 759.

Area VII. Advanced Study in Reading

EDC 540, EDC 643, EDC 646, EDC 619, and  
EDC 620.

\* If a student's ultimate career objectives are in the  
areas of Administration and Supervision, a course from each  
of these areas is recommended.

\*\* At least one course from either Area II or Area VI, or  
an equivalent course outside Education, is required for Ad-  
ministration and Supervision Programs.

### **Master of Science in Education (Secondary)**

The requirements for the Master of Science in  
Education are the same as those for the Master of  
Arts in Education. However, the Master of Sci-  
ence in Education may be granted only to those  
students whose hours taken in courses outside the  
College of Education are in mathematics and  
science.

### **Master of Science in Education (Clinical and College Teaching Option)**

The clinical and college teaching option is a  
36-semester hour program designed for indi-  
viduals who are not seeking certification but  
wish to develop their instructional knowledge and  
skills in order to maximize the acquisition of  
knowledge and competencies of students outside  
K-12 school settings. Persons choosing this op-  
tion are frequently preparing for instructional  
responsibilities in health-related clinical situa-  
tions or junior colleges.

Nine of the 18 hours required in education  
must be taken in the Department of Curriculum  
and Instruction. At least 12 hours must be

taken outside the College of Education. Specific  
programs are planned with the approval of the  
Director of Graduate Studies.

### **Master of Arts in Education (Reading)**

Requirements for a Master of Arts in Educa-  
tion with reading as a field of concentration must  
meet the specifications for a Master of Arts in  
Education (Plan B). The requirements must also  
be in conformity with the general requirements  
for the Master of Arts in Education (Elementary),  
or the Master of Arts in Education (Secondary).

In addition to the previously mentioned re-  
quirements, a graduate student in elementary or  
secondary education who wishes to specialize in  
the area of reading instruction must meet the  
Kentucky certification guidelines for endorsement  
as a "reading specialist." This endorsement will  
be added to a classroom teaching certificate upon  
completion of a master's degree program with  
emphasis in reading which follows a specified  
period of preparation. The guidelines for this  
endorsement are as follows:

1. The prerequisites shall include:
  - a. A teaching certificate based upon the  
completion of a four-year program of  
preparation.
  - b. The completion of an approved master's  
degree program with emphasis in reading  
following the curriculum guidelines.
  - c. A minimum of three years of successful  
classroom teaching; however, one year of  
equivalent work which includes clinical  
experience may be substituted for one  
year of classroom teaching.
2. The endorsement for reading specialists shall  
be valid for the same teaching level as the  
basic teaching certificate which is endorsed.
3. The curriculum shall include an emphasis in  
reading and a minimum of 30 semester hours  
preparation according to the following distri-  
bution:
  - a. A minimum of 12 semester hours credit  
in graduate level reading courses with at  
least one course in each of the following:  
EDC 641 or EDC 643, EDC 619, and 620.  
One three credit hour reading course at  
the 600 or 700 level as an elective.
  - b. A minimum of six semester hours credit  
in education courses selected from the  
alternatives specified under two different  
areas (I through VI) as listed in the re-



quirements for the Master of Arts in Education, (Elementary), or the Master of Arts in Education, Secondary).

- c. A minimum of 12 semester hours credit in courses (400 level or above) taken from areas outside the College of Education. These courses must be taken from the following areas:

- (1) Sociology
- (2) Speech and Hearing
- (3) Learning Theories
- (4) Perception
- (5) Communication
- (6) Linguistics
- (7) Literature for Children (for elementary majors)

or

- (8) Literature for Adolescents (for secondary majors)
- (9) Personality
- (10) Mental Hygiene
- (11) Tests and Measurements
- (12) Child or Developmental Psychology (for elementary majors)

or

- (13) Adolescent or Developmental Psychology (for secondary major)

411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION .....	(12)
500 CLINICAL AND LABORATORY TEACHING .....	(4)
501 TEACHING INTERNSHIP .....	(3-12)
511 SPECIAL TOPICS IN EARLY CHILDHOOD EDUCATION .....	(1-3)
521 MATERIALS AND METHODS IN TEACHING MATHEMATICS IN THE SECONDARY SCHOOL .....	(3)
522 MATERIALS AND METHODS IN TEACHING SOCIAL STUDIES IN THE SECONDARY SCHOOL .....	(3)
524 MATERIALS AND METHODS FOR TEACHING SCIENCE IN THE SECONDARY SCHOOL .....	(3)
525 MATERIALS AND METHODS OF TEACHING ENGLISH IN THE SECONDARY SCHOOL .....	(3)
533 TEACHING READING IN THE SECONDARY SCHOOL .....	(3)
534 READING STUDY SKILLS IN ENGLISH .....	(3)
538 ADVANCED ARTS AND CRAFTS IN THE ELEMENTARY SCHOOL .....	(3)
539 THE ELEMENTARY CURRICULUM .....	(3)
540 PROBLEMS IN TEACHING READING .....	(3)
542 CHILDREN'S LITERATURE .....	(3)
543 TEACHING IN THE KINDERGARTEN .....	(3)
798 SEMINAR IN HIGHER EDUCATION .....	(3)
544 UTILIZATION OF EDUCATIONAL MEDIA .....	(3)
545 PREPARATION OF INSTRUCTIONAL MATERIALS .....	(3)
546 INTRODUCTION TO EARLY CHILDHOOD EDUCATION .....	(3)
549 SOCIOLOGICAL ASPECTS OF MASS COMMUNICATION .....	(3)
550 TEACHING THE CULTURALLY DIFFERENT .....	(3)
552 MODERN EDUCATIONAL PROBLEMS .....	(3)
562 MODERN EDUCATIONAL PROBLEMS .....	(3)
563 MODERN EDUCATIONAL PROBLEMS, (GENERAL ELEMENTARY CURRICULUM) .....	(3)
564 MODERN EDUCATIONAL PROBLEMS, (GENERAL SECONDARY CURRICULUM) .....	(3)
565 MODERN EDUCATIONAL PROBLEMS, (GENERAL CURRICULUM) .....	(3)
572 MODERN EDUCATIONAL PROBLEMS, (VOCATIONAL EDUCATION) .....	(3)
575, 576 MODERN EDUCATIONAL PROBLEMS, (UNCLASSIFIED) .....	(3 ea.)
596 SCIENCE IN THE ELEMENTARY SCHOOL .....	(3)
600 WORKSHOP IN READING .....	(1-3)
606 INSTRUCTIONAL TELEVISION IN THE CLASSROOM .....	(3)
607 BASIC INSTRUCTIONAL DESIGN .....	(1-3)
608 APPLICATIONS OF INSTRUCTIONAL DESIGN .....	(3)

619 DIAGNOSIS OF READING DISABILITIES .....	(3)
620 READING REMEDIATION .....	(3)
641 RESEARCH AND THEORY IN TEACHING READING IN THE ELEMENTARY SCHOOLS .....	(3)
642 RESEARCH AND THEORY IN TEACHING LANGUAGE ARTS IN THE ELEMENTARY SCHOOL .....	(3)
643 RESEARCH AND THEORY IN TEACHING READING IN SECONDARY SCHOOLS .....	(3)
646 ORGANIZING READING PROGRAMS .....	(3)
650 A STUDY OF RESEARCH AND THEORY IN TEACHING THE DISADVANTAGED .....	(3)
670 ADVANCED STUDY IN THE TEACHING OF ELEMENTARY SCHOOL MATHEMATICS .....	(3)
680 INTERNSHIP IN TEACHER EDUCATION .....	(6)
712 THE ELEMENTARY SCHOOL .....	(3)
714 THE SECONDARY SCHOOL .....	(3)
717 THE JUNIOR HIGH SCHOOL .....	(3)
724 ORGANIZATION AND SUPERVISION OF STUDENT TEACHING .....	(3)
730 PROBLEMS OF THE SCHOOL CURRICULUM .....	(3)
732 PRINCIPLES OF CURRICULUM CONSTRUCTION .....	(3)
735 THE CORE PROGRAM IN THE SECONDARY SCHOOLS .....	(3)
740 PRACTICUM IN TEACHING READING AND RELATED LANGUAGE ARTS .....	(3)
745 ADMINISTRATION OF EDUCATIONAL MEDIA PROGRAMS .....	(3)
746 MOTION PICTURES IN EDUCATION .....	(3)
747 SEMINAR IN READING .....	(3)
748 PSYCHOLOGY OF READING .....	(3)
750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC .....	(3)
751 HISTORY AND PHILOSOPHY OF MUSIC EDUCATION .....	(3)
757 COLLEGE AND ADULT READING .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
777 SEMINAR IN CURRICULUM AND INSTRUCTION (Subtitle Required) .....	(1-3)
780 INDEPENDENT WORK IN ELEMENTARY EDUCATION .....	(2)
781 INDEPENDENT WORK IN SECONDARY EDUCATION .....	(3)
790 RESEARCH PROBLEMS IN SECONDARY EDUCATION .....	(3)
791 RESEARCH PROBLEMS IN ELEMENTARY EDUCATION .....	(3)

## Dentistry

**Graduate Faculty:** Professors Emmit Costich, Raymond Kopczyk, Harold Laswell, James Little, Stanley Saxe (Director of Graduate Studies). Associate Professors Robert Biggerstaff (Chairman, Department of Orthodontics), Albert T. Brown,

**Associate Members:** Professors Roland Duell, Thomas Mulaney. Associate Professors Jan Kraal, Thomas Lillich, Patrick Sammons, Richard Wynn. Assistant Professor Raymond Brimmes.

The program leading to the Master of Science in Dentistry degree is designed to provide the graduate dentist with clinical proficiency in a specialty area, research experience in a basic biological discipline, and exposure to the fundamentals of teaching in the field of dentistry. At the present time, students pursuing specialty training in the area of orthodontics are eligible for the Master of Science in Dentistry.

Only dental graduates of high academic standing will be accepted into this program, which requires two years of clinical training, integrated with additional basic science and research experience. The first year is largely devoted to clinical training, lectures and seminars. The second and later years will be a continuation of clinical training, with a high proportion of time devoted to basic science studies, research, and dental teaching techniques.

The program is interdisciplinary in scope and is taught by systems rather than the classic strict

subject approach. The participating faculty is from all the clinical departments of the College of Dentistry, from the Medical Center departments of anatomy, pediatrics, psychiatry and behavioral science, and from the University Hospital.

Specific requirements for the Master of Science in Dentistry degree are: (1) satisfactory completion of the clinical certificate program; (2) 30 hours graduate credit, at least half of which must be basic science (non-clinical) courses; (3) submission of an acceptable thesis based on an individual research project (Plan A) and (4) passage of a comprehensive oral examination, and thesis defense. Foreign language credit is not required.

ORT 610 CRANIO-FACIAL FORM .....	(3)
ORT 620 ORAL-PHARYNGEAL FUNCTION, PART I .....	(2)
ORT 621 ORAL-PHARYNGEAL FUNCTION, PART II .....	(2)
ORT 660 ORTHODONTIC SEMINAR-CLINIC .....	(2)
ORT 661 ORTHODONTIC SEMINAR-CLINIC .....	(2)
ORT 700 ORTHODONTIC SEMINAR .....	(1)
ORT 750 RESEARCH IN ORTHODONTICS .....	(1-5)
ORT 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
CDS 550 RESEARCH METHODOLOGY AND INSTRUMENTATION .....	(2)
CDS 611 CHILD GROWTH AND DEVELOPMENT, PART I .....	(2)
CDS 612 CHILD GROWTH AND DEVELOPMENT, PART II .....	(1)
CDS 631 PRINCIPLE OF DENTAL OCCLUSION .....	(2)
CDE 655 PRACTICE ENVIRONMENT AND PRACTICE MANAGEMENT .....	(1)
ODM 610 DEVELOPMENTS IN ORAL MEDICINE .....	(2)
OBI 650 ORAL BIOLOGY FOR POSTDOCTORAL DENTAL STUDENTS .....	(4)
OPT 651 GRADUATE ORAL PATHOLOGY .....	(3)
OSG 651 ANATOMICAL RELATIONSHIPS IN SURGERY .....	(1)
PER 661 MODERN CONCEPTS IN PERIODONTICS .....	(2)
PDO 631 DENTAL CARE FOR THE CHRONICALLY ILL AND HANDICAPPED CHILD .....	(2)
END 600 BASIC ENDODONTIC THEORY .....	(2)
END 610 CLINICAL ENDODONTICS .....	(2)
END 620 ENDODONTIC RESEARCH .....	(2)
END 630 ENDODONTIC SEMINAR .....	(2)

## DIPLOMACY AND INTERNATIONAL COMMERCE

Director of the Patterson School—Vincent Davis

The Patterson School of Diplomacy and International Commerce offers an interdisciplinary master's degree and serves in an advisory capacity with respect to the Ph.D. programs in international studies within the four departments primarily related to the Patterson School. Those primary departments are Business Administration, Economics, History and Political Science.

The M.A. degree program can be tailored with considerable flexibility to meet the career needs of any particular student. Plan A and Plan B are available. This program is especially useful for the student desiring a career in any of the non-academic fields in foreign affairs, such as international banking, international business, international journalism (foreign correspondent), or serv-

ice with governmental agencies (such as the U.S. Department of State) or international organizations (such as the United Nations) in foreign affairs.

At least half of the 30 minimum hours for the M.A. degree must ordinarily be in one of the four primary departments. Each student is expected, in the absence of special circumstances, to take a methodology course in his/her field of concentration (such as Business Administration 636, Economics 660 or 661 or 662, History 606, or Political Science 671, depending in part on past training). Most students can expect to complete the 30 minimum hours for the M.A. degree in one full school year (12 hours in each of two semesters) plus a summer session, or plus the following (third) semester if more than the 30 minimum hours are desired.

To assure the interdisciplinary character of the degree, the M.A. candidate is expected to take 12 to 15 hours distributed in at least two departments outside his/her major departmental concentration. Courses acceptable to the program include those dealing with interstate and cultural relations, foreign policy, and national and regional development processes. Enough flexibility is allowed so that a student may concentrate his/her work in a specific geographical area such as Latin America, Asia, Europe, etc., or prepare himself/herself more broadly in certain topical or functional aspects of international affairs.

The student must pass a written examination covering work in three subfields of study, with these subfields to be defined for any particular student and in consultation with the student by the Patterson School Director of Graduate Studies.

The Patterson School M.A. candidate must meet the basic Graduate School requirement for a reading knowledge of a modern foreign language, except that the candidate may request that the Director of the Patterson School, in consultation with other appropriate faculty members, allow the substitution of another research skill (such as statistics, other methodologies or relevant techniques) in lieu of the language requirement, with adequate competence to be determined by procedures established by the Director.

Students planning to continue their studies beyond the M.A. may apply for admission to one of the appropriate Ph.D. programs at the University of Kentucky (or elsewhere). If at the University of Kentucky, the most likely departmental doctoral programs include those in Political Science, History, International Economics and Eco-



conomic Development, and International Business and Commerce. These doctoral programs are fully described under the appropriate headings elsewhere in this **Bulletin**. However, since the doctoral programs have their own varying requirements, it is to be expected that in many cases the Patterson School's interdisciplinary M.A. will require that the student take longer to complete his/her course work for the Ph.D. than if he/she had enrolled directly in one of the departmental doctoral programs upon entering Graduate School. The additional work required is likely to be heaviest with respect to business administration, where the first year of graduate study is largely prescribed, and in economics, where certain methodology and service courses need to be completed early in the program. In all instances the extra time required will also depend on the nature of a student's undergraduate preparation.

A number of non-service Patterson School Fellowships are available from the income from the bequest of James K. Patterson, the first President of the University.

Application forms for admission and for fellowship assistance should be requested from the Dean of the Graduate School and returned to the Dean of The Graduate School.

It is useful if advance carbon copies or photocopies of all such application materials can be sent directly to the Director of the Patterson School (Patterson Office Tower, University of Kentucky). The Director of the Patterson School strongly encourages all applicants to take the Graduate Record Examination (Verbal and Quantitative, plus the Advanced Examination in the major undergraduate field) in time for the GRE scores to be submitted as part of the application procedure. In addition, each applicant is required to submit a brief statement (two or three pages, at most) explaining his/her special interest in the Patterson School program in terms of his/her career goals. Each applicant is also requested to have three academic letters of reference to be mailed directly to the Director of the Patterson School.

768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)
777	RESEARCH PROBLEMS IN INTERNATIONAL RELATIONS ..... (3)
795	SPECIAL PROBLEMS IN DIPLOMACY AND INTERNATIONAL COMMERCE ..... (3)

## ECONOMICS

### The Degree of Master of Science

**Graduate Faculty:** Professors Carl Cabe, Virgil Christian, Stuart Greenbaum, H. W. Hargreaves, Charles F. Haywood,

Charles Hultman, Joseph Krislov, Randolph McGee, David Richardson (Chairman), Hirofumi Shibata, Don Soule, William Stober (Director of Graduate Studies), Robert Stroup. Associate Professors M. M. Ali, Stuart Burness, Richard Gift, Merlin Hackbart, Curtis Harvey, John Madden, James Marsden, Brian Motley, David Ross.

**Associate Member:** Assistant Professor Gregory Richardson.

The M.S. in economics is primarily for students who wish to have a large amount of flexibility in a program of advanced study in economics. This degree program provides minimal preparation for employment as an undergraduate teacher of economics and as a researcher for government, business, and other organizations. The program can be structured to prepare a student for further graduate work in economics, but it is also highly suitable for students with strong interdisciplinary interests. The program can be structured to prepare a student for further graduate work in economics and related fields. Plan B is offered.

Recommended minimal undergraduate preparation: six hours of intermediate theory, six hours of statistics, and six hours of calculus. These can be taken in the program as additional work.

Requirements for the M.S. in economics are:

1. A minimum of 30 hours of graduate credit courses.
  - a. Fifteen hours must be in courses in the Department of Economics, and 12 of these hours must be in courses reserved exclusively for graduate students.
  - b. At least 15 hours of the total of 30 must be in courses reserved exclusively for graduate students.
  - c. The 30 hours must include ECO 660 or ECO 760 and 661, Economic Theory.
2. Success in a final examination.
3. Minimal average of grade B in all courses attempted for graduate credit after being admitted to Graduate School. Students obtaining two grades of C below a B average will be dropped by the Department.

### The Degree of Master of Arts

Objectives:

The program for the M.A. in economics is the first stage of the Ph.D. program. However, this program also provides minimal preparation for employment in undergraduate college teaching and as a researcher for government, business, and other organizations. The program is designed to develop basic foundations in (1) economic theory, (2) quantitative techniques, (3) three

areas of specialization within economics, and (4) research and writing skills. Plan B is offered.

**Requirements:**

1. Recommended minimal undergraduate preparation—six hours of intermediate theory, six hours of statistics, and six hours of calculus.
2. A minimum of 30 hours of graduate credit courses.
  - a. At least 24 of the 30 hours must be in courses reserved exclusively for graduate students.
  - b. ECO 590, Introduction to Quantitative Economics I (or its equivalent), ECO 760 and 661, Economic Theory.
  - c. One of the basic courses (600 or 700 level) in each of three of the elective fields from the Ph.D. program.
3. Successful examination in one modern foreign language or competence in mathematical sciences, evidenced by nine hours of approved course work, six hours of which must be in statistics courses numbered 400 or higher.
4. Success in a final examination.
5. Minimal average of grade B in all courses attempted for graduate credit after being admitted to Graduate School. Students obtaining two grades of C below a B average will be dropped by the Department.

**The Degree of Ph.D.**

**Objectives:**

The Ph.D. program is designed to enable the graduate to contribute to the advancement of economics. The program is also aimed at producing graduates who are qualified to teach, as well as engage in industrial and governmental research and consulting.

To attain these objectives, the program is designed to provide the student with the appropriate knowledge, understanding, skills and abilities, including:

1. An understanding of economic theory.
2. Skill in the use of quantitative techniques, specifically mathematics and statistics.
3. Specialization in a limited number of areas.
4. A knowledge of the broad social and political background of the economic environment.
5. Experience in the development of research projects throughout his/her entire program.
6. Research and writing skills that would lead to the publication of original research.

7. Competence in communicating economic knowledge to broad and diverse audiences.

**Requirements:**

Work for the degree of Doctor of Philosophy in Economics must conform to the general requirements of The Graduate School. Although there is no specific course work required in the Ph.D., the student must develop a depth of understanding in the following areas and the equivalent of the material in the following courses:

1. Economic Theory  
ECO 590, Introduction to Quantitative Economics I  
ECO 760 Neoclassical Economic Theory  
ECO 661, Advanced Macroeconomic Theory,  
ECO 762 General Equilibrium Analysis and Welfare Economics  
ECO 761, Seminar in Macroeconomic Theory
2. The Elective Requirement: All Ph.D. students must complete three fields, at least two of which are in economics. With the approval of the Director of Graduate Studies, one of the three fields may be taken in a related discipline. A sequence of two courses covers the minimum material necessary for each field.  
ECO 671 and 771, International Economics  
ECO 673 and 773, Economic Development  
ECO 676 and 776, Labor Economics  
ECO 679 and 779, Public Finance  
ECO 682 and 683, Regional Economics  
ECO 686 and 786, Monetary Economics  
ECO 688 and 788, Economic Theory  
ECO 792 and 793, Econometrics  
ECO 665, 666, and 669, Economic Thought and History  
ECO 697 and 795, Comparative Economic Systems
3. Supporting Work: At least six hours of supporting course work must be selected. These courses of study must be approved by the student's Special Committee.
4. Competence in mathematical sciences, evidenced by nine hours of approved course work, six hours of which must be in statistics courses numbered 400 or higher.
5. Successful examination in one modern foreign language.
6. Minimal average of grade B in all courses attempted for graduate credit after being admitted to Graduate School. Students obtaining two grades of C below a B average will be dropped by the Department.



## 7. Qualifying Examinations

- a. Written Examinations: Written examinations must be taken in each of the three elective fields after a departmental written examination in Economic Theory has been passed. All of these examinations are given three times a year.
  - b. Oral Examination for Candidacy: After passing the above written examinations, the student will have an oral examination on the areas of specialization.
8. The Dissertation: The dissertation will be based on original research on a significant topic. The dissertation will be defended in an oral examination.

460	MANAGERIAL ECONOMICS	(3)
461	MARKET STRUCTURE AND ANTI-TRUST POLICY	(3)
462	SEMINAR IN ECONOMIC THEORY	(3)
463	ANALYSIS OF BUSINESS CONDITIONS	(3)
464	ECONOMICS OF REGULATED INDUSTRIES	(3)
465	COMPARATIVE ECONOMIC SYSTEMS	(3)
466	SEMINAR IN COMPARATIVE SYSTEMS	(3)
467	THE ECONOMIC HISTORY OF THE UNITED STATES AND WESTERN EUROPE: ECONOMIST VIEW	(3)
468	SEMINAR IN ECONOMIC HISTORY	(3)
469	HISTORY OF ECONOMIC THOUGHT	(3)
471	INTERNATIONAL ECONOMICS	(3)
472	SEMINAR IN INTERNATIONAL ECONOMICS	(3)
473	ECONOMIC DEVELOPMENT	(3)
474	SEMINAR IN ECONOMIC DEVELOPMENT	(3)
477	LABOR ECONOMICS	(3)
478	SEMINAR IN LABOR ECONOMICS	(3)
479	PUBLIC FINANCE	(3)
480	SEMINAR IN PUBLIC FINANCE	(3)
481	COLLECTIVE BARGAINING	(3)
483	REGIONAL ECONOMICS	(3)
484	SEMINAR IN REGIONAL ECONOMICS	(3)
485	MONETARY ECONOMICS	(3)
486	SEMINAR IN MONETARY ECONOMICS	(3)
487	INTERMEDIATE MACROECONOMIC THEORY	(3)
488	INTERMEDIATE MICROECONOMIC THEORY	(3)
491	SURVEY SAMPLING DESIGN	(3)
493	SOCIAL AND CULTURAL DETERMINANTS OF ECONOMIC GROWTH AND DEVELOPMENT	(3)
494	ECONOMICS OF ENERGY PRODUCTION AND DISTRIBUTION	(3)
590	INTRODUCTION TO QUANTITATIVE ECONOMICS I	(3)
592	INTRODUCTION TO QUANTITATIVE ECONOMICS II	(3)
595	SOCIAL ACCOUNTING	(3)
660	ADVANCED MICROECONOMIC THEORY	(3)
661	ADVANCED MACROECONOMIC THEORY	(3)
662	RESEARCH METHODS AND PROCEDURES IN ECONOMICS	(3)
665	HISTORY OF ECONOMIC THOUGHT I	(3)
666	HISTORY OF ECONOMIC THOUGHT II	(3)
667	SEMINAR IN HISTORICAL STUDIES IN ECONOMIC CHANGE	(3)
668	AMERICAN ECONOMIC CHANGE IN HISTORICAL PERSPECTIVE	(3)
670	ECONOMICS OF INTERNATIONAL FINANCIAL INSTITUTIONS	(3)
671	INTERNATIONAL ECONOMICS SEMINAR I	(3)
673	SEMINAR IN ECONOMIC DEVELOPMENT I	(3)
674	AGRICULTURE AND ECONOMIC DEVELOPMENT	(3)
676	LABOR MARKETS AND WAGE DETERMINATION	(3)
679	SEMINAR IN PUBLIC FINANCE I	(3)
682	THE ECONOMICS OF SPATIAL RELATIONS	(3)
683	ECONOMICS OF GROWTH AND DEVELOPMENT IN REGIONS AND URBAN AREAS	(3)
686	MONETARY ECONOMICS: THEORY	(3)
687	MONETARY ECONOMICS: POLICY	(3)
688	TOPICS IN OPTIMIZATION	(3)
692	ECONOMETRIC METHODS	(3)
697	THEORIES OF COMPARATIVE ECONOMIC SYSTEMS	(3)
760	SEMINAR IN MICROECONOMIC THEORY	(3)
761	SEMINAR IN MACROECONOMIC THEORY	(3)
762	WELFARE ECONOMICS	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
771	INTERNATIONAL ECONOMICS SEMINAR II	(3)
773	SEMINAR IN ECONOMIC DEVELOPMENT II	(3)
776	ECONOMICS OF TRADE UNIONISM AND LABOR LAW	(3)

779	SEMINAR IN PUBLIC FINANCE II	(3)
783	SEMINAR IN REGIONAL ECONOMICS	(3)
786	SEMINAR IN MONETARY THEORY AND POLICY	(3)
788	MATHEMATICAL ECONOMICS-MACRO THEORY	(3)
791	PROBLEMS IN ECONOMETRICS	(3)
792	ECONOMETRICS I	(3)
793	ECONOMETRICS II	(3)
795	SEMINAR IN COMPARATIVE ECONOMIC SYSTEMS	(3)
796	SEMINAR	(1-6)
797	RESEARCH PROBLEMS IN ECONOMICS	(1-6)

## EDUCATIONAL PSYCHOLOGY AND COUNSELING

**Graduate Faculty:** Professors James Barclay, Henry Cole, Gordon Liddle (Chairman), Timothy Smith, Judith Worell, Robert Harman (Adjunct), Emanuel Mason, William Stilwell (Director of Graduate Studies).

**Associate Members:** Associate Professor Raymond Wilkie, Assistant Professors Logan Green, Edward Kifer, Louise Musser, Pamela Remer, Rory Remer.

The Department of Educational Psychology and Counseling offers programs leading to the following degrees: Master of Arts in Education, Master of Science in Education (Plans A and B available), the Specialist in Education (Ed.S.), the Doctor of Education (Ed.D.), and the Doctor of Philosophy (Ph.D.). Students must apply to both The Graduate School and to the Department. Doctoral applications are considered only in February for summer/fall beginning. All other applications are considered in late fall and late winter.

Within the degree programs there are a number of specializations possible. Specializations are designed to provide students with both a background in behavioral and humanistic components of human learning and behavior, and competencies to practice the skills designated for these programs. Admission to candidacy in any of these programs not only includes demonstrated skills in the academic area, but a judgment by the faculty of the area program that the candidate possesses the personal and social characteristics requisite for providing the skills associated with the program and the advanced degree.

### Master of Arts in Education Degree (Guidance and Counseling)

Two options are open to candidates interested in this degree program. They are: concentration in elementary guidance and counseling, and concentration in secondary guidance and counseling. The programs in elementary and secondary guidance and counseling are designed to prepare individuals with a teaching certificate for guidance and counseling functions in public schools.

Ordinarily, applicants for these programs will have a regular teaching certificate at the elementary or secondary level, and one year of teaching experience. Applicants lacking these qualifications who wish to obtain the degree and be certified for school work must complete teacher education and expect to complete a one-year internship at the appropriate school level. The curriculum for these programs matches the State guidelines in the areas of elementary and secondary counseling. These programs provide learning experiences in each of the required competency areas. The programs vary from 33 to 34 graduate hours in addition to six to nine hours of course prerequisites in introductory psychology, testing, and personality theory (a total of 42 hours).

#### **Master of Arts in Education Degree (School Psychological Diagnostician)**

This program is designed to prepare individuals to function at the first level of school psychology services. It meets the guidelines for the State Certificate as a School Psychometrist. The program consists of a varying amount of graduate and undergraduate work. It is variable because applicants can enter the program with two backgrounds: (1) a bachelor's degree in teaching field and certification for that field, or (2) a bachelor's degree in psychology. In either case, the work of the school diagnostician requires a depth of background in psychology. Students with a background in psychology can expect to complete the graduate program in about 45 graduate hours of work. Students lacking a background in psychology should be prepared to complete this work. Completion of the program also requires a six months internship in school psychological work.

#### **Master of Arts in Education Degree (Rehabilitation Counseling)**

This curriculum was designed in accordance with guidelines provided by the national professional associations in rehabilitation counseling. Successful completion of the program fulfills the Kentucky certification requirements in rehabilitation counseling. It does not meet certification requirements for school counseling.

#### **Required courses**

- EDP 521 Introduction to Vocational Rehabilitation
- EDP 641 Psychological Measuring Instruments

(or EDP 653 Appraisal Procedures in Guidance Practice)

- EDP 652 Counseling Theories
- EDP 656 Methodology of Educational Research
- EDP 657 Educational Statistics
- EDP 661 Counseling Techniques
- EDP 664 Psycho-social Aspects of Disability
- EDP 665 Practicum in Counseling Psychology
- EDP 666 Psychology of Career Counseling
- EDP 708 Internship in Educational Psychology and Counseling
- PSY 535 Psychological Testing (or EDP 522 Educational Tests and Measurements or EDP 659 Advanced Educational Measurement)
- SW 512 Medical Knowledge for Social Professions

#### **Electives**

These include nine hours outside education to be approved by adviser, generally to make up an area of personality, social, and abnormal psychology. If the student already has an adequate background in those courses, he may choose from related courses such as sociology, social work, or anthropology.

#### **Master of Science in Education Degree**

The Master of Science in Education degree is offered by the Department for individuals who are not seeking a State certificate in counseling, psychometry or rehabilitation counseling, but wish to complete a professional sequence of courses leading to specific skills in educational psychology and/or counseling. Individuals who are interested in specializing in educational psychology, human development, measurement, research in education or non-public school counseling may obtain this degree. The program is flexible and tailored to individual needs. It is planned in consultation with an adviser. It consists of 30 hours of graduate work plus a thesis, or 36 hours of graduate work without a thesis, except for students who have taken several appropriate 500 level courses, in which case, the required number of hours may be reduced by not more than six hours. There is also a 60-hour program leading to a Master of Science in Education and permission to sit for the state certification examination in counseling psychology.

#### **Doctor of Education Degree**

The Doctor of Education degree is offered in the field of educational psychology and counsel-



ing. Programs in this department follow the general guidelines of the College of Education program as specified earlier. (See Graduate School section of Bulletin.)

### Doctor of Philosophy Degree

The Ph.D. program is offered in the field of Educational Psychology and Counseling. A full-time supervised one-year internship is required.

There are various concentrations possible within the Ph.D. program. Representative of these are: (1) learning and cognition; (2) human development and social processes; (3) counseling psychology; (4) appraisal and assessment; (5) measurement, evaluation and design; and (6) school psychology.

For further information on these programs or degrees contact the Director of Graduate Studies in the Department of Educational Psychology and Counseling. (See Graduate School section of Bulletin.)

518	MENTAL HYGIENE .....	(3)
519	THE ELEMENTARY SCHOOL PUPIL .....	(2)
520	THE SECONDARY SCHOOL PUPIL .....	(3)
521	INTRODUCTION TO VOCATIONAL REHABILITATION (COUNSELING AND GUIDANCE) .....	(3)
522	EDUCATIONAL TESTS AND MEASUREMENTS .....	(3)
548	EDUCATIONAL PSYCHOLOGY .....	(3)
600	HUMAN DEVELOPMENT AND BEHAVIOR .....	(3)
601	HUMAN SOCIAL DEVELOPMENT .....	(3)
603	HUMAN COGNITIVE DEVELOPMENT .....	(3)
605	INTRODUCTION TO COUNSELING .....	(3)
610	THEORIES OF LEARNING IN EDUCATION .....	(3)
611	HUMAN COGNITIVE LEARNING .....	(3)
640	PRACTICE IN TESTING: INTELLIGENCE TESTS .....	(4)
641	PSYCHOLOGICAL MEASURING INSTRUMENTS .....	(3)
649	GROUP COUNSELING .....	(3)
650	DIAGNOSIS AND COUNSELING IN COUNSELING PSYCHOLOGY .....	(3)
652	THEORIES OF COUNSELING .....	(3)
653	APPRAISAL PROCEDURES IN GUIDANCE PRACTICE ..	(3)
656	METHODOLOGY OF EDUCATIONAL RESEARCH .....	(3)
657	EDUCATIONAL STATISTICS .....	(3)
658	PROBLEMS IN EDUCATIONAL PSYCHOLOGY .....	(1-3)
659	ADVANCED EDUCATIONAL MEASUREMENT .....	(3)
660	RESEARCH DESIGN AND ANALYSIS IN EDUCATION ..	(3)
661	TECHNIQUES OF COUNSELING .....	(3)
664	PSYCHO-SOCIAL ASPECTS OF DISABILITY .....	(3)
665	PRACTICUM IN COUNSELING PSYCHOLOGY .....	(3-6)
666	PSYCHOLOGY OF CAREER COUNSELING .....	(3)
675	PRACTICUM IN SCHOOL PSYCHOLOGY .....	(5)
677	ADVANCED STUDIES IN COMMUNITY MENTAL HEALTH .....	(3)
680	CHILD GUIDANCE AND PARENT COUNSELING .....	(3)
683	TOPICS IN COUNSELING PSYCHOLOGY .....	(1-3)
690	ADVANCED STUDIES IN PSYCHOLOGICAL ASSESSMENT .....	(3-6)
701	BEHAVIOR MODIFICATION IN EDUCATION .....	(3)
702	CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES .....	(2-3)
707	MULTIVARIATE ANALYSIS IN EDUCATIONAL RESEARCH .....	(3)
708	INTERNSHIP IN EDUCATIONAL PSYCHOLOGY AND COUNSELING .....	(3-9)
747	SEMINAR IN READING .....	(3)
748	PSYCHOLOGY OF READING .....	(3)
759	IDENTIFYING AND PROVIDING FOR INDIVIDUAL STUDENT NEEDS .....	(3)
762	ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES .....	(3)
763	RESEARCH AND EVALUATION IN GUIDANCE .....	(3)
765	INDEPENDENT WORK IN COUNSELING PSYCHOLOGY ..	(2)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)
777	SEMINAR IN COUNSELING PSYCHOLOGY .....	(1-3)
778	SEMINAR IN EDUCATIONAL PSYCHOLOGY .....	(3)
782	INDEPENDENT WORK IN EDUCATIONAL PSYCHOLOGY .....	(3)

## ELECTRICAL ENGINEERING

**Graduate Faculty:** Professors Eugene Bradley, Earl Steele (Chairman and Director of Graduate Studies), Robert Cosgriff, Prasad Kadaba, Syed Nasar. Associate Professors Frank M. Brown, Raymond Distler, Clayton R. Paul, Hsi-Han Yeh.

**Associate Members:** Assistant Professor Lee Todd.

The Department of Electrical Engineering offers programs leading to Master of Science in Electrical Engineering and Ph.D. degrees. Areas of current research interest include: energy conversion; modern control theory; digital engineering; circuit theory; switching theory; automatic control; solid-state electronics; quantum electronics, communications systems and electromagnetics. Both Plan A and B are offered.

The laboratories are well-equipped for research in the above areas under the direction of the electrical engineering faculty. For further information on financial aid and other details, write to the Department Chairman.

402	ELECTRONIC INSTRUMENTATION AND MEASUREMENTS .....	(3)
403	ADVANCED ELECTRICAL ENGINEERING LAB I .....	(2)
415	ELECTROMECHANICS I .....	(3)
416	ELECTRICAL ENGINEERING LABORATORY III .....	(2)
420	ENGINEERING ANALYSIS I .....	(3)
435	SIGNALS AND CIRCUITS .....	(3)
461	ELECTRONIC CIRCUITS I .....	(3)
462	ELECTRICAL ENGINEERING LABORATORY II .....	(2)
467	ELECTRIC AND MAGNETIC FIELDS .....	(3)
468	FIELDS AND WAVES .....	(3)
471	LINEAR FEEDBACK CONTROL SYSTEMS .....	(3)
503	ADVANCED ELECTRICAL ENGINEERING LAB II .....	(3)
511	INTRODUCTION TO COMMUNICATION SYSTEMS .....	(3)
512	DIGITAL COMMUNICATION SYSTEMS .....	(3)
513	COMMUNICATIONS LABORATORY .....	(2)
517	ADVANCED ELECTROMECHANICS .....	(3)
520	ENGINEERING ANALYSIS II .....	(3)
528	ELECTRO MAGNETIC RADIATION AND WAVE PROPAGATION .....	(3)
529	FIELDS IN BIOLOGICAL MEDIA .....	(3)
537	ELECTRIC POWER SYSTEMS I .....	(3)
538	ELECTRIC POWER SYSTEMS II .....	(3)
560	SEMICONDUCTOR DEVICE DESIGN .....	(3)
561	SOLID STATE ENGINEERING .....	(3)
562	ELECTRONIC CIRCUITS II .....	(3)
563	COMMUNICATIONS CIRCUITS DESIGN .....	(3)
564	ELECTRONIC CIRCUITS III .....	(3)
567	INTRODUCTION TO LASERS AND MASERS .....	(3)
571	NONLINEAR AND SAMPLED-DATA CONTROL SYSTEMS .....	(3)
580	LOGICAL DESIGN .....	(3)
581	ADVANCED LOGICAL DESIGN .....	(3)
582	DIGITAL SYSTEMS LABORATORY .....	(3)
584	COMPUTER AIDED DESIGN .....	(3)
595	INDEPENDENT PROBLEMS .....	(1-3)
<b>PREREQUISITE FOR GRADUATE WORK:</b> 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.		
599	TOPICS IN ELECTRICAL ENGINEERING .....	(2-3)
601	ELECTROMAGNETIC ENERGY CONVERSION I .....	(3)
602	ELECTROMAGNETIC ENERGY CONVERSION II .....	(3)
606	POWER SYSTEM ANALYSIS .....	(3)
607	ADVANCED TOPICS IN POWER ENGINEERING .....	(3)
611	LINEAR SYSTEM ANALYSIS I .....	(3)
612	LINEAR SYSTEM ANALYSIS II .....	(3)
613	OPTIMAL CONTROL THEORY .....	(3)
614	SAMPLE-DATA CONTROL SYSTEMS .....	(3)
616	ADVANCED TOPICS IN CONTROL .....	(3)
621	INTRODUCTION TO ANTENNAS .....	(3)
624	SOLID-STATE ELECTRONICS .....	(3)
625	ELECTROMAGNETIC PROPAGATION AND SCATTERING .....	(3)
626	MICROWAVE ENGINEERING .....	(3)

627	ELECTROMAGNETIC FIELDS	(3)
631	DISCRETE INFORMATION THEORY I	(3)
632	DISCRETE INFORMATION THEORY II	(3)
635	PATTERN RECOGNITION	(3)
640	CONTINUOUS STOCHASTIC PROCESSES I	(3)
641	CONTINUOUS STOCHASTIC PROCESSES II	(3)
645	COMMUNICATION SYSTEMS I	(3)
646	COMMUNICATION SYSTEMS II	(3)
650	ELECTRO-OPTICAL PROPERTIES OF MATERIALS	(3)
653	OPTICAL PROCESSING	(3)
660	ELECTRONIC DEVICE DESIGN	(3)
665	INTEGRATED CIRCUITS	(3)
666	ADVANCED TOPICS IN SOLID STATE ELECTRONICS	(3)
670	QUANTUM ELECTRONICS	(3)
672	MOLECULAR PROPERTIES IN ELECTRONIC DEVICES	(3)
681	DIGITAL PROCESSORS	(3)
682	SWITCHING THEORY	(3)
683	AUTOMATA THEORY	(3)
711	NETWORK SYNTHESIS I	(3)
712	NETWORK SYNTHESIS II	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
771	SEMINAR	(0)
783	SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING	(1-3)

## ENGINEERING MECHANICS

**Graduate Faculty:** Professors Staley F. Adams, Millard F. Beatty (Director of Graduate Studies), Oscar W. Dillon, Jr., Donald C. Leigh (Chairman), T. Richard Robe, Theodore R. Tauchert. Associate Professors Louis M. Brock, Nelson Hsu, Frank J. Rizzo, Stanley E. Jones, David J. Shippy.

The Department of Engineering Mechanics provides programs for study and research leading to the Master of Science in Engineering Mechanics and the Doctor of Philosophy. The master's degree requires 24 credit hours of course work and a thesis (Plan A), or in some circumstances with departmental approval, 30 hours of course work without a thesis (Plan B). In addition to the general information on the Ph.D. degree at the front of this Bulletin, note that the Department requires a reading knowledge of one foreign language.

Most engineering disciplines exist to serve society directly. Such disciplines are recognized by and often named for the products associated with them, e.g., aircraft structures, metals, ceramics, etc. Engineering Mechanics, on the other hand, exists to serve all of these disciplines by concerning itself with the fundamental laws, mathematical apparatus, and basic experimental methods common to all those phases of engineering which are based on mechanics. Students enter the graduate program in Engineering Mechanics from all branches of engineering and also from mathematics and physics.

Fields of concentration for study are (1) continuum mechanics, (2) materials sciences, (3) dynamics analysis, (4) computational stress analysis, (5) mechanical design analysis, (6) mechanical behavior of solids and fluids, (7) Experimental methods, and (8) applied mathematics. Typical areas in which research has been carried out in the Department include infinitesimal and finite

elasticity, viscoelasticity, plasticity, non-newtonian fluids, rigid and flexible body dynamics, particle dynamics, wave propagation, stability analysis, and biomechanics. Investigations in these areas have included theoretical, experimental and numerical methods.

For further information contact the Director of Graduate Studies.

503	INTRODUCTION TO CONTINUUM MECHANICS	(3)
505	VISCOELASTICITY	(3)
506	MECHANICS OF COMPOSITE MATERIALS	(3)
513	MECHANICAL VIBRATIONS	(3)
531	ADVANCED STRENGTH OF MATERIALS	(3)
532	EXPERIMENTAL STRESS ANALYSIS	(3)
533	AIRCRAFT AND MISSILE STRUCTURAL ANALYSIS	(3)
544	INTRODUCTION TO NONDESTRUCTIVE TESTING	(3)
585	FOURIER SERIES AND BOUNDARY VALUE PROBLEMS	(3)
603	MECHANICS OF PLASTIC SOLIDS I	(3)
604	MECHANICS OF PLASTIC SOLIDS II	(3)
605	FOUNDATIONS OF INELASTICITY	(3)
607	ADVANCED INELASTICITY	(3)
613	NONLINEAR OSCILLATIONS	(3)
614	MECHANICS OF SPACE VEHICLES	(3)
631	ELASTIC STABILITY OF MECHANICAL SYSTEMS	(3)
632	FOUNDATIONS OF ELASTIC STABILITY	(3)
645	ADVANCED DYNAMICS I	(3)
646	ADVANCED DYNAMICS II	(3)
651	MECHANICS OF ELASTIC SOLIDS I	(3)
652	MECHANICS OF ELASTIC SOLIDS II	(3)
653	METHODS OF APPLIED DIFFERENTIAL EQUATIONS	(3)
661	NONLINEAR CONTINUUM MECHANICS I	(3)
662	NONLINEAR CONTINUUM MECHANICS II	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
780	SPECIAL PROBLEMS IN ENGINEERING MECHANICS	(3)

## ENGLISH

**Graduate Faculty:** Professors Joseph Bryant (Chairman), John L. Clubbe, Guy Davenport, John G. Demaray, Robert Evans, William Jansen, Stephen Manning, Jerome Meckier (Director of Graduate Studies), Donald Ringe. Associate Professors Thomas Blues, William Campbell, Lee Elioseff, Joseph Gardner, William Gordon, John L. Greenway, James Baker Hall, Joan Hartwig, Robert Hemenway, Kevin Kiernan, Larry Swingle, and Arthur Wrobel.

**Associate Member:** Associate Professor Joan Blythe.

The Department of English offers programs leading to the M.A. and to the Ph.D. degrees. The master's degree may be obtained either by Plan A or Plan B, as defined in this bulletin. With the consent of the Dean of The Graduate School and the Director of Graduate Studies in English, the student may undertake a program leading to the master's degree provided that he/she has

- (1) completed the equivalent of a University of Kentucky undergraduate major in English and,
- (2) fulfilled the admission requirements of the Graduate School. An applicant who fails to meet the first qualification may be admitted with the understanding that his/her program must include some advanced undergraduate work in English in addition to the courses normally required



for the M.A. A reading knowledge of one foreign language is required for the master's degree.

Each student will be evaluated on his/her merits before he/she is officially admitted to the doctoral program by the English graduate faculty. Students who receive their master's degrees from the University of Kentucky will be judged on their course grades, on the recommendations of their instructors, and their Graduate Record Examination scores. Students who have received their master's degree elsewhere will be evaluated on their course grades after the equivalent of one semester's fulltime graduate work at the University of Kentucky, instructor's recommendations, and GRE scores.

There is no specific requirement in a minor area, but such work may be required by a student's Special Committee if it appears to be essential to the major research or concentration interest. A Ph.D. candidate normally offers German and French for his/her language requirement, but substitutions may be authorized according to the procedure described in this Bulletin.

A detailed statement of departmental requirements for both the M.A. and Ph.D. is available on request.

414	INTRODUCTION TO MODERN ENGLISH LINGUISTICS	(3)
421	CHAUCE	(3)
422	ENGLISH RENAISSANCE: 1500-1600	(3)
423	ENGLISH RENAISSANCE: 1600-1660	(3)
425	SHAKESPEARE SURVEY	(3)
426	SHAKESPEARE STUDIES I	(3)
427	SHAKESPEARE STUDIES II	(3)
428	MILTON	(3)
430	THE RESTORATION AND EARLY 18TH CENTURY: 1660-1730	(3)
431	THE LATER 18TH CENTURY: 1730-1780	(3)
435	THE ROMANTIC MOVEMENT: 1780-1815	(3)
436	THE ROMANTIC MOVEMENT: 1815-1830	(3)
438	VICTORIAN PERIOD: 1830-1860	(3)
439	VICTORIAN PERIOD: 1860-1900	(3)
440	EIGHTEENTH CENTURY ENGLISH NOVEL	(3)
441	NINETEENTH CENTURY ENGLISH NOVEL	(3)
442	TWENTIETH CENTURY ENGLISH NOVEL	(3)
451	AMERICAN LITERATURE: 1800-1860	(3)
452	AMERICAN LITERATURE: 1860-1900	(3)
453	AMERICAN LITERATURE SINCE 1900	(3)
454	AMERICAN NOVEL BEFORE 1900	(3)
455	MODERN AMERICAN NOVEL	(3)
473	GENERAL INTRODUCTION TO FOLKLORE	(3)
474	AMERICAN FOLKLORE	(3)
490	ENGLISH DRAMA I	(3)
491	ENGLISH DRAMA II	(3)
501	WORKSHOP IN IMAGINATIVE WRITING	(3)
509	COMPOSITION FOR TEACHERS	(3)
510	AMERICAN ENGLISH	(3)
512	MODERN ENGLISH GRAMMAR	(3)
515	PHONOLOGICAL ANALYSIS	(3)
516	GRAMMATICAL ANALYSIS	(3)
518	HISTORY OF THE ENGLISH LANGUAGE	(3)
519	INTRODUCTION TO OLD ENGLISH	(3)
520	BEOWULF	(3)
521	MIDDLE ENGLISH LITERATURE	(3)
541	CONTEMPORARY BRITISH NOVEL	(3)
542	TWENTIETH CENTURY BRITISH LITERATURE	(3)
550	AMERICAN LITERATURE BEFORE 1800	(3)
560	COMPARATIVE LITERATURE I	(3)
561	COMPARATIVE LITERATURE II	(3)
562	COMPARATIVE LITERATURE III	(3)
563	COMPARATIVE LITERATURE IV	(3)
566	MODERN DRAMA	(3)

568	HISTORY OF LITERARY CRITICISM I	(3)
569	HISTORY OF LITERARY CRITICISM II	(3)
570	SELECTED TOPICS FOR ADVANCED STUDIES IN LITERATURE	(3)
572	STUDIES IN LITERATURE FOR TEACHERS	(3)
581	AESTHETICS OF FILM	(3)

*Pro-seminars:* The purpose of the pro-seminar 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.

600	BIBLIOGRAPHY AND METHODS OF RESEARCH	(3)
620	STUDIES IN MIDDLE ENGLISH LITERATURE	(3)
621	STUDIES IN CHAUCE	(3)
622	STUDIES IN ENGLISH LITERATURE: 1500-1600	(3)
623	STUDIES IN ENGLISH LITERATURE: 1600-1660	(3)
625	STUDIES IN RENAISSANCE DRAMA EXCLUSIVE OF SHAKESPEARE	(3)
626	STUDIES IN SHAKESPEARE	(3)
628	STUDIES IN MILTON	(3)
630	STUDIES IN ENGLISH LITERATURE: 1660-1720	(3)
631	STUDIES IN ENGLISH LITERATURE: 1720-1780	(3)
635	STUDIES IN LITERATURE: 1780-1815	(3)
636	STUDIES IN LITERATURE: 1815-1830	(3)
638	STUDIES IN ENGLISH LITERATURE: 1830-1860	(3)
639	STUDIES IN ENGLISH LITERATURE: 1860-1900	(3)
640	STUDIES IN THE 19TH CENTURY BRITISH NOVEL	(3)
642	STUDIES IN MODERN BRITISH LITERATURE	(3)
643	STUDIES IN MODERN BRITISH AND AMERICAN POETRY	(3)
651	STUDIES IN AMERICAN LITERATURE BEFORE 1860	(3)
652	STUDIES IN AMERICAN LITERATURE: 1860-1900	(3)
653	STUDIES IN AMERICAN LITERATURE SINCE 1900	(3)
656	BLACK AMERICAN LITERATURE	(3)
660	MODERN CRITICAL THEORY	(3)
673	STUDIES IN FOLKLORE	(3)
682	STUDIES IN FICTION	(3)
683	STUDIES IN DRAMA	(3)
684	STUDIES IN POETRY	(3)
720	SEMINAR IN MEDIEVAL LITERATURE	(3)
722	SEMINAR IN 16TH CENTURY LITERATURE	(3)
723	SEMINAR IN 17TH CENTURY LITERATURE	(3)
726	SEMINAR IN SHAKESPEARE	(3)
730	SEMINAR IN 18TH CENTURY LITERATURE	(3)
735	SEMINAR IN ROMANTIC LITERATURE	(3)
738	SEMINAR IN VICTORIAN LITERATURE	(3)
740	SEMINAR IN 20TH CENTURY BRITISH LITERATURE	(3)
750	SEMINAR IN COLONIAL LITERATURE	(3)
751	SEMINAR IN AMERICAN LITERATURE: 1800-1860	(3)
752	SEMINAR IN AMERICAN LITERATURE: 1860-1900	(3)
753	SEMINAR IN AMERICAN LITERATURE SINCE 1900	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
771	SEMINAR IN SPECIAL TOPICS	(3)
774	SEMINAR IN COMPARATIVE LITERATURE	(3)
780	DIRECTED STUDIES	(1-3)

## ENTOMOLOGY

**Graduate Faculty:** Professors Wyman Dorough, Fred Knapp, Bobby Pass (Chairman and Director of Graduate Studies), Juan Rodriguez, Richard Thurston. Associate Professors Douglas Dahlman, Paul Freytag.

**Associate Member:** Assistant Professor Gerald Nardin, Kenneth Yeargan.

The Department of Entomology offers graduate work leading to the Master of Science and the Doctor of Philosophy degrees. Individual graduate programs are planned by the student in consultation with his adviser and the Director of Graduate Studies. Study and research are available in various areas of entomology including applied entomology, behavior, biological control, host plant resistance, insect biology and ecology, insect nutrition, pathology, immature insects, medical and veterinary entomology, physiology, taxonomy, toxicology, and acarology. Plan A is offered for the Master's degree. A reading

knowledge of one modern foreign language is required for the Ph.D. degree.

400 ECONOMIC ENTOMOLOGY .....	(3)
402 FOREST ENTOMOLOGY .....	(3)
530 INSECT PEST MANAGEMENT .....	(3)
561 MEDICAL ENTOMOLOGY .....	(3)
562 EXTERNAL MORPHOLOGY OF INSECTS .....	(4)
563 PARASITOLOGY .....	(4)
564 INSECT TAXONOMY .....	(4)
606 INSECTICIDE CHEMISTRY AND TOXICOLOGY .....	(3)
626 INSECT PATHOLOGY .....	(3)
635 INSECT PHYSIOLOGY .....	(4)
650 ADVANCED APPLIED ENTOMOLOGY .....	(3)
660 IMMATURE INSECTS .....	(4)
665 INSECT ECOLOGY AND BEHAVIOR .....	(3)
667 PRINCIPLES OF ANIMAL SYSTEMATICS .....	(3)
670 EXPERIMENTAL METHODS IN ENTOMOLOGY .....	(4)
672 GENERAL ACAROLGY .....	(4)
680 BIOLOGICAL CONTROL OF INSECTS .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
770 ENTOMOLOGICAL SEMINAR .....	(1)
780 SPECIAL PROBLEMS IN ENTOMOLOGY AND ACAROLGY .....	(2-3)

## FORESTRY

**Graduate Faculty:** Professors John C. Redmon, Boyd Richards, Associate Professors Stanley Carpenter, George Coltharp, Ruen Chiu Tang.

**Associate Members:** Assistant Professors Donald Graves, Gerald Nordin, Robert L. Rumsey, Louis Shain, Charles L. Shilling, Robert Wittwer.

At present no graduate majors are offered in Forestry.

400 WOOD IDENTIFICATION AND PROPERTIES .....	(3)
402 FOREST ENTOMOLOGY .....	(3)
405 MECHANICS AND PHYSICS OF WOOD .....	(3)
410 FOREST PATHOLOGY .....	(3)
412 FOREST ECONOMICS .....	(3)
415 WOOD SEASONING AND PRESERVATION .....	(3)
420 FOREST PRODUCTS .....	(3)
425 TIMBER MANAGEMENT .....	(4)
430 FOREST WILDLIFE AND RANGE MANAGEMENT .....	(3)
440 FOREST RESOURCES FOR RECREATION .....	(3)
445 FOREST FIRE, CONTROL AND USE .....	(2)
450 SENIOR SEMINAR IN FORESTRY (PROSEMINAR) .....	(2)
455 FOREST POLICY AND ADMINISTRATION .....	(3)
460 FOREST WATERSHED MANAGEMENT .....	(3)
511 FOREST REGENERATION .....	(3)
512 FOREST TREE PHYSIOLOGY .....	(3)
562 FOREST SOILS .....	(3)
599 INDEPENDENT WORK IN FORESTRY .....	(1-3)
601 RESEARCH METHODS IN FORESTRY .....	(3)
612 FOREST ECOSYSTEM ANALYSIS .....	(4)

## FRENCH LANGUAGE AND LITERATURE

**Graduate Faculty:** Professors Jean Charron, Phillip Duncan (Chairman, Director of Graduate Studies), Raymond Lacharite, Theodore Mueller. Associate Professors Virginia La Charite, and Rupert Pickens.

**Associate Members:** Assistant Professors Mary Lynne Flowers, John Rea.

The Department of French Language and Literature offers graduate programs leading to the M.A. and Ph.D. degrees in French language and literature.

Requirements for the M.A. degree in French: The department offers the M.A. degree according to Plan B only. Candidate must select four of the following as areas of specialization for the

M.A. degree: medieval, 16th, 17th, 18th, 19th, 20th Century French Literature, and language civilization. In the areas of literature, the candidate must pass a written, comprehensive examination. In the language civilization area (if chosen), the candidate must complete three of the following courses with a grade of B or better: FR 507, 517, 550, 607 and **either** 516 **or** 603. Candidates must also demonstrate a reading knowledge of another foreign language. The M.A. examination will be given every September and January. Application for the examination should be made to the Director of Graduate Studies no later than 14 days prior to the date of examination.

Requirements for the Ph.D. degree in French: Applicants for the Ph.D. degree are required to complete at least two years of residence work beyond the M.A. In addition to their program of study in the department, candidates must demonstrate a reading knowledge of two other Romance languages (Latin included) or of one other Romance language and German or Russian.

Candidates for the Ph.D. degree are required to pass written examinations, followed by an oral examination, to be held after the papers have been read and graded. Candidates will be examined on their choice of three of the four following areas:

1. medieval or 16th or 17th-Century French literature
2. 18th, 19th, or 20th Century French literature
3. A third literary period or linguistics.

The candidate's dissertation, submitted in accordance with the regulations of The Graduate School, must be within one of the three areas chosen for the qualifying examination.

The Ph.D. written examinations are given three times a year: 1) July 15-30, 2) January 15-31, and 3) March 20 to April 5. Application for the examination should be made to the Director of Graduate Studies no later than 10 days prior to the date of examination.

For further information concerning the M.A. and Ph.D. programs in French, consult the Director of Graduate Studies.

All courses listed below are offered on a rotating basis and no later than every sixth semester.

406 ADVANCED FRENCH GRAMMAR AND COMPOSITION .....	(3)
407 FRENCH PHONETICS .....	(3)
412 ADVANCED FRENCH CONVERSATION .....	(3)
417 LINGUISTIC SURVEY OF FRENCH .....	(3)
421 TOPICS IN FRENCH LITERATURE IN TRANSLATION I .....	(3)
422 TOPICS IN FRENCH LITERATURE IN TRANSLATION II .....	(3)
423 FRENCH LITERATURE IN TRANSLATION: 20TH CENTURY .....	(3)



435 A SURVEY OF FRENCH LITERATURE OF THE MIDDLE AGES*	(3)
436 A SURVEY OF FRENCH LITERATURE OF THE RENAISSANCE*	(3)
437 A SURVEY IN FRENCH LITERATURE OF THE 17TH CENTURY*	(3)
438 A SURVEY OF FRENCH LITERATURE OF THE 18TH CENTURY*	(3)
439 A SURVEY OF FRENCH LITERATURE OF THE 19TH CENTURY	(3)
440 A SURVEY OF FRENCH LITERATURE OF THE 20TH CENTURY*	(3)
460 MASTERPIECES OF THE FRENCH NOVEL	(3)
* FR 435, 437, 439, 462 will normally be offered in the fall; FR 436, 438, 440, 461 in the spring.	
461 MASTERPIECES OF FRENCH DRAMA	(3)
462 MASTERPIECES OF FRENCH POETRY	(3)
507 TRANSLATION AND INTERPRETATION	(3)
516 INTRODUCTION TO OLD FRENCH	(3)
517 INTRODUCTION TO THE PHONOLOGICAL STRUCTURE OF FRENCH	(3)
550 CONTEMPORARY FRENCH CULTURE	(3)
553 THE TEACHING OF MODERN FOREIGN LANGUAGES	(3)
603 THE DEVELOPMENT OF THE FRENCH LANGUAGE	(3)
607 SYNTACTIC STRUCTURE OF FRENCH	(3)
610 ROMANCE PHILOLOGY	(3)
611 OLD PROVENÇAL	(3)
612 MEDIEVAL NARRATIVE I: THE EARLY TRADITION	(3)
613 MEDIEVAL NARRATIVE II: THE ROMANCE	(3)
616 THE DIDACTIC TRADITION	(3)
619 THE MEDIEVAL LYRIC	(3)
621 FRENCH RENAISSANCE LITERATURE I	(3)
622 FRENCH RENAISSANCE LITERATURE II	(3)
623 RABELAIS AND THE CONTEURS	(3)
624 MONTAIGNE	(3)
630 CORNEILLE AND PRE-CLASSICAL DRAMA	(3)
631 RACINE AND THE TRAGIC THEATER	(3)
632 MOLIÈRE AND THE COMIC THEATRE	(3)
633 SEVENTEENTH CENTURY FRENCH PROSE	(3)
635 HISTORY OF IDEAS IN 17TH CENTURY	(3)
636 SEVENTEENTH-CENTURY POETRY	(3)
640 EIGHTEENTH CENTURY PROSE LITERATURE I	(3)
641 EIGHTEENTH CENTURY PROSE LITERATURE II	(3)
643 THE 18TH CENTURY FRENCH NOVEL	(3)
645 HISTORY OF IDEAS IN THE 18TH CENTURY	(3)
651 FRENCH ROMANTICISM I: PROSE	(3)
652 FRENCH ROMANTICISM II: POETRY AND THEATER	(3)
653 BAUDELAIRE, RIMBAUD, MALLARME	(3)
654 REALISM	(3)
656 NATURALISM	(3)
661 CONTEMPORARY PROSE I	(3)
662 CONTEMPORARY PROSE II	(3)
666 CONTEMPORARY FRENCH THEATER	(3)
672 CONTEMPORARY POETRY	(3)
714 SEMINAR IN THE HISTORY OF THE FRENCH LANGUAGE	(3)
715 SEMINAR IN MEDIEVAL FRENCH STUDIES	(3)
716 SEMINAR IN FRENCH LITERATURE OF THE RENAISSANCE	(3)
717 SEMINAR IN 17TH CENTURY FRENCH LITERATURE	(3)
718 SEMINAR IN 18TH CENTURY FRENCH LITERATURE	(3)
719 SEMINAR IN 19TH CENTURY FRENCH LITERATURE	(3)
720 SEMINAR IN 20TH CENTURY FRENCH LITERATURE	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
780 SPECIAL STUDIES IN FRENCH	(3)

## GEOGRAPHY

**Graduate Faculty:** Professor Thomas Field, P. P. Karan. Associate Professors W. A. Bladen, Karl Raitz (Chairman and Director of Graduate Studies), W. A. Withington.

**Associate Members:** Assistant Professors W. A. Bladen, Terry McIntosh, Phillip D. Phillips, Richard Towber, Richard Ulack.

The Department of Geography offers both M.A. (Plan A and Plan B available) and Ph.D. programs. The emphasis is on the doctoral program which provides research-oriented professional training. The research training and skills of the individual graduate students are developed in research seminars and course work following specific research clusters of the discipline:

**Cultural Geography**—Problem-oriented studies in population growth and change, social and behavioral influences on locational character, urban and rural settlement patterns and processes, distribution and interaction of ethnic groups.

**Urban Geography**—Three facets of urban analysis are emphasized: basic principles and theories of urban geography, social geography of the city, and comparative understanding of world cities.

**Resources Geography**—Analysis of resources from the viewpoints of use, location, distribution, quality, and individual and cultural perceptions.

**Political Geography**—Topical analysis centers upon factors affecting the viability of political units, political aspects of development, and the role of increasing economic interdependence in international affairs.

**Development**—Analysis of developmental change within topical and spatial viewpoints. Developmental topics include urban, cultural, population, economic, and resource focuses; spatial development emphasizes type areas at localized, regional, and worldwide scales.

**Regional Geography**—Methodologies of regional theory and interpretation applied to regional characteristics and problems, particularly in Asia, North and Middle America, the Soviet Union, and Australia.

Applicants for the Ph.D. in geography must conform to the general requirements of the Graduate School as set forth in the first part of this Bulletin. Although there is no specific course work required in the Ph.D., the program consists of (1) core courses (Geo 700, 702, 707) in the theory and methodology of geography (Geo 710 will be offered periodically as student numbers and performance necessitates); (2) seminars, independent study and directed research in one of the specific research clusters noted above and cognate disciplines, (3) successful examination in one modern foreign language, and (4) a dissertation based on original research. Each doctoral candidate, in consultation with the Director of Graduate Studies and the Special Committee, outlines a program designed to meet his or her professional academic goals.

Applicants for the M.A. degree in geography follow a broadly based program which consists of (1) recommended courses (GEO 601, 700, and 707), (2) elective courses in geography and cognate disciplines according to the student's academic goals and career objectives, and

(3) the completion of a Master's Thesis. At the discretion of the faculty a non-thesis degree (Plan B requiring six additional credits) may be permitted. Students in Plan B must submit three research papers as part of the course work. The M.A. student may not take more than six hours of course work below the 600 level. Except for methodological seminars, students are not required to take a specific courses. Program is tailored to meet each student's particular needs and requirements, and many interdisciplinary topics may be chosen for study.

All graduate students are expected to demonstrate competence in basic research skills and tools, in critical analysis, scientific writing, and accurate verbalization as part of the degree requirement. During initial phases of graduate work, a strong emphasis is placed upon acquiring competence in the fields of bibliographic techniques, cartographic analysis, and the application of field and quantitative techniques to geographic problems.

407	DEVELOPMENT OF GEOGRAPHIC THOUGHT .....	(3)
500	INTRODUCTION TO ANALYTIC TECHNIQUES IN GEOGRAPHY .....	(3)
501	FIELD STUDIES IN GEOGRAPHY .....	(3)
505	CARTOGRAPHY .....	(3)
520	GEOGRAPHY OF THE UNITED STATES AND CANADA .....	(3)
522	GEOGRAPHY OF KENTUCKY .....	(3)
524	GEOGRAPHY OF LATIN AMERICA .....	(3)
526	GEOGRAPHY OF EUROPE .....	(3)
528	GEOGRAPHY OF ASIA .....	(3)
530	GEOGRAPHY OF SOUTH ASIA .....	(3)
532	GEOGRAPHY OF SOUTHEAST ASIA .....	(3)
534	GEOGRAPHY OF AUSTRALIA AND THE PACIFIC ISLANDS .....	(3)
536	GEOGRAPHY OF AFRICA .....	(3)
540	PRINCIPLES OF URBAN GEOGRAPHY .....	(3)
541	GEOGRAPHIC PERSPECTIVES ON CONTEMPORARY URBAN PROBLEMS .....	(3)
542	POLITICAL GEOGRAPHY .....	(3)
543	URBANIZATION IN THE DEVELOPING WORLD .....	(3)
544	POPULATION GEOGRAPHY .....	(3)
550	GEOGRAPHY OF NATURAL RESOURCES .....	(3)
560	INDEPENDENT WORK IN GEOGRAPHY .....	(3)
565	TOPICS IN GEOGRAPHY .....	(3)
601	FIELD METHODS IN GEOGRAPHY .....	(3)
605	COMPUTER CARTOGRAPHY .....	(3)
625	REGIONAL THEORY .....	(3)
630	REGIONAL STUDY OF SPECIAL AREAS .....	(3)
640	TRANSPORTATION GEOGRAPHY .....	(3)
643	URBAN TRANSPORTATION PLANNING .....	(3)
652	SOIL CLASSIFICATION AND GEOGRAPHY .....	(3)
655	SPECIAL STUDY OF SYSTEMATIC GEOGRAPHY .....	(3)
695	SOCIAL ECOLOGY .....	(3)
700	QUANTITATIVE METHODS IN GEOGRAPHY .....	(3)
702	CONCEPTS IN GEOGRAPHY .....	(3)
707	SEMINAR IN DEVELOPMENT OF GEOGRAPHIC THOUGHT .....	(3)
710	RESEARCH METHODS AND METHODOLOGY IN GEOGRAPHY .....	(3)
715	SEMINAR IN SYSTEMATIC GEOGRAPHY .....	(3)
720	SEMINAR IN THE GEOGRAPHY OF THE UNITED STATES AND CANADA .....	(3)
725	APPLIED GEOGRAPHY IN DEVELOPMENTAL ANALYSIS .....	(3)
730	SEMINAR IN REGIONAL GEOGRAPHY .....	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
771	ADVANCED SEMINAR IN GEOGRAPHY .....	(3)
772	SPECIAL RESEARCH PROBLEMS IN GEOGRAPHY ....	(3)

## GEOLOGY

**Graduate Faculty:** Professors William Brown (Director of Graduate Studies), William Dennen, William MacQuown,

Vincent Nelson. Associate Professors William Blackburn, Bruce Moore, John Thrailkill (Chairman).

**Associate Member:** Associate Professor Irving Fisher. Assistant Professor Frank Ettensohn.

The Department of Geology offers graduate work leading to the M.S. degree under Plan A, and the Ph.D. The credentials of each applicant are considered individually and applicants from disciplines other than geology are encouraged to apply. Prospective students should have a good background in basic science and demonstrated competence at the undergraduate level. Deficiencies in geology and allied sciences must be removed by such course work as the department may specify. Each candidate is expected to have or obtain practice in geological field work, and must submit an acceptable thesis or dissertation which demonstrates his ability to conduct sound research, and for the Ph.D. must demonstrate acceptable reading ability in one modern foreign language.

The principal fields of study offered are mineralogy-petrology, geochemistry, sedimentology-stratigraphy, structural geology-tectonics, and geophysics, but other fields are available and interdisciplinary studies are encouraged.

Resources for the conduct of advanced studies include reference collections, an outstanding library, well-equipped laboratories including the Cabot Spectrographic Laboratory facility, sample preparation and field equipment, portable diamond drilling apparatus, and geophysical instrumentation for gravity, magnetic, and seismic studies. Laboratory apparatus includes X-ray fluorescence and diffraction, atomic absorption and spectrophotometry, dc arc and laser microprobe emission spectrography, petrographic microscopy, and special equipment for sedimentologic and paleontologic studies. Additional, such extra-departmental facilities as computing, neutron activation, electron microscopy, and equipment for clay mineralogy and rock mechanics are readily available.

401	PALEONTOLOGY .....	(3)
420	STRUCTURAL GEOLOGY .....	(3)
423	FIELD WORK IN REGIONAL GEOLOGY .....	(3)
424	FIELD WORK AND REPORT IN REGIONAL GEOLOGY .....	(7)
450	STRATIGRAPHY AND SEDIMENTATION .....	(3)
501	STRATIGRAPHIC PALEONTOLOGY .....	(3)
510	ORE DEPOSITS .....	(3)
511	PETROLEUM GEOLOGY .....	(3)
530	LOW TEMPERATURE GEOCHEMISTRY .....	(3)
531	IGNEOUS AND METAMORPHIC GEOCHEMISTRY .....	(3)
533	ROCK MECHANICS .....	(3)
540	ADVANCED GENERAL GEOLOGY .....	(3)
552	SEDIMENTARY PETROLOGY .....	(3)
560	OPTICAL MINERALOGY .....	(3)
561	STRUCTURAL MINERALOGY .....	(3)
571	INTRODUCTORY GEOPHYSICS GRAVITY AND MAGNETISM .....	(3)
572	INTRODUCTORY GEOPHYSICS-SEISMOLOGY .....	(3)
602	PALEOECOLOGY .....	(3)
603	MICROPALEONTOLOGY .....	(3)



612 MINERAL DEPOSITS .....	(3)
620 TECTONICS .....	(3)
624 MESOSCOPIC STRUCTURES .....	(3)
631 ADVANCED PROSPECTING .....	(3)
633 CHEMICAL MINEROLOGY .....	(3)
650 SEDIMENTOLOGY .....	(3)
652 PALEOZOIC STRATIGRAPHY .....	(3)
653 MESOZOIC AND CENOZOIC STRATIGRAPHY .....	(3)
654 CARBONATE PETROLOGY .....	(3)
655 HYDROGEOLOGY .....	(3)
660 PETROGRAPHY .....	(3)
662 X-RAY MINERALOGY .....	(3)
665 IGNEOUS AND METAMORPHIC PETROLOGY .....	(3)
670 SELECTED TOPICS IN GEOPHYSICS .....	(3)
671 EARTHQUAKE SEISMOLOGY .....	(3)
681 MINERALOGICAL AND CHEMICAL ANALYSIS OF SOILS .....	(4)
703 PALEOECOLOGY SEMINAR .....	(3)
720 GRADUATE TECTONIC SEMINAR .....	(3)
732 CHEMICAL SEDIMENTOLOGY .....	(3)
733 PETROLOGIC GEOCHEMISTRY .....	(3)
741 CLAY MINERALOGY .....	(3)
760 PETROLOGY SEMINAR .....	(2)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
782 INDIVIDUAL WORK IN GEOLOGY .....	(1-3)

## GERMANIC LANGUAGES AND LITERATURES

**Graduate Faculty:** Professors Bernd Kratz (Chairman and Director of Graduate Studies), Paul Stapf, J. Wesley Thomas.

**Associate Member:** Assistant Professor Jay F. Bodine.

The Department considers the main purpose of graduate work in its field is to provide the student with a thorough understanding of German culture, its language and literature and its relationship to Western Civilization as a whole. Graduate instruction is designed to acquaint the student with the aims and methods of scholarship, to develop an intelligent appreciation of literature, and to make him/her an effective teacher or to provide the cultural enrichment to enhance the quality of his/her work in other pursuits.

The Department offers graduate programs leading to the M.A. (Plan A or B) and Ph.D. degrees in German. Also available are supplementary courses in Scandinavian. Competence in another foreign language, normally French, in addition to German is required for graduate degrees.

Admission requirements include an acceptable undergraduate major in German and a satisfactory score on the Graduate Record Examination. An applicant lacking a more comprehensive knowledge of German language and literature may be admitted with the understanding that his/her program must include some advanced undergraduate work in addition to those courses normally required for the M.A. Before being admitted into the doctoral program, each student will be evaluated by the German graduate faculty on the basis of course grades, including those of at least one semester in the Department, if the

M.A. degree was obtained elsewhere, instructor's recommendations, and GRE scores.

Individual programs of study are planned with consideration of the student's competencies and interests. Thus, the department endeavors to be flexible and in teacher preparation, for example, to accommodate particular emphases appropriate for prospective instruction in secondary schools or two or four-year colleges.

Areas of specialization of the graduate faculty of the Department afford flexible coverage in breadth and depth, with particular strength in medieval studies. The Department serves as the publishing center for the international journal, *Colloquia Germanica*. Graduate students are encouraged to participate in the editorial work. The university has substantial holdings in all areas of German language, linguistics and literature and in supporting fields. Special collections include German drama on microcard and folklore on microfilm, a selection of Danish literature to 1900, and German books printed before 1600 on 35mm microfilm.

### GERMAN

412 MODERN GERMAN LITERATURE IN TRANSLATION ..	(3)
508 TUTORIAL IN MINOR GERMANIC LANGUAGE .....	(3)
516 HISTORY OF GERMAN LITERATURE .....	(3)
520 GERMANIC PROSEMINAR .....	(3)
522 GERMAN IMPRESSIONISM .....	(3)
532 THE GERMAN LYRIC .....	(3)
534, 535 LIFE AND WORKS OF GOETHE .....	(3 ea.)
536 INTRODUCTION TO THE HISTORY OF THE GERMAN LANGUAGE .....	(3)
537 INTRODUCTION TO MIDDLE HIGH GERMAN .....	(3)
538 ADVANCED GERMAN CONVERSATION AND COMPOSITION .....	(3)
539 STRUCTURE OF THE GERMAN LANGUAGE .....	(3)
540 GERMANY SINCE 1871 .....	(3)
553 THE TEACHING OF GERMAN .....	(3)
621 INTRODUCTION TO GERMAN BIBLIOGRAPHICAL STUDIES .....	(3)
622 THEORIES OF LITERATURE IN GERMAN .....	(3)
624 GERMAN LITERATURE OF THE 16TH AND 17TH CENTURIES .....	(3)
625 GERMAN LITERATURE OF THE 18TH CENTURY .....	(3)
626 THE AGE OF GOETHE (1770-1830) .....	(3)
627 GERMAN DRAMA OF THE 19TH CENTURY .....	(3)
628 THE GERMAN NOVELLE .....	(3)
630, 631 TWENTIETH CENTURY GERMAN LITERATURE .....	(3 ea.)
635 GOTHIC .....	(3)
636 OLD HIGH GERMAN .....	(3)
640 STUDIES IN GERMANIC LANGUAGE AND LITERATURE .....	(3)
642 MEDIEVAL GERMAN LITERATURE .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
778 SEMINAR: MAIN CURRENTS OF ROMANCE AND GERMAN LITERATURE .....	(3)
781 SPECIAL STUDIES IN GERMAN .....	(3)
790 GERMANIC SEMINAR .....	(3)

### SCANDINAVIAN (Offered as required)

500 SWEDISH .....	(3)
501 SWEDISH LITERATURE FROM BELMAN TO THE PRESENT .....	(3)
504 DANISH .....	(3)
505 DANISH LITERATURE FROM HOLBERG TO THE PRESENT .....	(3)
510 MEDIEVAL SCANDINAVIAN LITERATURE IN TRANSLATION .....	(3)
511 SCANDINAVIAN LITERATURE IN TRANSLATION: HOLBERG TO LAGERKVIST .....	(3)
610 OLD ICELANDIC .....	(3)

## HEALTH, PHYSICAL EDUCATION AND RECREATION

**Graduate Faculty:** Professors Leon Garrett, Joseph Gruber, Alan Stull (Director of Graduate Studies). Associate Professors Don Kirkendall, Pentti Teräslinna.

**Associate Members:** Assistant Professors Robert Johnson, Jay Kearney, Alfred Reece, Dennis Vinton.

The Department of Health, Physical Education and Recreation offers graduate work leading to the Doctor of Education degree in physical education and the Master of Science degree with an area of concentration in one of the following: health and safety education, physical education, therapeutic recreation, or recreation and park administration.

The major objective of the master's program in health, physical education, and recreation are twofold. First, every student is to acquire a knowledge of sound research procedures so that professional literature may be properly evaluated and significant findings incorporated into the work of the professional. Second, the program will permit the student to study in depth a specialized area within the field of health, physical education, or recreation.

The program needed to meet these objectives requires that each student become proficient in the use of scholarly tools. Statistics, research procedures, and independent scholarly investigation serve as a basic core. Inasmuch as the fields of health, physical education, and recreation draw their principles from a variety of disciplines it is appropriate that certain electives be chosen from the supportive areas of the biological and physical sciences and the behavioral and social sciences. Master's candidates with the approval of the Department may select either a thesis (Plan A) or a non-thesis option (Plan B).

Applicants are expected to have a minimum of 21-hours in their respective fields. More specifically, the prerequisites for graduate study in physical education are:

	Hrs.
Professional Orientation or History and Principles of Physical Education .....	2
Individual Sports, Dual Sports, Team Sports, Aquatics, Gymnastics, and Dance .....	10
Prevention and Treatment of Athletic Injuries .....	2
Anatomy and Physiology .....	4
Tests and Measurements in Physical Education .....	2

Kinesiology .....	2
Physiology of Exercise .....	2

For therapeutic recreation or recreation and park administration the prerequisites are:

Interpretations of Leisure and Recreation .....	2
Recreation Program Planning and Leadership .....	2
Administration and Organization of Recreation .....	2
Introduction to Therapeutic Recreation	
OR	
Principles of Outdoor Recreation .....	2
Supervised Field Study in Recreation ....	3
Laboratory Courses in the Areas of: Sport, Music, Art, Theater, Camping or Dance .....	3

Students who have a strong background in related biological or behavioral science fields may be considered for admission providing they agree to satisfy prerequisites established in each field. Applicants lacking these prerequisites will be expected to satisfy them via directed readings, competency examinations, or prescribed course work. This is in addition to the normal 30-hour master's program.

### GENERAL REQUIREMENTS

Regardless of whether the student concentrates in health and safety education, or physical education, therapeutic recreation, or recreation and park administration, (certificate or non-certificate) all candidates are required to complete the following.

PLAN A		Hrs.
EDP 657	Educational Statistics	3-4
	or	
STA 670	Basic Statistical Analysis	
HPR 644	Research Techniques Applied to Health, Physical Education and Recreation	3
	Supporting Electives	6
	HPR—Area of Concentration	12
	HPR—Residence Credit for the Master's Degree (768)	6
		30-31
PLAN B		
EDP 657	Educational Statistics	3-4
	or	
STA 670	Basic Statistical Analysis	



## Master of Science in Medical

### Radiation Dosimetry

#### ADDITIONAL PROGRAM

ANA 511 INTRODUCTION TO ANATOMY .....	(4)
PGY 502 PRINCIPLES PHYSIOLOGY LECTURES .....	(4)
HRS 715 ADVANCED PROBLEMS IN RADIATION DOSIMETRY .....	(2-6)
AREA ELECTIVES .....	(2-5)
Total 31 (minimum)	

A practicum in Medical Radiation Dosimetry will continue following completion of formal course work. This applied work will be under the staff of the Department of Radiation Medicine.

690 RESEARCH IN RADIOLOGICAL HEALTH .....	(1-3)
695 RESEARCH IN RADIATION DOSIMETRY .....	(1-3)
710 SEMINAR IN BIORADIATION SCIENCES .....	(1)
715 ADVANCED PROBLEMS IN RADIATION DOSIMETRY .....	(2-6)
720 ADVANCED PROBLEMS IN RADIOLOGICAL HEALTH .....	(2-4)

## HIGHER EDUCATION

**Graduate Faculty:** Professors Collins Burnett (Director of Graduate Studies), Charles Elton (Chairman). Associate Professor Edgar Sagan.

**Associate Member:** Professor Leslie Martin.

Higher education as a specialized field of study at the University of Kentucky embodies educational content and process relating to students, faculty, and administration in the two-year and four-year college environments. Students receive an in-depth introduction to such aspects of higher education as recruitment, selection and admission; historical backgrounds; faculty role and preparation; organization and administration; the teaching-learning phenomenon in the college setting; student personnel; the junior and community college; curriculum development, implementation and evaluation for undergraduate, graduate and professional programs; and institutional research.

The Department welcomes qualified students regardless of their undergraduate major and recognizes that course experiences from many disciplines may make a very important contribution to the student's understanding of higher education.

The purposes of the Department follow:

1. Provide the student with a critical analysis of the area of higher education, including the development of an attitude of intellectual curiosity about college and university operations.
2. Provide a major concentration for those who plan to teach and do research in departments of higher education in institutions offering such graduate programs.
3. Provide a support area for those majoring in disciplines other than education, moving

shortly or ultimately into college administration.

4. Prepare students with backgrounds in allied health who are planning to move into teaching and/or administrative positions in two-year and four-year educational institutions and health care facilities.
5. Provide professional preparation for the following careers:
  - a. General administration—president, provost, chancellor, director, academic dean, research administrator, director of institutional planning.
  - b. Student personnel administration—admissions officer, registrar, coordinator of student services and activities, dean of students, dean of men, dean of women, director of housing.
  - c. Development officer—director of public relations, alumni relations, or fund raising.
6. Provide research and evaluation in such aspects of higher education as student characteristics, faculty behavior, administrative roles, institutional organization, curriculum design, the teaching-learning process, decision-making, and finance and budgeting.

A student who meets the minimal admission requirements of The Graduate School and the College of Education will be considered for admission to the Department.

The Department offers the following two degrees.

1. Master of Science in Education  
Major emphasis is on higher education with course work in the following categories:

	Hrs.
Higher education	15
Research Design and Statistics	3
Electives in Education (outside major)	6
Electives outside Education	6

2. Doctor of Education  
Each student's doctoral program is planned in consultation with his Special Committee. Program content for the doctoral student in education is selected from the following categories:

	Hrs.
Higher education	24
Research Design and Statistics	9
Electives in Education (outside major) with a minimum of six hours in each of two departments	18

HPR 664	Research Techniques Applied to Health, Physical Education and Recreation	3
HPR 782	Independent Research Project	3
	Supporting Electives	6
HPR—Area of Concentration		15

30-31

For additional information, write to the Director of Graduate Studies, Department of Health, Physical Education and Recreation.

420	PHYSIOLOGY OF EXERCISE	(3)
445	INTRODUCTION TO TESTS AND MEASUREMENTS	(3)
472	KINESIOLOGY	(3)
491	DANCE IN EDUCATION	(3)
540	ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION	(3)
546	PHYSICAL EDUCATION WORKSHOP	(2)
547	PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY	(3)
560	MOTOR DEVELOPMENT IN INFANTS AND YOUNG CHILDREN	(3)
579	ADAPTED PHYSICAL EDUCATION	(3)
592	CHOREOGRAPHY	(2)
593	DANCE PRODUCTION	(3)

#### GRADUATE COURSES FOR MEN AND WOMEN

610	IMPLEMENTATION OF RECREATION SERVICES FOR THE ILL OR DISABLED	(3)
611	THERAPEUTIC APPLICATIONS OF RECREATION	(3)
620	ADVANCED EXERCISE PHYSIOLOGY	(3)
621	EXERCISE AND CORONARY HEART DISEASE	(3)
622	PHYSICAL FITNESS AND RELATED CONCEPTS	(3)
644	RESEARCH TECHNIQUES APPLIED TO HEALTH, PHYSICAL EDUCATION AND RECREATION	(3)
645	MEASUREMENT THEORY IN HEALTH, PHYSICAL EDUCATION AND RECREATION	(3)
646	INTEGRATED DEVELOPMENT	(3)
647	MOTOR LEARNING	(3)
650	CURRICULUM AND PROGRAM DEVELOPMENT	(3)
651	FACILITIES, CONSTRUCTION, AND EQUIPMENT	(2)
676	CURRENT ISSUES IN RECREATION	(3)
685	ADMINISTRATIVE PRACTICES IN RECREATION	(3)
690	ORGANIZATION AND ADMINISTRATION OF THE DANCE IN EDUCATION	(3)
695	INDEPENDENT STUDY IN PHYSICAL EDUCATION	(3)
696	INDEPENDENT STUDY IN RECREATION	(3)
720	SPORTS MEDICINE	(3)
741	CURRENT STUDIES AND TRENDS IN HEALTH AND PHYSICAL EDUCATION	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
770	SEMINAR IN PHYSICAL EDUCATION	(3)
780	SEMINAR IN RECREATION	(3)
782	INDEPENDENT RESEARCH	(3)

#### RECREATION

471	OUTDOOR EDUCATION THROUGH CAMPING	(2)
478	SENIOR SEMINAR IN RECREATION	(3)
570	LANDSCAPE DESIGN OF PARK AND RECREATION AREAS	(3)
571	INTRODUCTION TO THERAPEUTIC RECREATION	(3)
573	ADMINISTRATION AND ORGANIZATION OF RECREATION	(3)
575	INTERPRETATIONS OF LEISURE AND RECREATION	(3)
577	PRACTICUM IN RECREATION	(3-9)

#### HEALTH AND SAFETY

430	METHODS OF TEACHING HEALTH EDUCATION	(3)
507	DRIVER AND TRAFFIC SAFETY EDUCATION	(3)
509	WORKSHOP IN HEALTH AND SAFETY	(2)
530	ADMINISTRATION OF HEALTH AND SAFETY EDUCATION	(3)
607	ADVANCED TOPICS IN SAFETY EDUCATION	(3)
609	SEMINAR IN HEALTH AND SAFETY EDUCATION	(3)

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## HEALTH RADIATION SCIENCES

**Graduate Faculty.\*** Professor Yosh Maruyama. Associate Professors John Calkins, Joseph Sayeg (Chairman and Director of Graduate Studies). Assistant Professor Ralph Christensen.

\* Joint appointment through the department of Radiation Medicine, College of Medicine.

Two programs in the-Bioradiation Sciences are available leading to the degrees of Master of Science in Radiological Health and Master of Science in Medical Radiation Dosimetry.

Graduates of accredited colleges with an appropriate baccalaureate degree (e.g., Biological Sciences, Physics, Public Health, Mathematics, Chemistry, etc.) may become candidates for one of these degrees. Physics 260 or its equivalent is a prerequisite for both programs, and Computer Science 220 or its equivalent is also a prerequisite for the program in Medical Radiation Dosimetry.

Both programs are an interdisciplinary type. As such, Plan B is utilized for the graduate work, incorporating specific courses in several departments. There is no language requirement. A core of courses is common to both programs. Additional and special course work is prescribed for each program as degree requirements.

#### CORE PROGRAM

ZOO 540	GENERAL RADIATION BIOLOGY	(4)
ZOO 640	BIOLOGICAL EFFECTS OF RADIATION	(3)
PHY 472	INTERACTION OF RADIATION WITH MATTER	(3)
PHY 535	EXPERIMENTAL PHYSICS, ATOMIC AND NUCLEAR	(2)
RM 545	RADIATION HAZARDS AND PROTECTION	(2)
HRS 710	SEMINAR IN BIORADIATION SCIENCE	(1)
STA 670	BASIC STATISTICAL ANALYSIS	(4)

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#### COURSES OFFERED

690	RESEARCH IN RADIOLOGICAL HEALTH	(1-3)
695	RESEARCH IN RADIATION DOSIMETRY	(1-3)
710	SEMINAR IN BIORADIATION SCIENCES	(1)
715	ADVANCED PROBLEMS IN RADIATION DOSIMETRY	(2-6)
720	ADVANCED PROBLEMS IN RADIOLOGICAL HEALTH	(2-4)

### Master of Science in Radiological Health Specialty

#### ADDITIONAL PROGRAM

CH 600	EPIDEMIOLOGY	(3)
CH 612	PUBLIC HEALTH ADMINISTRATION	(3)
HRS 720	ADVANCED PROBLEMS IN RADIOLOGICAL HEALTH	(2-4)
AREA ELECTIVES		(5-7)

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A practicum in Radiological Health will be required which will consist of approximately 12 weeks of training at, (1) a hospital, (2) a government regulatory agency and, (3) a national laboratory. This will be offered during the summer months after the course work has been completed.

Total 32 (minimum)



Electives outside Education (all in one department) 24

The Department participates in joint doctoral program with other regional universities. These programs permit qualified applicants to complete approximately one year of graduate study beyond the Master's degree at the regional institution. The remainder of the academic program must be completed at the University of Kentucky. The work of each student is directed by a joint faculty committee from the two institutions.

Inquiries should be directed to: Director of Graduate Studies, Department of Higher Education, 111 Dickey Hall, University of Kentucky, Lexington, Kentucky 40506.

708 INTERNSHIP IN COLLEGE ADMINISTRATION .....	(4)
718 TRENDS IN HIGHER EDUCATION .....	(3)
719 COLLEGE TEACHING AND LEARNING .....	(3)
722 COLLEGE STUDENT PERSONNEL .....	(3)
733 ORGANIZATION AND ADMINISTRATION OF HIGHER EDUCATION .....	(3)
734 THE COMMUNITY AND JUNIOR COLLEGE .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
798 SEMINAR IN HIGHER EDUCATION .....	(3)
799 RESEARCH PROBLEMS IN HIGHER EDUCATION ....	(3)

## HISTORY

**Graduate Faculty:** Professors Raymond Betts, Carl Cone (Director of Graduate Studies), Mary Wilma Hargreaves, Richard Lowitt, Humbert Nelli, Charles Roland, Gerald Silberstein, Robert Warth. Associate Professors William Chambliss, Steven Channing, Randolph Daniel, Bruce Eastwood, George Herring, Robert Ireland, Donald Nugent, Robert Randall, John Scarborough, Joe Thompson (Chairman).

**Associate Members:** Assistant Professors Lance Banning, William Willingham.

### The Master's Program

Students should submit evidence of strong undergraduate preparation in history, preferably an undergraduate major with a minimum grade-point average of 2.8 on a 4.0 scale. Applicants for admission must submit Graduate Record Examination scores and three letters of recommendation from professors familiar with their work. Background in at least one modern foreign language is required for admission. No person will receive the M.A. degree in history unless he/she demonstrates reading knowledge of a modern foreign language approved by the Department of History and by The Graduate School. Both Plan A and Plan B are offered.

### The Doctor of Philosophy Program in History

Those who seek the doctorate in history should follow carefully the general directions governing the subjects of residence, courses, and foreign language requisites set forth in the first part of

this Bulletin. The applicant does not become a candidate until he/she has demonstrated reading knowledge of one modern foreign language approved by his/her Special Committee, and either knowledge of a second foreign language or, upon approval, competence in another skill, such as statistics or computer science, and until he/she has passed the Qualifying Examinations and has been approved by The Graduate School for candidacy for the degree.

The student's work for the doctorate in history is directed by a Special Committee composed of representatives of his/her areas and fields under three preparation requirements. The committee's chairman directs the dissertation and the student should consult this person at his/her earliest convenience.

Requisites for the Ph.D. candidacy in history will be met as follows:

General Preparation: For the purpose of obtaining a sound factual and interpretative understanding to supplement his/her work in his/her fields, the student will pursue guided reading, research, and course work in one of the following areas:

- I. Ancient History (Greek and Roman)
- II. Early Middle Ages (c. 400-c. 1000)
- III. Late Middle Ages (c. 1000-c. 1500)
- IV. Early Modern Europe (1450-1770)
- V. Modern Europe (since 1770)
- VI. United States History
- VII. Britain and the Empire (1485 to present)
- VIII. Russia and East Europe
- IX. The Far East
- X. Latin America

As an alternative method of satisfying the area requirement, the student may opt an area entitled Western Civilization. This area will require 21 graduate hours of course work at the 500-699 level excluding History 606 but including six hours of Ancient History, six hours of Medieval History, and six hours of European History since 1500 (the last specification possibly including Russian and East European History). None of these hours may be in the student's intensive fields.

Intensive Preparation: The student will pursue guided reading, research and course work to obtain professional preparation in depth in two of the following fields, neither of which will duplicate the area chosen for General Preparation:

- I. Greece
- II. Rome
- III. Early Middle Ages (400-1000)

- IV. Late Middle Ages (1000-1500)
- V. Renaissance and Reformation (to 1648)
- VI. Modern Europe (1600-1770)
- VII. Modern Europe (1770-1870)
- VIII. Modern Europe (1870 to present)
- IX. United States to 1865
- X. United States since 1865
- XI. Britain and the Empire, 1485-1815
- XII. Britain and the Empire, 1815 to present
- XIII. Russia and East Europe, 1700-1890
- XIV. Russia and East Europe, 1890 to present
- XV. Hispanic America since 1810

Specialty Preparation: The student will prepare himself/herself in a third field. Requirements for this field may be satisfied in one of the following ways:

1. Achieving competence in some discipline other than history, but in one closely related to his/her major field of history.
2. Achieving mastery in a special field chosen from within the student's program of Intensive Preparation. Examples of such a field might be United States Intellectual History or the History of Germany. The special field will normally require course work or directed reading in one or more outside disciplines. The choice of the special field will be initiated by the student and his/her major professor. Final acceptance will rest with the student's Special Committee.

The student's success in his/her General Preparation will be evaluated by a written examination. His/her success in his/her Intensive and Specialty Preparations is evaluated by both written and oral examinations.

#### I. EUROPEAN HISTORY

412	SCIENCE AND RELIGION IN THE AGE OF GALILEO	(3)
417	THE PHYSICAL WORLD IN EUROPEAN THOUGHT: TO THE ENLIGHTENMENT	(3)
490	MODERN EUROPE	(3)
500	PRE-CLASSICAL AND CLASSICAL GREECE	(3)
501	FOURTH CENTURY GREECE AND THE HELLENISTIC WORLD	(3)
502	A HISTORY OF THE ROMAN REPUBLIC	(3)
503	A HISTORY OF THE ROMAN EMPIRE	(3)
504	GREEK AND ROMAN MEDICINE	(3)
509	ROMAN LAW	(3)
510	MEDIEVAL CIVILIZATION I	(3)
511	MEDIEVAL CIVILIZATION II	(3)
512	MEDIEVAL INSTITUTIONS TO THE MID-10TH CENTURY	(3)
513	MEDIEVAL INSTITUTIONS SINCE THE MID-10TH CENTURY	(3)
514	HISTORY OF SPAIN TO 1700	(3)
515	HISTORY OF SPAIN FROM 1700 TO THE PRESENT	(3)
518	REPRESENTATIONS OF NATURE	(3)
519	THE ERA OF THE RENAISSANCE	(3)
520	THE ERA OF THE REFORMATION	(3)
521	EUROPE IN THE AGE OF ABSOLUTISM	(3)
522	THE FRENCH AND EUROPEAN REVOLUTIONS, 1760-1815	(3)
523	EUROPE, 1814-1870	(3)
524	EUROPEAN DIPLOMACY, 1870-1918	(3)
525	EUROPEAN DIPLOMACY SINCE 1918	(3)
528	CULTURAL AND INTELLECTUAL HISTORY OF EUROPE FROM THE RENAISSANCE TO THE FRENCH	(3)

	REVOLUTION	(3)
529	THE SOCIAL AND CULTURAL HISTORY OF EUROPE IN THE 19TH CENTURY	(3)
530	THE SOCIAL HISTORY OF EUROPE IN THE 20TH CENTURY	(3)
533	MODERN EUROPEAN IMPERIALISM	(3)
534	RUSSIA IN THE 20TH CENTURY I	(3)
535	RUSSIA IN THE 20TH CENTURY II	(3)
536	INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA AND EAST EUROPE TO 1890	(3)
537	INTELLECTUAL AND CULTURAL HISTORY OF RUSSIA AND EAST EUROPE FROM 1890 TO THE PRESENT	(3)
538	THE EAST EUROPEAN WORLD FROM 1770-1920	(3)
539	THE EAST EUROPEAN WORLD FROM 1920 TO THE PRESENT	(3)
540	HISTORY OF MODERN FRANCE TO 1815	(3)
541	HISTORY OF MODERN FRANCE SINCE 1815	(3)
542	GERMAN HISTORY 1815-1914	(3)
543	GERMAN HISTORY SINCE 1914	(3)
544	A HISTORY OF ITALY 1789-1890	(3)
545	A HISTORY OF ITALY, 1890 TO THE PRESENT	(3)
546	THE BYZANTINE EMPIRE	(3)
547	THE OTTOMAN EMPIRE	(3)
548	HISTORY OF THE MIDDLE EAST: 1916-1952	(3)
549	HISTORY OF THE MIDDLE EAST: 1952 TO PRESENT	(3)

#### II. ENGLAND AND THE BRITISH EMPIRE

550	ENGLISH CONSTITUTIONAL HISTORY TO 1603	(3)
551	ENGLISH CONSTITUTIONAL HISTORY SINCE 1603	(3)
552	BRITISH SOCIAL HISTORY DURING THE TUDOR-STUART PERIOD	(3)
554	BRITISH HISTORY 1815-1901	(3)
555	BRITISH HISTORY SINCE 1901	(3)
556	THE BRITISH EMPIRE TO 1860	(3)
557	THE BRITISH EMPIRE AND COMMONWEALTH	(3)
558	HISTORY OF CANADA	(3)

#### III. AMERICAN HISTORY

560	COLONIAL AMERICA TO 1748	(3)
561	COLONIAL AMERICA AND INDEPENDENCE, 1748-1789	(3)
562	THE NEW NATION, 1789-1828	(3)
563	EXPANSION AND CONFLICT, 1820-1860	(3)
564	EMERGENCE OF MODERN AMERICA, 1877 TO 1912	(3)
565	RECENT HISTORY OF THE UNITED STATES, 1912 TO 1939	(3)
566	RECENT HISTORY OF THE UNITED STATES SINCE 1939	(3)
567	CIVIL WAR AND RECONSTRUCTION 1860-1877	(3)
568	CULTURAL AND INTELLECTUAL HISTORY OF THE UNITED STATES TO 1865	(3)
569	CULTURAL AND INTELLECTUAL HISTORY OF THE UNITED STATES SINCE 1865	(3)
570	ECONOMIC HISTORY OF THE UNITED STATES TO 1865	(3)
571	ECONOMIC HISTORY OF THE UNITED STATES SINCE 1865	(3)
572	AMERICAN CONSTITUTIONAL HISTORY TO 1865	(3)
573	AMERICAN CONSTITUTIONAL HISTORY SINCE 1865	(3)
574	THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES TO 1919	(3)
575	THE DIPLOMACY AND FOREIGN POLICY OF THE UNITED STATES SINCE 1919	(3)
576	THE AMERICAN FRONTIER	(3)
577	THE AMERICAN FRONTIER	(3)
578	HISTORY OF THE OLD SOUTH	(3)
579	HISTORY OF THE NEW SOUTH	(3)
580	U.S. URBAN HISTORY TO 1865	(3)
581	U.S. URBAN HISTORY SINCE 1865	(3)
582	IMMIGRATION AND AMERICAN HISTORY, 1815 TO THE PRESENT	(3)
583	SCIENCE IN AMERICAN SOCIETY	(3)
584	THE RISE OF SCIENTIFIC MEDICINE IN THE UNITED STATES	(3)
586	ECONOMIC HISTORY OF LATIN AMERICA SINCE INDEPENDENCE	(3)
587	TWENTIETH CENTURY LATIN AMERICAN REVOLUTIONS	(3)
588	AMERICAN SOCIAL HISTORY TO 1865	(3)
589	AMERICAN SOCIAL HISTORY SINCE 1865	(3)

#### IV. THE FAR EAST

590	JAPANESE HISTORY TO 1800	(3)
591	JAPANESE HISTORY SINCE 1800	(3)
592	DIPLOMATIC HISTORY OF EAST ASIA SINCE 1787	(3)
593	EAST ASIAN HISTORY SINCE WORLD WAR II	(3)
595	STUDIES IN HISTORY	(3)



## 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.

606 HISTORICAL CRITICISM .....	(3)
611, 612 READINGS IN ANCIENT HISTORY .....	(3 ea.)
613 READINGS IN EARLY MEDIEVAL HISTORY .....	(3)
614 READINGS IN HIGH AND LATE MEDIEVAL HISTORY .....	(3)
615 READINGS IN HISTORY OF SCIENCE AND MEDICINE (THROUGH THE RENAISSANCE) .....	(3)
616 READINGS IN HISTORY OF SCIENCE AND MEDICINE (SINCE THE RENAISSANCE) .....	(3)
621, 622 READINGS IN EUROPEAN HISTORY, 1500-1815 .....	(3 ea.)
623 READINGS IN EUROPEAN CULTURAL HISTORY SINCE 1815 .....	(3)
624 READINGS IN EUROPEAN POLITICAL AND DIPLOMATIC HISTORY SINCE 1815 .....	(3)
625, 626 READINGS IN BRITISH AND BRITISH EMPIRE HISTORY .....	(3 ea.)
631, 632 READINGS IN UNITED STATES HISTORY TO 1865 .....	(3 ea.)
633, 634 READINGS IN UNITED STATES HISTORY SINCE 1865 .....	(3 ea.)
635 READINGS IN MODERN RUSSIAN HISTORY I .....	(3)
636 READINGS IN MODERN RUSSIAN HISTORY II .....	(3)
637, 638 READINGS IN LATIN AMERICAN HISTORY ..	(3 ea.)
639 READINGS IN EAST ASIAN HISTORY .....	(3)
640 READINGS IN EAST ASIAN HISTORY .....	(3)
640 READINGS IN EAST ASIAN HISTORY .....	(3)
695 INDEPENDENT WORK .....	(1-3)

## COURSES IN THE 700 GROUP

Seminars—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.

700 SPECIAL PROBLEMS IN HISTORY .....	(3)
705 SEMINAR IN ANCIENT HISTORY .....	(3)
706 SEMINAR IN MEDIEVAL HISTORY .....	(3)
710 SEMINAR IN AMERICAN HISTORY, 1607-1783 .....	(3)
711 SEMINAR IN AMERICAN HISTORY, 1783-1865 .....	(3)
712 SEMINAR IN AMERICAN HISTORY, 1865 TO THE PRESENT .....	(3)
715 SEMINAR IN LATIN AMERICAN HISTORY .....	(3)
720 SEMINAR IN MODERN EUROPEAN HISTORY, 1500-1714 .....	(3)
721 SEMINAR IN MODERN EUROPEAN HISTORY, 1714-1870 .....	(3)
722 SEMINAR IN MODERN EUROPEAN HISTORY, 1870 TO THE PRESENT .....	(3)
730 SEMINAR IN MODERN BRITISH HISTORY .....	(3)

## Theses

768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)

## HOME ECONOMICS

### Requirements for the Degree of Master of Science in Home Economics

**Graduate Faculty:** Professor Marjorie Stewart (Dean), Extension Professor Doris Tichenor (Assistant Extension Director for Home Economics and Director for Community Development).

The Graduate School rules and regulations for the master's degree apply to the Master of Science in Home Economics. Plan A requires 24 hours plus a thesis and Plan B requires 36 hours. No language is required. Because prerequisites

vary within each area, the prospective is advised to contact the appropriate Director of Graduate Studies, College of Home Economics, University of Kentucky.

For more information about specific departments see that section of the bulletin which gives a detailed description. The departments are: Housing and Interior Design; Human Development and Family Relations; Management and Family Economics; Nutrition and Food Sciences; Textile, Clothing and Merchandising. For information about Home Economics Education see Vocational Education.

575 COMMUNITY ANALYSIS .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	

## HORTICULTURE AND LANDSCAPE ARCHITECTURE

**Graduate Faculty:** Professors Raymond Lockard (Director of Graduate Studies), Hubert Mohr, William Schneider, A. S. Williams (Chairman). Associate Professors Thomas R. Kemp, Dean Knavel, Aly Lasheen, Leonard Stolz.

**Associate Members:** Associate Professor Carl Chaplin. Assistant Professor Jack Buxton.

The Department offers graduate work leading to the Master of Science in Agriculture degree. Degrees are awarded primarily under Plan A, but they can be awarded under Plan B with prior approval. The study and research program may relate to Pomology, Vegetable Crops, Floriculture, or Ornamental Horticulture. Research problems are normally related to the discipline of genetics, physiology or landscape horticulture.

Students interested in working in horticulture toward a Doctor of Philosophy degree may enter the interdepartmental Plant Physiology or Crop Science programs.

402	POMOLOGY: DECIDUOUS FRUITS I .....	(4)
502	POMOLOGY: DECIDUOUS FRUITS II .....	(3)
510	OUTDOOR VEGETABLE PRODUCTION .....	(3)
512	GREENHOUSE VEGETABLE CROPS .....	(2)
515	TURF MANAGEMENT .....	(3)
524	FLORICULTURE .....	(3)
570	LANDSCAPE DESIGN OF PARK AND RECREATION AREAS .....	(3)
582	SPECIAL PROBLEMS IN HORTICULTURE .....	(1-4)
601	PHYSIOLOGICAL MECHANISMS IN HORTICULTURAL PLANTS .....	(3)
625	ADVANCED PLANT PROPAGATION .....	(3)
732	MINERAL NUTRITION OF PLANTS .....	(3)
734	PHYSIOLOGY OF GROWTH AND DEVELOPMENT .....	(3)
736	PHYLOGENY OF CULTIVATED PLANTS .....	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
770	SEMINAR .....	(1)
790	RESEARCH IN HORTICULTURE .....	(1-4)

## HOUSING AND INTERIOR DESIGN

**Graduate Faculty:** Professor Richard Rankin (Chairman and Director of Graduate Studies).

**Associate Member:** Associate Professor Assiz Farag.

401 HISTORY OF INTERIORS: A SURVEY THROUGH 18TH CENTURY .....	(3)
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402 HISTORY OF INTERIORS II: A SURVEY OF 19TH CENTURY AND 20TH CENTURY .....	(3)
405 INTERIOR LIGHTING: FUNDAMENTALS FOR THE DESIGNER .....	(3)
507 INTERIOR DESIGN STUDIO V: TOTAL DESIGN/TOTAL FUNCTION .....	(3)
508 INTERIOR DESIGN STUDIO VI: RESEARCH/ EXPERIMENTATION/CREATIVITY .....	(3)
528 RES/PRES I: INTRODUCTORY CONCEPTS OF RESTORATION AND PRESERVATION .....	(3)
536 EN PRO II: ENVIRONMENTAL PRODUCT DESIGN ....	(3)
548 PRO/PRAC II: PROFESSIONAL PRACTICE AND FIELD EXPERIENCE .....	(3)
593 SPECIAL PROBLEMS IN SHELTER AND INTERIOR DESIGN .....	(1-3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
772 SEMINAR IN INTERIOR DESIGN .....	(2)
783 SPECIAL PROBLEMS IN INTERIOR DESIGN .....	(1-3)

## HUMAN DEVELOPMENT AND FAMILY RELATIONS

**Graduate Faculty:** Associate Professors Lisa Barclay (Director of Graduate Studies), John Crosby (Chairman), David Payne, Kathy Thornburg, M. O'Neal Weeks.

**Associate Member:** Assistant Professor George Wise.

411 STUDENT TEACHING IN EARLY CHILDHOOD EDUCATION .....	(12)
507 ASSESSMENT OF YOUNG CHILDREN .....	(2)
540 INTENSIVE STUDY OF THE CHILD AND THE FAMILY .....	(3)
541 SUPERVISED TEACHING IN THE EARLY CHILDHOOD LABORATORY I .....	(3)
542 SUPERVISED TEACHING IN THE EARLY CHILDHOOD LABORATORY II .....	(3)
551 WOMAN IN CONTEMPORARY SOCIETY .....	(3)
552 ORGANIZATION AND ADMINISTRATION OF EARLY CHILDHOOD EDUCATION PROGRAMS .....	(3)
553 THE CHILD IN HIS FAMILY .....	(3)
554 WORKING WITH PARENTS .....	(3)
555 FOSTERING COGNITIVE DEVELOPMENT IN THE YOUNG CHILD .....	(3)
557 INFANT DEVELOPMENT .....	(3)
573 FAMILY LIFE EDUCATION .....	(3)
595 SPECIAL PROBLEMS IN CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS .....	(1-3)
599 FIELD EXPERIENCES .....	(3)
604 THE DISADVANTAGED CHILD IN EARLY CHILDHOOD PROGRAMS .....	(3)
605 PRACTICUM IN DIRECTING EARLY CHILDHOOD PROGRAMS .....	(4)
652 READINGS IN FAMILY RELATIONS .....	(3)
653 FAMILY THEORY AND DYNAMICS .....	(3)
655 THEORY AND DYNAMICS OF HUMAN DEVELOPMENT .....	(3)
658 ADOLESCENT DEVELOPMENT .....	(3)
775 SEMINAR IN CHILD DEVELOPMENT .....	(3)
785 SPECIAL PROBLEMS IN CHILD DEVELOPMENT AND FAMILY LIVING .....	(1-3)
790 FAMILIAL AND DEVELOPMENTAL RESEARCH METHODS .....	(3)

## LIBRARY SCIENCE

**Graduate Faculty:** Professors Lawrence A. Allen, Robert E. Cazden, Timothy Sineath (Dean). Associate Professors Lois Chan, Michael H. Harris, Thomas Waldhart (Director of Graduate Studies).

Since January 16, 1974 the College of Library Science does not admit students during the spring semester. Students are only admitted during the summer term and fall semester.

The College of Library Science offers three degrees, M.A., Plan A; M.A., Plan B; and MSLS. The degree requirements for these degrees are as follows:

### I. M.A., Plan A Requirements

#### A. Course Requirements

1. 36 total credit hours, 30 of which must be graduate credit hours
2. 9 hours—Required Introductory Courses (LS 500, 501, 502)  
21 hours elective  
6 hours thesis credit
3. 15 hours must be on the 600-700 level

#### B. Thesis

#### C. Modern Foreign Language—reading proficiency in French, German, Russian, or Spanish (one required). Another language may be substituted by petition. This requirement may be satisfied by one of four methods:

1. by examination at beginning of each semester.
2. by successful completion of special, non-credit, one semester course in a foreign language.
3. by having completed the undergraduate language requirement at the University of Kentucky with a B average.
4. by satisfying the language requirement for another graduate degree.

#### D. Oral examination in defense of thesis

### II. M.A., Plan B Requirements

#### A. Course Requirements

1. 36 credit hours, 30 of which must be graduate credit hours
2. 9 hours—Required Introductory (LS 500, 501, 502)  
6 hours—advanced bibliography or technical processing courses  
6 hours—cognate courses on 500 level or above  
15 hours—elective
3. 15 hours must be on the 600-700 level

#### B. No thesis required

#### C. Modern Foreign Language—as in M.A., Plan A

#### D. Final Examination

### III. MSLS Requirements

#### A. Course Requirements

1. 36 total credit hours, 30 of which must be graduate credit hours
2. 9 hours—Required Introductory Courses  
27 hours—elective



3. 15 hours must be on the 600-700 level

- B. No thesis required  
C. No modern foreign language competency required  
D. Final Examination

The minimum College standards for admission to graduate work in Library Science include a bachelor's degree from an accredited institution, an undergraduate GPA of 2.75 and a combined score of 900 on the verbal and quantitative aptitude tests of the Graduate Record Examination. A separate application to the College of Library Science is also required. For additional information, bulletin, and appropriate forms, contact Assistant Dean, College of Library Science.

500 LIBRARY ADMINISTRATION .....	(3)
501 INTRODUCTION TO CATALOGING AND CLASSIFICATION .....	(3)
502 REFERENCE AND INFORMATION SERVICES .....	(3)
503 SELECTION AND ACQUISITION OF LIBRARY MATERIALS .....	(3)
504 SOCIAL FOUNDATIONS OF LIBRARIANSHIP .....	(3)
509 ADMINISTRATION OF SCHOOL MEDIA CENTERS ....	(3)
510 CHILDREN'S LITERATURE AND RELATED MATERIALS .....	(3)
513 LITERATURE AND RELATED MATERIALS FOR EARLY ADOLESCENCE .....	(3)
514 LITERATURE AND RELATED MATERIALS FOR YOUNG PEOPLE .....	(3)
516 SCHOOL MEDIA PRACTICUM .....	(3-9)
525 PROFESSIONAL FIELD EXPERIENCE .....	(3)
586 UTILIZATION OF EDUCATIONAL MEDIA .....	(3)
600 ADMINISTRATIVE BEHAVIOR IN LIBRARY MANAGEMENT .....	(3)
601 ADVANCED CATALOGING AND CLASSIFICATION ....	(3)
602 BIBLIOGRAPHY OF SOCIAL SCIENCES .....	(3)
603 BIBLIOGRAPHY OF THE HUMANITIES .....	(3)
604 BIBLIOGRAPHY OF SCIENCE .....	(3)
605 INTRODUCTION TO INFORMATION SCIENCES .....	(3)
606 AUTOMATION AND THE LIBRARY .....	(3)
608 METHODS OF RESEARCH IN LIBRARIANSHIP .....	(3)
609 PUBLIC LIBRARIES .....	(3)
610 ACADEMIC LIBRARIES .....	(3)
611 SCIENTIFIC AND TECHNICAL LIBRARIES .....	(3)
613 LIBRARY SYSTEMS ANALYSIS .....	(3)
614 INFORMATION STORAGE AND RETRIEVAL SYSTEMS ..	(3)
617 HISTORY OF BOOKS AND PRINTING TO 1800 .....	(3)
618 READING INTEREST OF ADULTS .....	(3)
619 COLLECTION DEVELOPMENT IN ACADEMIC LIBRARIES .....	(3)
620 RARE BOOKS BIBLIOGRAPHY .....	(3)
621 SPECIAL COLLECTIONS .....	(3)
623 SUBJECT BIBLIOGRAPHY .....	(3)
624 LIBRARY OF CONGRESS CLASSIFICATION .....	(3)
625 HISTORY OF BOOKS AND PRINTING 1800 TO THE PRESENT .....	(3)
626 GOVERNMENT PUBLICATIONS .....	(3)
627 HISTORY OF LIBRARIES .....	(3)
628 LIBRARY BUILDINGS .....	(3)
630 CREATIVE LIBRARY PROGRAMS FOR CHILDREN .....	(3)
635 CURRENT PROBLEMS IN SCHOOL LIBRARIES .....	(3)
637 ADVANCED LITERATURE FOR CHILDREN .....	(3)
640 MEDICAL LIBRARIANSHIP .....	(3)
641 LAW LIBRARIANSHIP .....	(3)
686 CATALOGING NON-PRINT MATERIALS .....	(1)
687 MULTI-MEDIA MATERIALS .....	(3)
690 SPECIAL TOPICS IN LIBRARIANSHIP .....	(3)
695 INDEPENDENT STUDY IN LIBRARY SCIENCE .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	

## MANAGEMENT AND FAMILY ECONOMICS

**Graduate Faculty:** Professor Marjorie Stewart (Dean and Acting Director of Graduate Studies).

**Associate Member:** Assistant Professor Carolyn McKinney.

462 PERSONAL AND FAMILY FINANCE .....	(3)
561 THE CONSUMER WITH LIMITED RESOURCES .....	(3)
562 FAMILY MANAGEMENT FOR MULTI-ROLES .....	(3)
563 FAMILY CONSUMERS AND THE LAW .....	(3)
586 FIELD INSTRUCTION IN MANAGEMENT AND FAMILY ECONOMICS .....	(1-6)
596 SPECIAL PROBLEMS IN MANAGEMENT AND FAMILY ECONOMICS .....	(1-3)
602 CONSUMER ECONOMICS .....	(3)
662 SOCIAL AND ECONOMIC DECISIONING IN THE FAMILY .....	(3)
668 ALLOCATION OF FAMILY RESOURCES .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
773 SEMINAR IN MANAGEMENT AND FAMILY ECONOMICS .....	(3)
786 SPECIAL PROBLEMS IN MANAGEMENT AND FAMILY ECONOMICS .....	(1-3)

## MATHEMATICS

**Graduate Faculty:** Professors J. D. Buckholtz, Thomas Chapman, Donald Coleman (Director of Graduate Studies), Edgar Enochs, Henry Howard, Frank Keogh, Donald Leigh, John Suffridge, Clasine Van Winter, James Wells, Roger Wets. Associate Professors David R. Adams, James Beidleman, James Brennan, Richard Carey, Raymond Cox, Paul Eakin, Carl Ebehart, Graeme Fairweather, Michael Freeman, Brauch Fugate, Ronald Garipey, Wayne Goodwyn, Lawrence Harris, Thomas Hayden, Dave Johnson, Kenneth Kubota, Anders Linquist, James Simpson.

**Associate Members:** Assistant Professors Julio Diaz, L. C. Evans, Steven Ferry, Frank Massey, Da-lun Wang.

The Department of Mathematics grants the M.A., M.S. and Ph.D. degrees. There are no specific course prerequisites for admission; however, two semesters of advanced calculus, and at least one semester each of algebra and topology are suggested.

The Master of Arts degree, designed for prospective junior college and secondary school teachers, is based on a 30 credit-hour program, requires a reading knowledge of one foreign language and is offered under either Plan A or B.

The Master of Science degree, designed for those planning on a mathematical career in business or industry, is based on a 36 credit-hour program which requires course work in several areas of modern mathematical applications. It is offered under Plan B only; no foreign language is required.

The doctorate is a research degree granted on the basis of broad mathematical knowledge and exhibited creative ability. Course work leading to the doctorate is available in the fields of algebra, analysis (classical and modern), applied mathematics, with specialization in optimization and numerical analysis, differential equations, and topology. A comprehensive examination is required of each student. This examination normally is given after two years of graduate study.

In order to be admitted to candidacy for the degree, a student must pass proficiency exami-

nations in two foreign languages chosen from French, German or Russian, complete studies in a minor field (either inside or outside the department) and successfully complete the comprehensive examinations. Subsequent work becomes highly specialized through seminars, independent study, and finally, work on a dissertation which penetrates in depth some field of particular interest. Areas in which members of the faculty have active research projects include algebraic, general and infinite-dimensional topology, group theory, ring theory, algebraic geometry, number theory, one and several complex variables, national approximation, operator theory, differential equations, numerical analysis and optimization and control theory.

410	TOPICS IN APPLIED MATHEMATICS	(3)
411	MODELS IN MATHEMATICAL BIOLOGY	(3)
415	GRAPH THEORY	(3)
416	PRINCIPLES OF OPERATIONS RESEARCH I	(3)
417	PRINCIPLES OF OPERATIONS RESEARCH II	(3)
421	ELEMENTARY NUMERICAL ANALYSIS I	(3)
423	INTRODUCTORY PROBABILITY	(3)
432	METHODS OF APPLIED MATHEMATICS I	(3)
433	METHODS OF APPLIED MATHEMATICS II	(3)
441	GEOMETRY I	(3)
442	GEOMETRY II	(3)
462	MATRIX ANALYSIS	(3)
471	ADVANCED CALCULUS I	(3)
472	ADVANCED CALCULUS II	(3)
481	DIFFERENTIAL EQUATIONS I	(3)
482	DISCRETE METHODS AND MODELS IN APPLIED MATHEMATICS	(3)
483	DIFFERENTIAL EQUATIONS II	(3)
485	FOURIER SERIES AND BOUNDARY VALUE PROBLEMS	(3)
501-502	SEMINAR IN SELECTED TOPICS	(3 ea.)
515	MATHEMATICAL PROGRAMMING AND EXTENSIONS	(3)
521	NUMERICAL ANALYSIS OF ORDINARY DIFFERENTIAL EQUATIONS	(3)
523	PROBABILITY MODELS	(3)
525	NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS	(3)
532	ORDINARY DIFFERENTIAL EQUATIONS	(3)
533	PARTIAL DIFFERENTIAL EQUATIONS	(3)
535	VECTOR AND TENSOR ANALYSIS	(3)
536	OPERATIONAL CALCULUS AND GENERALIZED FUNCTIONS	(3)
538	ELEMENTARY NUMERICAL ANALYSIS II	(3)
551	TOPOLOGY I	(3)
561	MODERN ALGEBRA I	(3)
562	NUMERICAL LINEAR ALGEBRA	(3)
565	LINEAR ALGEBRA	(3)
566	THEORY OF NUMBERS	(3)
570	MULTIVARIATE CALCULUS	(3)
571	ANALYSIS I	(3)
573	APPLIED COMPLEX ANALYSIS	(3)
585	BOUNDARY VALUE PROBLEMS OF MATHEMATICAL PHYSICS	(3)
611	INDEPENDENT WORK IN MATHEMATICS	(3-9)
615	CONVEX ANALYSIS AND OPTIMIZATION	(3)
616	NUMERICAL TECHNIQUES FOR NONLINEAR OPTIMIZATION	(3)
617	MARKOVIAN DECISION PROBLEMS	(3)
618	COMBINATORICS AND NETWORKS	(3)
619	PROBLEM SEMINAR	(3)
621	NUMERICAL ANALYSIS OF PARTIAL DIFFERENTIAL EQUATIONS	(3)
630	MATHEMATICAL FOUNDATIONS OF STOCHASTIC PROCESSES AND CONTROL THEORY I	(3)
631	MATHEMATICAL FOUNDATIONS OF STOCHASTIC PROCESSES AND CONTROL THEORY II	(3)
632	ADVANCED DIFFERENTIAL EQUATIONS	(3)
633	THEORY OF PARTIAL DIFFERENTIAL EQUATIONS	(3)
635	THEORY OF TENSORS	(3)
637	APPROXIMATION THEORY	(3)
641, 642	DIFFERENTIAL GEOMETRY	(3 ea.)
643	SELECTED TOPICS IN GEOMETRY	(3)
651	TOPOLOGY II	(3)
653	DIMENSION THEORY	(3)
654	ALGEBRAIC TOPOLOGY I	(3)
655	ALGEBRAIC TOPOLOGY II	(3)

661	MODERN ALGEBRA II	(3)
667	GROUP THEORY	(3)
670	ANALYSIS II	(3)
671	FUNCTIONS OF A COMPLEX VARIABLE I	(3)
672	FUNCTIONS OF A COMPLEX VARIABLE II	(3)
673	SEVERAL COMPLEX VARIABLES	(3)
715	SELECTED TOPICS IN OPTIMIZATION	(3)
721	SELECTED TOPICS IN NUMERICAL ANALYSIS	(3)
732	SELECTED TOPICS IN DIFFERENTIAL AND INTEGRAL EQUATIONS	(3)
751, 752	SELECTED TOPICS IN TOPOLOGY	(3 ea.)
753, 754	SELECTED TOPICS IN FUNCTIONAL ANALYSIS	(3 ea.)
755, 756	SELECTED TOPICS IN TOPOLOGICAL ALGEBRA	(3 ea.)
757	SEMINAR IN TOPOLOGY	(3)
761	HOMOLOGICAL ALGEBRA	(3)
762	THEORY OF RINGS	(3)
763	THE THEORY OF FIELDS	(3)
764, 765	SELECTED TOPICS IN ALGEBRA	(3 ea.)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
678	CALCULUS OF VARIATIONS	(3)
681	FUNCTIONAL ANALYSIS I	(3)
682	FUNCTIONAL ANALYSIS II	(3)
683	CONVERGENCE AND SUMMABILITY	(3)
685	FOURIER ANALYSIS	(3)
687	INTEGRAL EQUATIONS	(3)
771, 772	SELECTED TOPICS IN THE THEORY OF COMPLEX VARIABLES	(3 ea.)
773, 774	SELECTED TOPICS IN ANALYSIS	(3 ea.)
777, 778	MATHEMATICAL SEMINAR	(3 ea.)

## MECHANICAL ENGINEERING

**Graduate Faculty:** Professors Richard Birkebak (Director of Graduate Studies), Merle Carter, Clifford Cremers (Chairman), Roger Eichhorn, James Funk, James Lafferty, John Lienhard. Associate Professors Otfried Hahn, Charles Knapp, Shiva Singh.

**Associate Members:** Professor Orville Stewart. Assistant Professors Robert Alten Kirch, Peamode Bhagat, Thomas Eaton.

The Department of Mechanical Engineering provides programs for study and research leading to the Master of Science in Mechanical Engineering, the Master of Science in Nuclear Engineering, and the Doctor of Philosophy.

Areas of concentration for research and study are (1) thermal sciences comprising heat transfer, thermodynamics and fluid mechanics, (2) design, (3) biomedical engineering, (4) nuclear engineering, (5) air pollution, (6) systems and controls and (7) coal science, (8) power systems, and (9) combustion.

Graduate study normally requires a bachelor's degree in engineering, not necessarily in mechanical engineering. An undergraduate degree in chemistry, physics or mathematics combined with a strong interest in engineering topics is suitable preparation when certain required undergraduate courses are also taken.

The master's degree can be completed in one academic year plus a summer, but students holding assistantships usually find it necessary to spend about two years to complete all of the requirements. A non-thesis option (Plan B) for the



master's degree is available for students with acceptable previous research or design experience.

The Ph.D. degree has no formal course requirement. Generally students take a number of courses to prepare for the qualifying examinations and usually need to spend two years to complete a suitable dissertation. Most students find more than one year of course work beyond the master's degree necessary preparation for the qualifying examination. The language requirements for the Ph.D. may be satisfied by either German or Russian.

The Department has six research laboratories: the Boiling and Phase Change Lab, the Coal Research Lab, the Digital System Lab, the High Temperature and Thermal Radiation Lab, the Nuclear Engineering Lab, and the Wenner-Gren Research Lab. The departmental laboratories are well-equipped with instrumentation, computers, and facilities for study in the areas of air pollution, biomedical engineering, coal research, combustion, fluid mechanics, heat transfer, and nuclear engineering.

475	INTRODUCTION TO NUCLEAR ENGINEERING .....	(3)
480	THERMAL ENVIRONMENTAL ENGINEERING .....	(3)
514	NUCLEAR REACTOR ANALYSIS I .....	(3)
515	FUEL MANAGEMENT AND ECONOMICS OF NUCLEAR REACTORS .....	(3)
517	INSTRUMENTATION FOR RESEARCH .....	(3)
529	INTERMEDIATE FLUID MECHANICS .....	(3)
530	GAS DYNAMICS .....	(3)
540	DYNAMIC SIMULATION OF MECHANICAL SYSTEMS .....	(3)
563	BASIC COMBUSTION PHENOMENA .....	(3)
564	PROPULSION SYSTEM DESIGN .....	(3)
565	ENERGY ENGINEERING .....	(3)
566	DIRECT ENERGY CONVERSION PROCESSES .....	(3)
567	AIR POLLUTION ENGINEERING AND ECONOMICS ..	(3)
583	BIOTECHNOLOGY .....	(3)
590	ELEMENTS OF AERO-SPACE TECHNOLOGY .....	(3)

*Prerequisite for graduate work:* Students desiring to take any of the following courses should have a thorough working knowledge of chemistry, physics and mathematics.

611	NUCLEAR REACTOR ANALYSIS II .....	(3)
615	PLASMA DYNAMICS .....	(3)
620	ADVANCED ENGINEERING THERMODYNAMICS I .....	(3)
621	ADVANCED ENGINEERING THERMODYNAMICS II .....	(3)
625	ADVANCED HEAT CONDUCTION .....	(3)
626	ADVANCED HEAT CONVECTION .....	(3)
627	RADIATION HEAT TRANSFER .....	(3)
630	FLUID DYNAMICS I .....	(3)
631	FLUID DYNAMICS II .....	(3)
632	COMPRESSIBLE FLUID FLOW .....	(3)
634	TURBULENT FLOWS .....	(3)
642	ADVANCED KINEMATICS OF MACHINERY I .....	(3)
643	ADVANCED KINEMATICS OF MACHINERY II .....	(3)
645	SYSTEMS CONCEPTS AND ANALYSIS .....	(3)
647	SYSTEM OPTIMIZATION I .....	(3)
649	DYNAMIC ANALYSIS OF MECHANICAL SYSTEMS AND COMPONENTS .....	(3)
651	SYSTEM OPTIMIZATION II .....	(3)
664	EXPERIMENTAL METHODS IN NUCLEAR ENGINEERING .....	(3)
665	NUCLEAR REACTOR DYNAMICS .....	(3)
666	RADIATION DAMAGE AND SHIELDING .....	(3)
667	NUCLEAR REACTOR DESIGN .....	(4)
685	BIOFLUID MECHANICS .....	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)
772	BIO-MECHANICS SEMINAR .....	(1)
780	SPECIAL PROBLEMS IN MECHANICAL ENGINEERING ..	(3)
781	SPECIAL PROBLEMS IN BIOENGINEERING .....	(3)
782	ADVANCED TOPICS IN HEAT TRANSFER .....	(3)
783	TOPICS IN ADVANCED SYSTEMS THEORY .....	(3)

## MEDICAL MICROBIOLOGY AND IMMUNOLOGY

Chairman—Charles Ambrose

Medical Microbiology and Immunology is an interdisciplinary approach to the study of the cell which encompasses both microbial and higher organisms including man. Thus the Department is multidisciplinary in its teaching, research and faculty. The areas of study and research available for students within the Department include microbiology, immunology, cell biology and molecular biology. The Department has no graduate program but individual faculty participate in the graduate programs in biochemistry, biology, microbiology, and physiology and biophysics and may thus direct or co-direct the research of students enrolled in these programs. The program of study developed for each graduate student will be determined by the individual's background and career goals and in appropriate situations may include participation in the education of medical students.

Inquiries concerning the availability of financial support and information concerning the best choice of a graduate program for a particular student should be addressed to the Chairman of the Department of Medical Microbiology and Immunology.

512	CELLULAR PHYSIOLOGY .....	(3)
515	GENERAL CELL BIOLOGY .....	(3)
611	BIOCHEMISTRY AND CELL BIOLOGY OF NUCLEIC ACIDS .....	(3)
615	MOLECULAR BIOLOGY .....	(3)
707	CONTEMPORARY TOPICS IN IMMUNOLOGY .....	(3)
710	SPECIAL TOPICS IN CELL BIOLOGY .....	(2)

## METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

**Graduate Faculty:** Professors H. Conrad (Chairman), R. DeAngelis (Director of Graduate Studies), P. Gillis, P. Reucroft, R. Swift. Associate Professors J. Morris, G. Sargent.

The Department offers programs of study leading to the Master of Science in Metallurgical Engineering, or in Materials Science, and the Doctor of Philosophy. The graduate program in the Department has as its aim the development of skills and techniques which are conducive to independent thought, learning and investigation. Degree programs can be selected by the student from a wide variety of topics in the following and other areas: Physical Metallurgy; Mechanical, Chemical and Electronic Properties; Metal Deformation Processing; Electron, X-ray and Field

Ion Microscopy; Ultrahigh Vacuums and High Pressures; Metals, Ceramics and Polymers. Extensive and modern laboratory facilities located in Anderson Hall are available for experimental investigations in these areas.

Preparation for study in this department normally consists of a bachelor's degree in metallurgical engineering. However, an undergraduate degree in chemistry, physics, mathematics or another engineering discipline provides excellent preparation if coupled with a strong interest in the behavior of materials.

The Master's degree may be obtained by satisfying the usual college requirements. Plan A is preferred. Only students with outside practical experience in metallurgy will ordinarily be allowed to substitute six credits of graduate level course work (Plan B) for the thesis. For further information consult the Director of Graduate Studies. There is no language requirement for this degree.

The degree of Doctor of Philosophy is conferred upon a candidate who, after completing not fewer than three years of graduate work devoted to study in the broad field of Metallurgical Engineering or Materials Science, presents a satisfactory thesis, passes a comprehensive examination on his/her subject and chosen field and shows sufficient promise of scholarly attainment. It is intended to represent the attainment of independent and comprehensive scholarship in the field. Reading knowledge of one modern foreign language and demonstrated competence in a minor area from the fields of engineering, mathematics, physical or biological sciences is required for the Ph.D. degree.

The Department of Metallurgical Engineering and Materials Science does not require the candidate to complete a specified number of academic courses. However, a special program is usually recommended by the student's Special Committee to fulfill his/her specific needs. Admission to the doctoral program requires the passing of a comprehensive preliminary examination, the nature of which is set by the student's Thesis Advisory Committee.

412 ELECTRONIC PROPERTIES OF MATERIALS .....	(3)
421 SOLIDIFICATION AND CASTING .....	(4)
425 FERROUS ALLOYS PROCESSING .....	(3)
426 NON-FERROUS ALLOYS PROCESSING .....	(3)
442 EXTRACTIVE METALLURGY .....	(3)
443 MINERALS BENEFICIATION .....	(3)
444 MINERALS BENEFICIATION LABORATORY .....	(1)
451 METALLURGICAL THERMODYNAMICS .....	(3)
505 VISCOELASTICITY .....	(3)
506 MECHANICS OF COMPOSITE MATERIALS .....	(3)
531 POWDER METALLURGY .....	(3)
532 COMPOSITE MATERIALS .....	(3)
534 PHYSICAL STRUCTURE OF POLYMERS .....	(3)
535 MECHANICAL METALLURGY .....	(3)

536 CERAMIC ENGINEERING .....	(3)
538 DEFORMATION PROCESSING .....	(3)
539 NUCLEAR METALLURGY .....	(3)
541 ADVANCED EXTRACTIVE METALLURGY .....	(3)
544 INTRODUCTION TO NONDESTRUCTIVE TESTING .....	(3)
550 CORROSION .....	(3)
551 ADVANCED CHEMICAL METALLURGY .....	(3)
552 POLYMERIC MATERIALS .....	(3)
553 THERMODYNAMICS OF POLYMER SYSTEMS .....	(3)
566 CRYSTALLOGRAPHY AND X-RAY METALLOGRAPHY .....	(4)
599 TOPICS IN METALLURGICAL ENGINEERING AND MATERIALS SCIENCE .....	(2-3)

**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.

632 ADVANCED MATERIALS SCIENCE .....	(3)
633 SPECIAL PURPOSE ALLOY STEELS .....	(3)
635 ADVANCED MECHANICAL METALLURGY .....	(3)
636 DISLOCATION THEORY .....	(3)
637 MATERIALS ENGINEERING .....	(3)
641 ADVANCED PRODUCTION METALLURGY .....	(3)
650 ADVANCED MATERIALS THERMODYNAMICS .....	(3)
659 ADVANCED PHASE DIAGRAMS .....	(3)
661 ADVANCED PHYSICAL METALLURGY I .....	(3)
662 ADVANCED PHYSICAL METALLURGY II .....	(3)
663 THEORETICAL STRUCTURAL METALLURGY .....	(3)
666 DIFFRACTION METHODS IN METALLURGY .....	(4)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
771 SEMINAR .....	(0)
781 SPECIAL PROBLEMS, LITERATURE AND LABORATORY .....	(1-3)
782 SPECIAL PROBLEMS, LITERATURE AND LABORATORY .....	(3)

## MICROBIOLOGY

**Graduate Faculty:** Professors M. I. H. Aleem, E. W. Chick, S. F. Conti (Director of Graduate Studies), D. Goldenberg, J. C. Humphries, H. E. Swim and R. F. Wiseman. Associate Professors N. L. Goodman, and D. O. Harris.

**Associate Members:** Associate Professors D. S. Bauman, Albert Brown, T. C. Gray, T. Lillich and T. L. Roszman. Assistant Professors B. H. Brownstein, R. Bridges, J. D. Clark, M. Crandall, A. D. Hitchins, J. A. Lesnaw, D. B. Shah, and C. D. Smith.

The graduate program in Microbiology offers the Master of Science and Ph.D. degree in the various fields of morphology and physiology of microorganisms, immunology and medical and public health microbiology. Areas of research specialization include Microbial Biochemistry and Bioenergetics, Virology, Ecology, Microbial Genetics, Taxonomy, Gnotobiotics (germ-free animal research), Microbial Ultrastructure and Medical Mycology.

Plan B is permitted. All graduate students including those under Plan B are required to engage in graduate-level research.

(See courses in Biology)

## SCHOOL OF MUSIC

**Graduate Faculty:** Professors Joe Buttram (Director and Director of Graduate Studies), Hubert Henderson, Donald Ivey, Rey M. Longyear, Wesley K. Morgan, Nathaniel Patch, Lucien Stark, Kenneth Wright. Associate Professors Joseph Baber, Frank Traficante.



**Associate Member:** Assistant Professors William Prizer, Cecilia Wang.

**Adjunct Professors:** Carl-Werner Guempel (UL), Gerhard Herz (UL), Robert McMahon.

The School of Music offers the Master of Arts (M.A.) in musicology or theory; Master of Music (M.M.) in performance, theory, composition, or music education; Doctor of Musical Arts (D.M.A.) in theory, music education, or performance; and the Doctor of Philosophy (Ph.D.) in musicology. The applicant for the master's degree is expected to have earned an appropriate undergraduate degree at the University of Kentucky or an equivalent degree from a comparable institution.

#### ENTRANCE REQUIREMENTS

Entrance examinations in theory, music history and literature, and the proposed field of specialization are required of all applicants for admission to graduate programs in music. Graduates of, or students currently enrolled at the University of Kentucky are not exempt from this requirement. Those seeking a degree in performance must audition as well. Entrance examinations and auditions are held three times each year for those wishing to enroll the following fall semester: the last Saturday of January, and the second Saturday of March and July. For those wishing to enroll in the spring semester, examinations and auditions will be held the second Saturday in November. **The Director of Graduate Studies must be notified at least four weeks in advance of the date chosen by the applicant.**

**Note:** Persons not applying for financial assistance may choose any of the above dates. Persons applying for Non-Service Fellowships must take the examinations (and the audition if applicable) on the last Saturday of January. Those applying for teaching assistantships may choose the last Saturday of January or the second Saturday of March. Those wishing to begin studies during a summer session must take the examinations no later than the second Saturday of March.

In cases of extreme hardship, arrangements may be made with the Director of Graduate Studies to take entrance examinations **in absentia** and to send audition tapes. (Does not apply to DMA candidates.)

#### General Requirements for Master's Degree

**Foreign Language Requirements.** The Master of Arts degree requires a reading knowledge of one foreign language, preferably French or German. Voice majors must have completed one year of study in each of **two** modern foreign languages.

**Thesis Requirements.** The Master of Arts degree requires a thesis (Plan A). A public recital acceptable to the faculty is required in lieu of a thesis for the Master of Music degree in Performance. A composition of major proportions, acceptable to the composition-theory faculty and

publicly performed, must be submitted in lieu of a thesis by candidates for the Master of Music degree in Composition. A thesis is optional (Plan A or Plan B) in the Master of Music in Music Education or Theory. Twenty-four hours are required with a thesis or 30 hours without a thesis.

A final comprehensive examination is required for each program.

#### MASTER OF ARTS (MUSIC)

**Prerequisites:** A suitable background in music literature and music theory, and a reading knowledge of one foreign language, normally French or German.

<b>Musicology Emphasis:</b>	<b>Crs.</b>
Music History and Literature .....	9-12
Theory (including MUS 671) .....	5-8
Research methods (MUS 618) .....	3
Directed electives .....	2-8
Thesis .....	0
	<hr/> 24

<b>Theory Emphasis:</b>	
Theory (including MUS 671 and MUS 672) .....	9-12
Music History and Literature .....	6-8
Research methods (MUS 618) .....	3
Directed electives .....	2-8
Thesis .....	0
	<hr/> 24

#### MASTER OF MUSIC (THEORY)

**Prerequisites:** Ten hours of upper division theory, including form and analysis and counterpoint, or the equivalent.

Theory (including MUS 578 or 671 and 672) .....	10
Research methods (MUS 618) .....	3
Music History and Literature .....	6
Pedagogy of Theory (674, 675) .....	4
Directed electives .....	1-7
Thesis (if desired) .....	0
	<hr/> 24-30

The student may either prepare a thesis or take six additional hours of Theory, Composition, or Music History and Literature courses for a total of 30 hours of course work.

#### MASTER OF MUSIC (COMPOSITION)

**Prerequisites:** Submission of three original compositions.

Advanced Composition (MUS 673) .....	4
Music History and Literature .....	6
Theory (including MUS 578 and/or 671) .....	8
Directed electives .....	6
Thesis composition .....	0
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	24

The thesis composition must be publicly performed. The student is responsible for the preparation of legible score and parts.

#### MASTER OF MUSIC (PERFORMANCE)

**Prerequisites:** Acceptance by the appropriate faculty of applied music.

Applied Music (including recital) .....	9
Music History and Literature .....	6
Theory (including MUS 578 or 671) .....	4
Theory (including Music 578 or 671) ....	4
Directed electives .....	11
Recital .....	0
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	30

This degree program is offered in the following 14 performance areas: piano, voice, organ, violin, viola, cello, flute, oboe, clarinet, trumpet, french horn, trombone, tuba, and harpsichord.

Wind and string majors must participate in at least one University-sponsored performing organization for two semesters. A minimum of three full semesters, excluding summer sessions, is necessary for an M.M. in Performance.

#### MASTER OF MUSIC (MUSIC EDUCATION)

##### Plan I\*

History and Philosophy of Music Education (MUS 751) .....	3
Supervision and Administration of School Music (MUS 750) .....	3
Music Education Electives .....	6
Applied Music (500 level) .....	6
Major .....	(3)
Performing electives .....	(3)
Research Methods (MUS 617) .....	3
Music History and Theory (including MUS 578 or 671) .....	6
Electives in Music or Education .....	3
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	30

##### Plan II\*

History and Philosophy of Music Education (MUS 751) .....	3
Supervision and Administration of	

School Music (MUS 750) .....	3
Music Education Electives .....	6
Applied Music (500 level) .....	3
Research Methods (MUS 617) .....	3
Theory (including MUS 578 or 671) ....	4
Music History and Literature .....	6
Electives .....	2
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##### Plan III\*

History and Philosophy of Music Education (MUS 751) .....	3
Supervision and Administration of School Music (MUS 750) .....	3
Music Education Electives .....	3
Applied Music (500 level) .....	3
Research Methods (MUS 617) .....	3
Music History and Theory (including MUS 578 or *71) .....	6
Electives .....	3
Thesis .....	0
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	24

\* Students planning to earn the doctorate in Music Education should elect Plan II or III.

Each full-time resident graduate student in music education must participate in a University-sponsored performing organization for two semesters.

#### The Doctor of Musical Arts Degree

The D.M.A. program offers opportunities for fullest professional development as a specialist or teacher in the following fields: Music Education, Theory, and Applied Music.

The applicant for this program should have had at least two years teaching experience. One foreign language, normally French or German, is required. The student must also demonstrate a working knowledge of music terms in French, German, and Italian by a special examination given prior to the qualifying examination.

One lecture-recital and two formal recitals are required for the D.M.A. degree with applied music as a major. The program content of these recitals will be established in cooperation with the student's special committee no later than by the end of the third semester of work leading toward this degree. One recital must precede the qualifying examinations.

The minimum core requirements for the D.M.A. beyond the bachelor's degree are as follows:



	Crs.
Music History and Literature .....	12
Music Theory .....	8
Research Methods:	
D.M.A. in Applied Music or Theory (MUS 618) .....	3
D.M.A. in Music Education (MUS 617, 618) .....	6
Minor outside department .....	9
Courses in area of special- ization .....	(at least) 15

The minor to be taken outside the School of Music is subject to the approval of the student's committee and the chairman of the department concerned.

The dissertation for the D.M.A. degree will be concerned with matters dealing with theory or theoretical subjects, and/or a pedagogical or historical orientation toward the area of the student's interest. The dissertation must be the result of original research and must add to, or modify what has been previously known on the subject. (See the dissertation requirements for the Doctor of Philosophy degree.)

### The Doctor of Philosophy Degree

The Doctor of philosophy is offered in historical musicology. This is a humanistic discipline drawing upon various research methods necessary to the discovery, correlation, appraisal, and exposition of music and musical criteria from any given stylistic era or eras. The musicologist must be skilled not only in research methods and techniques, but in the teaching and performance of music as well.

**Prerequisites for admission:** Every applicant must submit evidence of strong undergraduate preparation in music, including performance and music theory as well as in music history, and should have at the time of entrance a reading knowledge of at least one foreign language, preferably German. The applicant must also provide at least two letters of recommendation from members of the music faculty where the undergraduate or Master's level work was undertaken. The applicants must provide evidence of competence in research and writing. Those holding or earning a baccalaureate degree should present at least one term paper or the equivalent. Applicants with Master's degrees must submit the M.A. thesis. If the applicant has not completed a Master's degree including a thesis, a research

paper of acceptable scope and quality **plus** a major research project undertaken as part of work done at the University of Kentucky (or the University of Louisville) must be submitted. During the first year of residence as a doctoral student, the student must demonstrate acceptable keyboard proficiency and ability in solo or ensemble performance.

**Language requirements.** The basic foreign language requirements for the Ph.D. in musicology are German and either French or Italian. The basic requirements must be completed no later than the end of the first year of doctoral study. The student is also responsible for mastery of other languages (e.g., Latin, Spanish, Russian) if they are necessary for preparing the dissertation.

#### Course requirements:

Research Methods (MUS 618 at UK; MusH 569 at UL);

Renaissance Notation (MUS 701 at UK; MusH 583 C and D at UL).

Six hours of graduate level advanced analysis (MUS 671-72 at UK; Mus 647-648 and MusH 583 A, B, C, or D at UL);

A minimum of three seminars or special courses (MUS 702 or 718 at UK; MusH 670, 680, or 682 at UL);

An outside minor in a field related to musicology outside the School of Music. Normally this involves three courses. At the discretion of the student's special committee, the outside minor may be interdisciplinary. Active participation (performing, editing, or both) in Collegium Musicum for a minimum of two semesters is strongly recommended.

**Admission to doctoral candidacy:** The qualifying examination must be taken no later than one semester after the completion of course work.

A student is not a doctoral candidate in musicology until a reading knowledge of two modern foreign languages has been demonstrated and the qualifying examination has been passed.

#### MUSIC PERFORMANCE COURSES

All music performance courses may be repeated three times for credit.

All music performance courses carry from one to four credits during the fall and spring semesters. (Applied music offerings during the summer are limited.)

Piano .....	501,601
Voice .....	502,602

Organ .....	503,603
Violin .....	504,604
Viola .....	505,605
Cello .....	506,606
String Bass .....	507,607
Flute .....	508,608
Oboe .....	509,609
Clarinet .....	510,610
Bassoon .....	511,611
Trumpet .....	512,612
French Horn .....	513,613
Trombone .....	514,614
Baritone .....	515,615
Tuba .....	516,616
Saxophone .....	517,617
Percussion .....	518,618
Harp .....	519,619
Harpsichord .....	520,620
Viol .....	521,621
Historical Instruments .....	522,622

570 ADVANCED CHAMBER MUSIC ENSEMBLE .....	(1)
596 OPERA WORKSHOP .....	(1-3)
500 MUSIC OF THE MIDDLE AGES .....	(3)
501 MUSIC OF THE RENAISSANCE .....	(3)
502 MUSIC OF THE BAROQUE ERA .....	(3)
503 MUSIC OF THE CLASSIC PERIOD .....	(3)
504 MUSIC OF THE 19TH CENTURY .....	(3)
505 MUSIC OF THE 20TH CENTURY .....	(3)
506 HISTORY OF AMERICAN MUSIC .....	(3)
507 VENETIAN MUSIC OF THE RENAISSANCE .....	(3)
508 VENETIAN MUSIC OF THE BAROQUE .....	(3)
520 VOCAL SOLO LITERATURE .....	(3)
521 ORGAN LITERATURE .....	(3)
522 PIANO LITERATURE .....	(3)
524 STRING LITERATURE .....	(3)
530 COLLEGIUM MUSICUM .....	(1-3)
561 CURRENT PRACTICES IN ELEMENTARY AND SECONDARY SCHOOL MUSIC .....	(2)
565 VOCAL PEDAGOGY .....	(2)
568 GENERAL MUSIC IN THE SECONDARY SCHOOL .....	(2)
570 ORCHESTRATION .....	(2)
571 ORCHESTRATION .....	(2)
572 COUNTERPOINT .....	(2)
573 COUNTERPOINT .....	(2)
574 COMPOSITION .....	(2)
575 COMPOSITION .....	(2)
578 ANALYTICAL TECHNIQUES .....	(2)
601 HISTORY OF PERFORMANCE PRACTICES .....	(3)
617 RESEARCH METHODS .....	(3)
618 RESEARCH METHODS .....	(3)
620 ADVANCED GERMAN VOCAL LITERATURE .....	(3)
621 ADVANCED VOCAL LITERATURE .....	(3)
622 SYMPHONIC LITERATURE .....	(3)
623 OPERA LITERATURE .....	(3)
624 CHAMBER MUSIC LITERATURE .....	(3)
625 CHORAL LITERATURE .....	(3)
650 MUSIC EDUCATION WORKSHOP .....	(1-4)
671 ADVANCED MUSICAL ANALYSIS .....	(3)
672 ADVANCED MUSICAL ANALYSIS .....	(3)
673 ADVANCED COMPOSITION .....	(2)
674 PEDAGOGY OF THEORY .....	(2)
675 PEDAGOGY OF THEORY .....	(2)
677 CONTEMPORARY MUSIC IDIOMS .....	(3)
700 MEDIEVAL NOTATION .....	(3)
701 RENAISSANCE NOTATION .....	(3)
702 SEMINAR IN MUSICOLOGY .....	(3)
703 STUDIES IN MUSIC HISTORY .....	(2)
718 DOCTORAL SEMINAR .....	(3)
719 INDEPENDENT WORK IN MUSICOLOGY .....	(1-3)
750 ADMINISTRATION AND SUPERVISION OF PUBLIC SCHOOL MUSIC .....	(3)
751 HISTORY AND PHILOSOPHY OF MUSIC EDUCATION .....	(3)
762 MUSIC IN HIGHER EDUCATION .....	(3)
766 SEMINAR IN MUSIC EDUCATION .....	(3)
767 INDEPENDENT WORK IN MUSIC EDUCATION .....	(1-3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)

769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
770 PSYCHOLOGY OF MUSIC .....	(3)
799 INDEPENDENT WORK IN MUSIC THEORY .....	(1-3)

## NURSING

**Graduate Faculty:** Professors Loretta Denman, Juanita Fleming (Assistant Dean, Director of Graduate Studies), Jean Hayter, Marion McKenna (Dean). Associate Professors Elizabeth Bear, Frances Thomas.

**Associate Members:** Professors Virginia Lane, Betty Rudnick. Associate Professors Claudine Gartner, Melya Jo Hendrix, Beth Hicks, Dorothy Luthur. Assistant Professor Marlys Moeckly.

Master of Science in Nursing requires a minimum of 34 credit hours for both Plan A or Plan B. Independent work in nursing for credit may be arranged through individual student-teacher determination in some instances. Basic requirements include a minimum of 10 hours in advanced clinical nursing, a systematic inquiry in nursing course, the first course in Clinical Teaching and Supervision in Nursing, and Concepts and Theories in Nursing Course. In addition, each student will be expected to pass a final examination and to complete a clinical study.

The objective of the nursing program is to prepare students for clinical, administrative and/or academic leadership positions in nursing. The clinical component is the major focus of the graduate curriculum and constitutes the core of knowledge for nursing at the master's level. The functional component differs depending on the career goal of the individual, and may consist of preparation for teaching, administration, scientific investigation or the clinical nurse specialist role. Currently the clinical concentrations offered include medical-surgical nursing, nurse-midwifery, pediatric nursing and psychiatric-mental health nursing.

All students are required to take a minimum of 20 credits in nursing courses including core courses. Increasing opportunity will be given students to study the application of core content to a particular field of interest, and to further define the nursing content unique to that field. Faculty have diverse clinical backgrounds which will enable this type of exploration to take place. Nursing will be studied in all its settings: school, community and all types of health agencies. Involvement of the student in the educational program will be facilitated by encouraging and guiding students in pursuit of areas in which they have special interest. Elective courses in nursing are available.

The general University requirements for admission to The Graduate School will apply. Ap-



plicants to the Master's program of the College of Nursing will be expected to take the aptitude portion of the Graduate Record Examination prior to acceptance in the program.

The minimal acceptable score on the GRE is 800. The minimal grade-point average is 2.5. Graduation from a National League for Nursing accredited baccalaureate degree program and current nurse licensure are required. Graduate students selecting the nurse-mid-wifery concentration are required to have two years of relevant experience in nursing prior to admission. Enrollment is limited; therefore, all students will be selected on the basis of over-all qualification. Eligibility for admission to The Graduate School does not insure admission to the nursing program. Personal interviews will be arranged for each applicant.

For further information contact the Director of Graduate Studies.

543 GERONTOLOGIC NURSING .....	(3)
554 IDENTIFICATION AND MANAGEMENT OF COMMON HEALTH PROBLEMS .....	(3)
558 FAMILY ASSESSMENT, HEALTH TEACHING, AND CLINICAL COUNSELING IN NURSING .....	(2)
560 NURSING MANAGEMENT OF EXCEPTIONAL CHILDREN .....	(3)
610 CONCEPTS AND THEORIES IN NURSING* .....	(3)
612 SYSTEMATIC INQUIRY IN NURSING .....	(3)
614 PRACTICUM IN CLINICAL NURSING I .....	(2-4)
615 PRACTICUM IN CLINICAL NURSING II .....	(2-4)
616 PRACTICUM IN CLINICAL NURSING III .....	(2-4)
620 PROBLEMS IN CLINICAL NURSING .....	(2-6)
622 NURSING ADMINISTRATION .....	(3)
623 PRACTICUM IN CLINICAL TEACHING OR SUPERVISION IN NURSING .....	(1-4)
624 CLINICAL TEACHING AND SUPERVISION IN NURSING I .....	(1)
625 CLINICAL TEACHING AND SUPERVISION IN NURSING II .....	(1)
626 CLINICAL TEACHING AND SUPERVISION IN NURSING III .....	(1)
630 CLINICAL NURSING II .....	(6)
650 PHYSICAL AND HEALTH ASSESSMENT .....	(4-6)
660 BASIC NURSE-MIDWIFERY I** .....	(6)
662 FAMILY NURSE CLINICAL PRACTICUM I .....	(4-6)
670 BASIC NURSE-MIDWIFERY II** .....	(6-9)
672 FAMILY NURSE CLINICAL PRACTICUM II .....	(4)
682 FAMILY NURSE INTERNSHIP .....	(6)
768 RESIDENCE CREDIT FOR MASTER'S DEGREE .....	(1-6)
770 SEMINAR IN CLINICAL NURSING I .....	(2)
771 SEMINAR IN CLINICAL NURSING II .....	(2)
772 SEMINAR IN PRIMARY/AMBULATORY CARE .....	(2)
781 INDEPENDENT STUDY IN NURSING .....	(1-3)

\* Required of all students.

\*\* Required of all midwifery students.

## NUTRITION AND FOOD SCIENCE

**Graduate Faculty:** Professors Abby Marlatt (Director of Graduate Studies), Donald Oberlegs, Leonard Packett. Associate Professors Linda H. Chen and Jose Concon.

**Associate Members:** Associate Extension Professor Fudeko T. Maruyama. Assistant Professor Ralph Lane.

Graduate majors in Nutrition, Food Science and Dietetics lead to the degree of Master of Science in Home Economics. For more information see Home Economics.

503 COMMUNITY NUTRITION .....	(3)
505 EXPERIMENTAL FOODS .....	(3)
507 WORKSHOP IN APPLIED NUTRITION .....	(2)
508 SEMINAR IN NUTRITION .....	(1)
512 NORMAL AND THERAPEUTIC NUTRITION .....	(5)
514 FOOD PRESERVATION .....	(3)
516 FOOD FOR CHILDREN .....	(3)
517 FOOD FOR SPECIAL OCCASIONS .....	(3)
540 THE SCHOOL LUNCH .....	(3)
542 INSTITUTION EQUIPMENT .....	(3)
546 INSTITUTION ORGANIZATION AND MANAGEMENT ..	(3)
548 INSTITUTION ADMINISTRATION .....	(3)
560 FOOD AND THE CONSUMER .....	(3)
590 FIELD WORK IN NUTRITION .....	(1)
591 SPECIAL PROBLEMS IN FOODS AND NUTRITION ..	(1-3)
594 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT .....	(1-3)
603 ADVANCED COMMUNITY NUTRITION .....	(3)
610 HUMAN NUTRITION I .....	(4)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
771 SEMINAR IN NUTRITION .....	(2)
781 SPECIAL PROBLEMS IN FOODS AND NUTRITION ..	(1-3)
784 SPECIAL PROBLEMS IN INSTITUTION MANAGEMENT .....	(1-3)

## PATHOLOGY

**Graduate Faculty:** Professors David Goldenberg, Jesse Siskin and Daniel Weiss.

While there is as yet no graduate program in pathology the Department offers two courses which are open to qualified graduate students. The permission of the department chairman is required prior to enrollment.

421 FUNDAMENTAL HUMAN PATHOLOGY .....	(4)
422 SYSTEMIC HUMAN PATHOLOGY .....	(7)

## PHARMACEUTICAL SCIENCES

**Graduate Faculty:** Professors Norman Billups, Patrick DeLuca, George Digenis, Lewis Dittert, Harry Kostenbauder (Director of Graduate Studies), Charles Lesschafft, Harry Smith, Joseph Swintosky (Dean). Associate Professors Louis Diamond, Anwar Hussain, Milton Kornet, Mark Luckens.

**Associate Members:** Assistant Professors Joyce Garrett, Laurence Hurley, William Lubawy, James Munson.

The College of Pharmacy offers M.S. and Ph.D. programs in Pharmaceutical Sciences, with concentration in areas of pharmaceuticals and pharmaceutical chemistry such as physical pharmacy, pharmaceutical technology, biopharmaceutics and pharmacokinetics, pharmaceutical analysis, radiopharmacy, medicinal chemistry and natural products chemistry.

The M.S. degree is offered under a modification of Plan A which permits a student to take approximately one-half of his/her course in work areas outside the major area. Plan B may be employed only in exceptional cases.

The language requirement for both the M.S. and Ph.D. degrees is a reading knowledge of one foreign language chosen from French, German, or Russian.

Subject to some substitution at the recommendation of the candidate's committee, courses considered basic to the Ph.D. program are CHE

440, 532, 533, 538, 548, 633, MA 481, STA 670, PHA 521. Superimposed upon this base it is expected that the student will take graduate level courses within his/her major area of interest from the courses listed in Pharmacy.

For regular admission to graduate study in Pharmaceutical Sciences a student should have a sound background in pharmacy, chemistry, and biology, with a mastery of mathematics through calculus. Applicants lacking basic requirements in these areas will be required to make up such deficiencies by taking undergraduate courses for non-graduate credit.

400	BIOCHEMISTRY .....	(4)
404	CHEMISTRY OF MEDICINAL PRODUCTS .....	(3)
406	CHEMISTRY OF MEDICINAL PRODUCTS .....	(3)
450	PHARMACOLOGY AND TOXICOLOGY .....	(5)
462	PHARMACOLOGY AND TOXICOLOGY .....	(5)
474	INDEPENDENT PROBLEMS IN TOXICOLOGY .....	(1-3)
475	INDEPENDENT PROBLEMS IN PHARMACOGNOSY ..	(1-3)
476	INDEPENDENT PROBLEMS IN PHARMACOLOGY ....	(1-3)
510	MODERN METHODS IN PHARMACEUTICAL ANALYSIS .....	(5)
540	INDUSTRIAL PHARMACEUTICAL TECHNOLOGY .....	(4)
545	STERILE PARENTERALS AND DEVICES .....	(2-3)
612	QUANTITATIVE PHARMACODYNAMICS PHARMACOKINETICS .....	(2)
620	NATURAL PRODUCTS CHEMISTRY .....	(3)
622	ADVANCED BIOPHARMACEUTICS .....	(2)
624	BIOTOXICOLOGY .....	(3 or 5)
630	PHARMACEUTICAL RATE PROCESSES .....	(3)
631	EQUILIBRIUM PHENOMENA IN PHARMACEUTICAL SYSTEMS .....	(3)
632	PHARMACEUTICAL DISPERSE SYSTEMS .....	(3)
640	ADVANCED PHARMACEUTICAL CHEMISTRY I .....	(3)
642	ADVANCED PHARMACEUTICAL CHEMISTRY II .....	(3)
760	TOPICS IN PHARMACEUTICAL SCIENCES .....	(2-4)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)
776	SEMINAR IN PHARMACEUTICAL SCIENCES I .....	(1)
778	SEMINAR IN PHARMACEUTICAL SCIENCES II .....	(1)
780	SPECIAL PROBLEMS IN PHARMACEUTICAL SCIENCES .....	(1-6)
790	RESEARCH IN PHARMACEUTICAL SCIENCES .....	(1-12)

## PHARMACOLOGY

**Graduate Faculty:** Professors T. Z. Csaky, Donald Diedrich, Leonard Gettes, H. A. Gordon, \*K. C. Huang, William Martin (Chairman), Douglas Rees, \*T. G. Scharff, Abraham Wilker. Associate Professor James Fleisher (Director of Graduate Studies).

**Associate Members:** Assistant Professors John Dougherty, Donald Jasinski, Ralph Miller.

\* Joint appointment with University of Louisville.

The Department of Pharmacology offers M.S. and Ph.D. degrees in Pharmacology.

Pharmacology is the study of the actions of drugs upon living matter. Pharmacologists in modern society find careers as teachers in academic professions, as scientists engaged in research of problems related to pharmacology, and in developing new drugs along with evaluating drugs for their potential efficacy, toxicity, side effects, etc.

Graduates from accredited colleges with bachelor degrees in the biological sciences, in chemistry, physics or pharmacy or with professional degrees in medicine, dentistry, veterinary medi-

cine or pharmacy are eligible for candidacy for graduate degrees in pharmacology. It is advisable that the candidates obtain a good basic training in mathematics, physics, chemistry and biological sciences. The Ph.D. program involves extensive research work under the supervision of appropriate staff scientists. At the present, special training can be obtained in fundamental pharmacodynamics, in neuropharmacology, psychopharmacology, and in gnotobiotic biology.

There is also a combined M.D./M.S. (in pharmacology) program available.

Only one modern foreign language is required for the Ph.D. degree in Pharmacology.

Inquiries concerning the details of the program as well as possible financial support for graduate students should be addressed to the Chairman of the Department of Pharmacology.

There is available a joint program in Pharmacology between the University of Kentucky and the University of Louisville. Inquiries relative to this program should be directed to the Department of Pharmacology.

521	GENERAL PHARMACODYNAMICS AND TOXICODYNAMICS .....	(2)
522	SYSTEM PHARMACOLOGY .....	(3)
541	BIOLOGICAL ASSAY .....	(4)
558	NEUROPHARMACOLOGY .....	(2)
560	WHOLE BODY AUTORADIOGRAPHY .....	(2)
590	GNOTOBIOTIC METHODOLOGY .....	(2)
601	PRINCIPLES OF MEDICAL PHARMACOLOGY* .....	(5)
612	QUANTITATIVE PHARMACODYNAMICS PHARMACOKINETICS .....	(2)
616	ADVANCED PHARMACOLOGY* .....	(4)
621	ADVANCED PHARMACODYNAMICS .....	(4)
622	PHARMACOLOGY OF ORGANS AND SYSTEMS .....	(2)
632	PRINCIPLES OF PHARMACOLOGY, LABORATORY .....	(2)
634	PHARMACOLOGY OF CARDIOVASCULAR DRUG THERAPY .....	(3)
641	BIOASSAY WITH HUMAN SUBJECTS .....	(2)
645	PHYSIOLOGY AND PHARMACOLOGY OF BIOLOGICAL MEMBRANES AND TRANSPORT .....	(1)
650	HOST-CONTAMINANT RELATIONSHIPS .....	(2)
658	ADVANCED NEUROPHARMACOLOGY .....	(4)
660	PHARMACOLOGY OF STEROIDS .....	(4)
663	PHYSICAL AND CHEMICAL DISPOSITION OF DRUGS ..	(2)
664	ADVANCED MOLECULAR PHARMACOLOGY .....	(2)
666	HUMAN PHARMACOLOGY .....	(3)
670	CLINICAL PSYCHOPHARMACOLOGY .....	(2)
671	INTEGRATIVE PSYCHOPHARMACOLOGY .....	(2)
672	BEHAVIORAL PHARMACOLOGY AND TOXICOLOGY ..	(2)
750	RESEARCH IN PHARMACOLOGY .....	(1-5)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
770	SEMINAR IN PHARMACOLOGY .....	(1)

\* Will be taught, in most part, on the University of Louisville campus.

## PHILOSOPHY

**Graduate Faculty:** Professors Michael Bayles, Jesse DeBoer, Dallas High (Chairman). Associate Professors Ronald Bruzina, Thomas Olshewsky (Director of Graduate Studies), Alan Perreiah.

**Associate Members:** Assistant Professors Daniel Breazeale, Kenneth Henley, James Manns.

The Department of Philosophy offers courses of study leading to a Master of Arts degree under both Plan A and Plan B. The department admits



students who wish to terminate their philosophical study at the M.A. level as well as those who view it as preparatory to pursuit of the Ph.D. (At present the department does not offer this degree.) The department does not require an undergraduate major in philosophy as a prerequisite to the graduate program; indeed, it is interested in students with a broad background in other disciplines. However, remedy for deficient background in history of philosophy and logic must be undertaken upon entrance to the program.

A reading knowledge of one foreign language is required for the master's degree.

418	EXISTENTIALISM .....	(3)
440	GREAT RELIGIONS .....	(3)
518	REPRESENTATIONS OF NATURE .....	(3)
520	INTERMEDIATE LOGIC .....	(3)

#### GROUP A

504	TOPICS IN THE HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY .....	(3)
509	TOPICS IN THE HISTORY OF MODERN PHILOSOPHY .....	(3)
513	NINETEENTH CENTURY PHILOSOPHY .....	(3)
514	AMERICAN PHILOSOPHY .....	(3)
515	CONTEMPORARY ANALYTIC PHILOSOPHY .....	(3)
516	PHENOMENOLOGY .....	(3)

#### GROUP B

530	ETHICAL THEORY .....	(3)
535	SOCIAL AND POLITICAL PHILOSOPHY .....	(3)
537	PHILOSOPHY OF LAW .....	(3)
545	PHILOSOPHY OF RELIGION .....	(3)
592	AESTHETICS .....	(3)

#### GROUP C

550	METAPHYSICS .....	(3)
555	EPISTEMOLOGY .....	(3)
560	PHILOSOPHY OF SCIENCE .....	(3)
562	PHILOSOPHY OF THE SOCIAL SCIENCES .....	(3)
565	PHILOSOPHY OF LANGUAGE .....	(3)
570	PHILOSOPHY OF HISTORY .....	(3)
575	PHILOSOPHY OF MIND .....	(3)

#### GRADUATE SEMINARS

625	ADVANCED LOGIC .....	(3)
680	SPECIAL TOPICS IN PHILOSOPHY .....	(3)
700	SEMINAR IN ANCIENT PHILOSOPHY .....	(3)
705	SEMINAR IN MEDIEVAL PHILOSOPHY .....	(3)
710	SEMINAR IN MODERN PHILOSOPHY .....	(3)
715	SEMINAR IN RECENT PHILOSOPHY .....	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
790	RESEARCH IN PHILOSOPHY .....	(3)

## PHYSICS AND ASTRONOMY

**Graduate Faculty:** Professors Lewis Cochran, Wendell DeMarcus, Fletcher Gabbard (Chairman and Director of Graduate Studies), Ben Gossick, Richard Hanau, George Hurst (Adjunct), Bernard Kern, Wasley Krogdahl, Guy Lehman, Marcus McEllistram, Clastine Van Winter, Jesse Weil. Associate Professors Jerry Brandenberger, John Christopher, Marcel Coz, Alan MacKellar, Robert Knight, Rudolph Schriels, Robert Stokes.

The Department of Physics and Astronomy offers courses and research options leading to the Ph.D. degree in the special areas of astronomy and astrophysics, atomic and molecular physics, nuclear physics, and solid-state and condensed matter physics, and leading to the M.S. degree in these areas and also in the special area of optics. Excellent laboratory facilities and library materials are available. A major experi-

mental facility is the six-million volt Van de Graaff accelerator. More detailed descriptions of each of these options will be sent on request.

Plan A or Plan B may be used to satisfy the requirements for the M.S. degree.

The M.S. program emphasizes applied physics and students are encouraged to take courses in related areas such as engineering and biology when such courses fill a need in their academic objectives.

Candidates for the M.S. degree must demonstrate that they have had the equivalent of four semesters of college level work in one modern foreign language.

The Ph.D. degree is a research degree granted on the basis of broad knowledge of physics and in-depth study in a specific area leading to a thesis reflecting original work by the doctoral candidate. A comprehensive examination is given to all students and a passing score on this examination admits a student to candidacy for the Ph.D. degree.

To be admitted to candidacy for the Ph.D. degree, a student must demonstrate a reading knowledge in one foreign language and present evidence that he/she has passed the equivalent of four college semesters of work in a second foreign language. Students without previous work in foreign language must pass a proficiency examination in two foreign languages or demonstrate fluency in one language. French, German, or Russian are acceptable languages; others may be used by special permission.

Candidates for Doctoral degrees may perform their thesis research work at the Lexington Campus of the University of Kentucky or arrangements may be made to do this work at other institutions or laboratories such as the Oak Ridge National Laboratory, the National Astronomical Radio Observatory or other places by special arrangement. A wide range of facilities is available in the fields of astronomy and astrophysics, atomic and molecular physics, nuclear physics, and solid state and condensed matter physics. Theoretical work is being pursued in all of these areas.

#### Physics

400	SPECIAL TOPICS IN PHYSICS AND ASTRONOMY ..	(1-3)
401	SPECIAL TOPICS IN PHYSICS AND ASTRONOMY FOR ELEMENTARY AND HIGH SCHOOL TEACHERS ..	(2-4)
402	ELEMENTARY ELECTRONICS AND MEASUREMENTS FOR SCIENTISTS .....	(3)
404	MECHANICS .....	(3)
416	ELECTRICITY AND MAGNETISM .....	(3)
417	ELECTRICITY AND MAGNETISM .....	(3)
472	INTERACTION OF RADIATION WITH MATTER .....	(3)
504	ADVANCED MECHANICS .....	(3)

508 OPTICS .....	(3)
510 SPECTROSCOPY .....	(3)
512 EXPERIMENTAL PHYSICS: ELECTRICITY AND MAGNETISM .....	(2)
514 ELECTRONICS .....	(3)
520 INTRODUCTION TO QUANTUM MECHANICS .....	(3)
522 HEAT AND THERMODYNAMICS .....	(3)
524, 525 SOLID STATE PHYSICS .....	(3 ea.)
530 EXPERIMENTAL PHYSICS: SPECTROSCOPY .....	(2)
535 EXPERIMENTAL PHYSICS: ATOMIC AND NUCLEAR ..	(2)
538 EXPERIMENTAL PHYSICS: LIGHT .....	(2)
545 RADIATION HAZARDS AND PROTECTION .....	(2)
546 GENERAL MEDICAL RADIOLOGICAL PHYSICS .....	(2)
547 MEDICAL RADIATION IMAGING-I, PHYSICAL ASPECTS OF DIAGNOSTIC RADIOLOGY .....	(2)
548 THE PHYSICS OF RADIATION THERAPY .....	(2)
549 THE PHYSICS AND INSTRUMENTATION OF NUCLEAR MEDICINE .....	(3)
554 FUNDAMENTAL ATOMIC PHYSICS .....	(3)
555 FUNDAMENTAL NUCLEAR PHYSICS .....	(3)
567 INTRODUCTION TO LASERS AND MASERS .....	(3)
600 SELECTED TOPICS IN ADVANCED PHYSICS .....	(2-3)
604 CLASSICAL MECHANICS .....	(3)
611 ELECTROMAGNETIC THEORY I .....	(3)
613 ELECTROMAGNETIC THEORY II .....	(3)
624, 625 THEORY OF THE SOLID STATE .....	(3 ea.)
629 NUCLEAR PHYSICS I .....	(3)
630 NUCLEAR PHYSICS II .....	(3)
631 ATOMIC STRUCTURE .....	(3)
632 STATISTICAL MECHANICS .....	(3)
639, 640 THEORETICAL ASTROPHYSICS .....	(3 ea.)
650 THEORY OF RELATIVITY .....	(3)
652 THEORY OF ELEMENTARY PARTICLES .....	(3)
682 ELECTRIC PHENOMENA IN GASES .....	(3)
706 METHODS OF MATHEMATICAL PHYSICS .....	(3)
714 QUANTUM MECHANICS I .....	(3)
715 QUANTUM MECHANICS II .....	(3)
716 ADVANCED QUANTUM MECHANICS .....	(3)
755 TOPICS IN CHEMICAL PHYSICS (Subtitle required) ..	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
770 COLLOQUIUM .....	(1)
781 INDEPENDENT WORK IN PHYSICS .....	(3)
790 RESEARCH IN PHYSICS .....	(3)
791 RESEARCH IN PHYSICS .....	(5)

#### Astronomy

400 SPECIAL TOPICS IN PHYSICS AND ASTRONOMY ....	(1-3)
492 GALACTIC ASTRONOMY II .....	(3)
495 ELEMENTARY ASTROPHYSICS I .....	(3)
496 ELEMENTARY ASTROPHYSICS II .....	(3)
591 COSMOLOGY I .....	(3)
592 COSMOLOGY II .....	(3)

## PHYSIOLOGY AND BIOPHYSICS

**Graduate Faculty:** Professors James Archdeacon, Louis Boyarsky, Joseph Engelberg, Donald Frazier, Ward Griffen, Henry Hirsch, Jesse Siskin, Miroslava B. Winer, Fred Zechman (Chairman). Associate Professors, Eugene Crawford, Bertram Peretaz, Daniel Richardson (Director of Graduate Studies), Gerald I. Roth, P. A. Thornton, David R. Wekstein, James Zolman.

**Associate Members:** Assistant Professors David Lally, Cobeen E. Ott, David C. Randall.

The graduate program, which offers both the M.S. and Ph.D. degrees is designed to educate and train students to be competent research scientists and teachers of physiology and biophysics. The specific objectives are to provide students with: (1) an environment which promotes independent development and habits of lifelong scholarship, (2) a broad base of knowledge of the principles of molecular, cellular and organ-system physiology and biophysics, (3) the capacity to carry out independent research in an area of physiology or biophysics and, (4) experience and training in the teaching of physiology and biophysics.

To fulfill these objectives the program combines formal course work, independent reading, interaction with scholars at the tutorial level, and independent research including a dissertation.

Admission to the graduate program is competitive and is based upon academic background, professional recommendations, performance on the Graduate Record Examination, experience, and when possible, personal interviews. In general, one year of biology and physics, two years of chemistry, and mathematics through calculus are required. A course in statistics is strongly recommended.

In conjunction with the Colleges of Medicine and Dentistry the Department will consider for admission those qualified students who wish to pursue a combined professional and graduate program. In addition, special programs may be developed in biophysics and biomedical engineering.

Inquiries should be addressed to the Director of Graduate Studies.

502 PRINCIPLES OF PHYSIOLOGY .....	(4)
503 EXPERIMENTAL METHODS .....	(2)
504 INDEPENDENT WORK IN PHYSIOLOGY .....	(2-4)
507 INTRODUCTION TO ENDOCRINOLOGY .....	(3)
511 MEDICAL PHYSIOLOGY .....	(7)
512 CELLULAR PHYSIOLOGY .....	(3)
520 THEORETICAL BIOPHYSICS .....	(3)
522 MATHEMATICAL BIOPHYSICS .....	(3)
549 COMPARATIVE ENDOCRINOLOGY .....	(3)
602 PHYSIOLOGICAL INSTRUMENTATION I .....	(3)
603 PHYSIOLOGICAL INSTRUMENTATION II .....	(3)
606 ADVANCED NEUROPHYSIOLOGY .....	(3)
627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY .....	(2)
630 ADVANCED TOPICS IN PHYSIOLOGY AND BIOPHYSICS .....	(1-3)
660 SYSTEMS PHYSIOLOGY .....	(3)
767 SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
771 PROSEMINAR IN CELL PHYSIOLOGY AND BIOPHYSICS .....	(2)
772 PROSEMINAR IN MAMMALIAN PHYSIOLOGY .....	(2)
774 GRADUATE SEMINAR IN PHYSIOLOGY .....	(1)
791 RESEARCH IN PHYSIOLOGY .....	(1-15)

## PLANT PATHOLOGY

**Graduate Faculty:** Professors R. A. Chapman, Stephen Diachun (Chairman and Director of Graduate Studies), J. W. Hendrix, Joseph Kuc, T. P. Pirone, John G. Shaw, M. R. Siegel, G. W. Stokes, H. Wheeler. Associate Professors Said Ghabrial, Louis Shain, S. J. Sheen.

The department offers work leading to the M.S., M.S. in Agriculture, and Ph.D. degrees. For the Ph.D. degree individual programs of study must conform with the requirements established by The Graduate School; proficiency in one foreign language is required; a minor is not required.

410 FOREST PATHOLOGY .....	(3)
503 PLANT BIOCHEMISTRY .....	(2)
543 DISEASES OF PLANTS .....	(3)
545 EPIDEMIOLOGY AND CONTROL OF PLANT DISEASES .....	(3)
558 NEMATODE DISEASES OF PLANTS .....	(3)



575 PLANT PATHOLOGY .....	(3)
640 IDENTIFICATION OF PLANT DISEASES .....	(3)
652 PLANT PATHOGENIC FUNGI .....	(3)
656 VIRUS DISEASES OF PLANTS .....	(4)
680 PHYSIOLOGY OF PLANT DISEASES .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE. (IN BIOLOGICAL SCIENCES) .....	(0-12)
770 PLANT PATHOLOGY SEMINAR .....	(1)
784 SPECIAL PROBLEMS IN PLANT PATHOLOGY .....	(1-3)
794 RESEARCH IN PLANT PATHOLOGY .....	(1-4)

## PLANT PHYSIOLOGY

**Director of Graduate Program**—James Leggett.

**Graduate Faculty:** Professors L. P. Bush, G. Cheniae, A. J. Hiatt, M. J. Kasperbauer, J. Kuc, J. E. Leggett, R. G. Lockhard, H. E. Wheeler. Associate Professors D. L. Davis, T. R. Kemp, R. H. Lowe, Gerald Rosenthal.

The University-wide, interdepartmental graduate program in Plant Physiology offers a plan of study leading to the Master of Science and Doctor of Philosophy degree. The aim of this program is to aid students in developing a high degree of excellence in plant physiology. Students in plant physiology will acquire academic backgrounds embracing basic areas of biology, chemistry, physics, and mathematics. These courses provide the foundation for delving into various areas of plant physiology.

Faculty members of the program are plant physiologists from the Thomas Hunt Morgan School of Biological Science in the College of Arts and Sciences and the Departments of Agronomy, Forestry Horticulture, and Plant Pathology in the College of Agriculture. Areas of research pursued by the faculty members include plant growth and development, senescence, physiology of crop yield, metabolism and synthesis of alkaloids and steroids, photoperiodic responses, mineral nutrition, membrane ultrastructure, dwarfing mechanisms, propagation, the mechanism of action and metabolic fate of fungicides and herbicides.

Course offerings in plant physiology are co-listed under the Thomas Hunt Morgan School of Biological Science and Departments of Agronomy, Horticulture, and Plant Pathology. Plant Physiology utilizes courses in the Departments of Biochemistry, Chemistry, Mathematics, and Statistics as supporting courses to suit the needs and interests of the individual student.

A program leading to the Doctor of Philosophy degree must conform to the general rules and regulations of the Graduate School. Reading proficiency in one foreign language is required, usually German, Russian, or French. A formal minor is not required. Contact the Director, N122N, Agricultural Science Center-North for additional information.

501 (BOT) PLANT PHYSIOLOGY .....	(3-5)
630 (AGR, BIO) EXPERIMENTAL TECHNIQUES IN PLANT PHYSIOLOGY .....	(3)
660 (PPA) PHYSIOLOGY OF PLANT DISEASE .....	(3)
701 (BOT) PLANT METABOLISM .....	(3)
732 (AGR, BOT, HOR) MINERAL NUTRITION OF PLANTS .....	(3)
734 (AGR, BOT, HOR) PHYSIOLOGY OF GROWTH AND DEVELOPMENT .....	(3)
769 (BIO) RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0)
771 (BIO) SEMINAR IN PLANT PHYSIOLOGY .....	(1)

## POLITICAL SCIENCE

**Graduate Faculty:** Professors Vincent Davis, Dean Jaros (Director of Graduate Studies), Malcolm Jewell, Sidney Ulmer. Associate Professors Michael L. Baer, Bradley Canon (Chairman), Kenneth Coleman, Maurice East, George Gadbois, William Lyons, Herbert Reid, Kenneth Vanlandingham, John Wanat and Ernest Yanarella.

**Associate Members:** Assistant Professors, John Patterson, Phillip Roeder.

Candidates for admission to the graduate program in political science must provide the information required by The Graduate School and must also submit at least two letters of recommendation from persons familiar with the applicant's academic performance. Students who do not have political science undergraduate majors are welcome in this program.

The Political Science Department offers both the M.A. and Ph.D. degrees. The M.A. degree may be earned under either of two plans: Plan A requires at least 24 hours of course work and a thesis; Plan B requires at least 30 semester hours of course work and an examination in three fields of political science, or in two fields of political science and one outside field. Under either plan, the student must take at least two-thirds of the required semester hours in political science, and at least half of the political science work must be in courses open only to graduate students. A candidate for a master's degree has the option of passing a foreign language requirement or demonstrating his/her analytical skills in a formal paper.

The Ph.D. program is divided into a general phase and a specialized phase. Entering students spend their first year in the general phase, which includes proseminars in methodology and in at least four major fields of political science. (Students who have previously taken graduate work may be exempt from some of these proseminars.) At the end of his/her first year of graduate work, the student is evaluated by a departmental committee and may be required to do further work and take examinations in one or more of these fields.

During the specialized phase of his/her graduate program, the student's work is based on a program that he/she prepares with his/her special committee. He/she takes advanced work in

political science. He/she may take a minor in another discipline; if he/she does not, he/she must still take at least nine semester hours of course work outside political science. The qualifying examination in political science consists of two parts: (1) the student must prepare a paper on his/her major field of specialization and be examined orally on this paper by his/her special committee, (2) the student must write a prospectus for his/her dissertation and be examined orally on this by his/her special committee. The student must then write a dissertation and defend it in a final oral examination.

Candidates for the Ph.D. in political science are required either to demonstrate a reading knowledge of two modern foreign languages or to meet that requirement in one modern foreign language and to demonstrate proficiency in an allied field contributing to research competence in political science. Research competence may be demonstrated by successfully completing at least six hours of course work in one or more allied fields, including statistics, computer sciences, and research methods in another discipline.

Additional details concerning departmental requirements may be secured from the Director of Graduate Studies.

467	DYNAMICS OF INTERNATIONAL LAW .....	(3)
501	LATIN AMERICAN RELATIONS .....	(3)
505	MICRO-THEORY IN POLITICAL SCIENCE .....	(3)
520	GOVERNMENTS AND POLITICS OF SOUTH ASIA .....	(3)
521	GOVERNMENT AND POLITICS OF SOUTHEAST ASIA .....	(3)
530	THE CONDUCT OF AMERICAN FOREIGN RELATIONS .....	(3)
531	NATIONAL SECURITY POLICY .....	(3)
540	RURAL LOCAL GOVERNMENT .....	(3)
541	THE FOREIGN POLICY OF THE SOVIET UNION .....	(3)
550	COMPARATIVE POLITICAL PARTIES .....	(3)
551	COMPARATIVE FOREIGN POLICIES .....	(3)
552	MUNICIPAL GOVERNMENT .....	(3)
553	URBAN GOVERNMENT AND POLITICS .....	(3)
554	SURVEY OF SUB-SAHARAN POLITICS .....	(3)
555	COMPARATIVE GOVERNMENT-PARLIAMENTARY DEMOCRACIES I .....	(3)
556	GOVERNMENT AND POLITICS OF THE SOVIET UNION .....	(3)
557	GOVERNMENT AND POLITICS IN SUB-SAHARAN AFRICA .....	(3)
559	CONSTITUTIONAL POLITICS .....	(3)
561	CIVIL LIBERTIES .....	(3)
563	THE AMERICAN JUDICIAL PROCESS .....	(3)
565	COMPARATIVE GOVERNMENT-PARLIAMENTARY DEMOCRACIES II .....	(3)
566	INTERNATIONAL ORGANIZATIONS .....	(3)
568	THE GOVERNMENTS AND POLITICS OF EASTERN ASIA .....	(3)
569	LATIN AMERICAN GOVERNMENT AND POLITICS .....	(3)
570	AMERICAN POLITICAL PARTIES .....	(3)
571	EARLY POLITICAL THEORY .....	(3)
572	MODERN POLITICAL THEORY .....	(3)
573	PUBLIC OPINION .....	(3)
574	KENTUCKY GOVERNMENT AND CONSTITUTION .....	(3)
575	AMERICAN POLITICAL THOUGHT .....	(3)
576	LEGISLATIVE PROCESS .....	(3)
577	INTRODUCTION TO PUBLIC ADMINISTRATION .....	(3)
578	PUBLIC PERSONNEL ADMINISTRATION .....	(3)
579	ADMINISTRATIVE AGENCIES AND PUBLIC POLICY .....	(3)
580	THE BUDGETARY PROCESS .....	(3)
584	THE AMERICAN PRESIDENCY AND THE FEDERAL EXECUTIVE .....	(3)
610	COMPARATIVE POLITICS: THEORY AND METHOD ..	(3)
630	PROSEMINAR IN NON-INSTITUTIONAL POLITICAL BEHAVIOR .....	(3)

654	PROSEMINAR IN JUDICIAL PROCESS .....	(3)
671	STRATEGIES OF INQUIRY IN POLITICAL SCIENCE ..	(3)
672	INTRODUCTION TO TECHNIQUES OF POLITICAL RESEARCH .....	(3)
674	PROSEMINAR IN THEORIES OF INTERNATIONAL POLITICS .....	(3)
680	PROSEMINAR IN POLITICAL INSTITUTIONS AND PROCESS .....	(3)
690	CONTEMPORARY POLITICAL THOUGHT: THEORETICAL FOUNDATIONS OF POLITICAL CONCEPTS AND ISSUES IN THE 20TH CENTURY .....	(3)
711	CURRENT RESEARCH IN POLITICAL SCIENCE .....	(3)
737	TRANSITIONAL ORGANIZATIONS AND PROCESSES ..	(3)
751	SEMINAR IN METROPOLITICS .....	(3)
752	PROBLEMS IN STATE AND LOCAL GOVERNMENT ..	(3)
757	SEMINAR IN COMPARATIVE DEMOCRATIC POLITICAL SYSTEMS .....	(3)
758	SEMINAR IN SOVIET POLITICS, GOVERNMENT AND FOREIGN POLICY .....	(3)
759	SEMINAR IN AFRICAN POLITICAL SYSTEMS .....	(3)
761	THE CONSTITUTION AND CIVIL RIGHTS .....	(3)
762	SEMINAR IN JUDICIAL POLICY MAKING .....	(3)
763	SEMINAR IN ADMINISTRATIVE POLITICS .....	(3)
764	RESEARCH IN JUDICIAL BEHAVIOR .....	(3)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
770	SEMINAR IN CONTEMPORARY POLITICAL THEORY ..	(3)
772	ADVANCED PROBLEMS IN RESEARCH METHODS ....	(3)
773	ASIAN POLITICAL THEORY .....	(3)
775	SEMINAR IN PUBLIC POLICY .....	(3)
776	SEMINAR IN POLITICAL DEVELOPMENT .....	(3)
777	RESEARCH PROBLEMS IN INTERNATIONAL RELATIONS .....	(3)
778	SEMINAR IN COMPARATIVE FOREIGN POLICIES .....	(3)
779	VOTING BEHAVIOR .....	(3)
780	LEGISLATIVE BEHAVIOR .....	(3)
784	SEMINAR IN POLITICAL SOCIALIZATION .....	(3)
785	PSYCHOLOGICAL BASES OF POLITICAL BEHAVIOR ..	(3)
790	SPECIAL PROBLEMS IN PUBLIC ADMINISTRATION ..	(3)
791	THE ORGANIZATION AS A POLITICAL SYSTEM .....	(3)
795	SPECIAL PROBLEMS IN POLITICAL SCIENCE .....	(1-3)

## PSYCHOLOGY

**Graduate Faculty:** Professors Robert Baker, Juris Berzins (Director of Graduate Studies), James Calvin, Ronald Dillehay (Chairman), Jesse Harris, Leonard Worell. Associate Professors Richard Bednar, Edward Engel, Donald McCoy, Arthur J. Nonneman, John Sensenig, James Spivey. Assistant Professor Thomas R. Zentall.

**Associate Members:** Assistant Professors Robert Bray, Patrick Cavanagh, Raymond Martorano, Suzanne Martorano, Joseph McNick, Michael Nietzel, Richard Winnett, T. Benjamin Yandell.

**Joint Appointments:** Professors James Barclay, Charles Elton. Associate Professors William Drew, John Haley, Russell Jones, Harriett Rose.

The major goal of the doctoral program in psychology is to prepare the student for a career in teaching and research in the fields of clinical, learning and physiological, perception and cognition, or social psychology. A master's degree in general psychology is also available.

The program in clinical psychology provides academic courses, practica, and an internship which permit the student to combine his/her teaching and research activities with a clinical career in the mental health field. Current areas of research interest include psychotherapy, behavior therapy, psychopathology, group dynamics, community intervention, and experimental personality. Clinical experience is available at such facilities as the University of Kentucky Medical Center, the U.S. Veterans Administration Hospi-



clinical program is fully accredited by the American Psychological Association.

The programs in experimental psychology provides academic courses and research experience in any of the following areas of concentration: learning, motivation, perception, developmental psychology, and cognitive processes. Current areas of research interest include verbal learning, psycholinguistics, instrumental learning, classical conditioning, visual perception, discrimination learning in children, and mathematical psychology. Laboratories for the study of human and animal behavior with supporting shop and computer facilities are available.

The program in social psychology is designed to provide intensive experience in research with members of the social psychology faculty, with the aim of developing in the student a strong theoretical and research competence with complex social phenomena. Traditions of both experimental laboratory research and naturalistic study are utilized; emphases include theoretical and applied significance of research. Within broad limits set by the program, any given student's course of study is designed to fit his/her particular needs and interests. Course work in related behavioral sciences (for example, sociology, anthropology) is encouraged.

During the first year of the doctoral program, all students gain experience in the major content areas of psychology and in psychological statistics. Thereafter, the student and his/her adviser construct a program of study consistent with the academic interests and professional goals of the student. A reading knowledge of one modern foreign language is required for Ph.D. candidates.

The M.A. or M.S. degree is awarded under Plan A only.

The minimum departmental standards for admission to graduate work in psychology include an undergraduate department over-all average of B or better, a satisfactory score on the verbal and quantitative aptitude tests of the Graduate Record Examination and three letters of recommendation. For additional information concerning the program in psychology and such matters as financial support, contact the Chairman, Department of Psychology.

400 THEORIES OF PSYCHOLOGY IN HISTORICAL PERSPECTIVE .....	(3)
423 PROCESSES OF PSYCHOLOGICAL DEVELOPMENT .....	(3)
444 SOCIAL PSYCHOLOGY .....	(3)
500 SENIOR SEMINAR IN PSYCHOLOGY .....	(3)
501 PERSONALITY .....	(3)
502 INTRODUCTION TO INDUSTRIAL PSYCHOLOGY .....	(3)
503 PSYCHOLOGY OF INDUSTRIAL PERSONNEL PROCEDURE .....	(3)
505 HUMAN SENSES AND PERCEPTION .....	(4)

507 PSYCHOLOGY OF LEARNING .....	(4)
509 ANIMAL BEHAVIOR .....	(4)
511 EXPERIMENTAL CHILD STUDY .....	(3)
512 PHYSIOLOGICAL PSYCHOLOGY .....	(3)
518 MENTAL HYGIENE .....	(3)
521 ABNORMAL PSYCHOLOGY .....	(3)
522 COUNSELING PSYCHOLOGY .....	(3)
523 RESEARCH METHODS IN DEVELOPMENTAL PSYCHOLOGY .....	(4)
525 HUMAN SENSES AND PERCEPTION .....	(3)
526 HUMAN SENSE AND PERCEPTION LABORATORY .....	(1)
527 COGNITIVE PROCESSES .....	(3)
529 PSYCHOLINGUISTICS .....	(3)
532 PERSONALITY .....	(3)
533 ABNORMAL PSYCHOLOGY .....	(3)
539 INTERPERSONAL DYNAMICS .....	(3)
547 PSYCHOLOGY OF LEARNING .....	(4)
550 EXPERIMENTAL SOCIAL PSYCHOLOGY .....	(3)
551 PSYCHOLOGY OF LEARNING LABORATORY .....	(1)
552 ANIMAL BEHAVIOR .....	(3)
553 ANIMAL BEHAVIOR LABORATORY .....	(1)
556 PHYSIOLOGICAL PSYCHOLOGY .....	(3)
557 BIOLOGY OF MOTIVATION .....	(1)
558 PHYSIOLOGICAL PSYCHOLOGY LABORATORY .....	(3)
590 BIOLOGY OF MOTIVATION .....	(2)
591 GENETIC PSYCHOLOGY .....	(3)
595 PSYCHOLOGICAL TESTING .....	(3)
540 INTRODUCTION TO INDUSTRIAL PSYCHOLOGY .....	(3)
541 PSYCHOLOGY OF INDUSTRIAL PERSONNEL PROCEDURE .....	(3)
543 INTERPERSONAL DYNAMICS .....	(3)
544 SOCIAL PSYCHOLOGY .....	(3)
545 SMALL GROUP BEHAVIOR .....	(3)
546 APPLIED SOCIAL PSYCHOLOGY .....	(3)
570 HUMAN LEARNING AND PROBLEM SOLVING .....	(3)
575 PSYCHOLINGUISTICS .....	(8)
579 STUTTERING .....	(3)
601 THEORIES OF LEARNING .....	(3)
602 THEORIES OF PERSONALITY .....	(3)
603 PSYCHOPATHOLOGY .....	(3)
610 PSYCHOMETRICS .....	(3)
611 PSYCHOLOGICAL RESEARCH .....	(3)
618 RESEARCH DESIGN IN CLINICAL PSYCHOLOGY .....	(3)
617 EXPERIMENTAL APPROACHES TO PERSONALITY .....	(3)
618 EXPERIMENTAL APPROACHES TO PSYCHOPATHOLOGY .....	(3)
620 PROSEMINAR SYSTEMATIC PSYCHOLOGY .....	(2)
621 PROSEMINAR IN LEARNING .....	(2)
622 PROSEMINAR IN PERSONALITY .....	(2)
623 PROSEMINAR IN SENSATION AND PERCEPTION .....	(2)
624 PROSEMINAR IN SOCIAL PSYCHOLOGY .....	(2)
625 PROSEMINAR IN DEVELOPMENTAL PSYCHOLOGY .....	(2)
627 PROSEMINAR IN PHYSIOLOGICAL PSYCHOLOGY .....	(2)
628 PROSEMINAR IN HUMAN LEARNING AND THINKING .....	(2)
629 INTRODUCTION TO CLINICAL PSYCHOLOGY .....	(1)
630 CLINICAL METHODOLOGY I .....	(2)
631 PRACTICUM IN CLINICAL METHODOLOGY I .....	(2)
632 CLINICAL METHODOLOGY II .....	(2)
633 PRACTICUM IN CLINICAL METHODOLOGY II .....	(2)
634 PRACTICUM IN CLINICAL PSYCHOLOGY III .....	(3)
635 PRACTICUM IN CLINICAL PSYCHOLOGY IV .....	(3)
636 SYSTEMS OF PSYCHOTHERAPY .....	(3)
637 PRACTICUM IN PSYCHOTHERAPY AND BEHAVIOR CHANGE .....	(1-3)
638 CLINICAL CHILD PSYCHOLOGY .....	(3)
640 PRACTICE IN TESTING: INTELLIGENCE TESTS .....	(3)
641 PSYCHOLOGICAL MEASURING INSTRUMENTS .....	(3)
647 DISORDERS OF LANGUAGE .....	(3)
650 DIAGNOSIS AND COUNSELING IN COUNSELING PSYCHOLOGY .....	(3)
663 PRACTICUM IN INDUSTRIAL PSYCHOLOGY .....	(3)
700 SEMINAR IN BEHAVIOR MODIFICATION .....	(3)
701 SEMINAR IN CLINICAL CHILD PSYCHOLOGY .....	(3)
702 SEMINAR IN COMMUNITY MENTAL HEALTH .....	(3)
703 SEMINAR IN GROUP THERAPY .....	(3)
704 SEMINAR IN HYPNOSIS .....	(3)
705 RESEARCH IN PSYCHOTHERAPY AND BEHAVIOR CHANGE .....	(3)
710 SEMINAR IN CLINICAL PSYCHOLOGY .....	(3)
713 PRACTICUM IN GROUP THERAPY .....	(3)
761 INTERPERSONAL PROCESSES IN CRITICAL SITUATIONS .....	(3)
767 SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
770 SEMINAR IN PSYCHOLOGY I .....	(0)
771 SEMINAR IN PSYCHOLOGY II .....	(0)
772 SEMINAR IN LEARNING .....	(3)
774 SEMINAR IN VERBAL BEHAVIOR .....	(3)
775 ADVANCED SEMINAR IN PERCEPTION .....	(3)
776 SEMINAR IN ANIMAL MOTIVATION .....	(3)
777 SEMINAR IN MATHEMATICAL PSYCHOLOGY .....	(3)
778 SEMINAR IN DEVELOPMENTAL PSYCHOLOGY .....	(3)
779 SEMINAR IN SOCIAL PSYCHOLOGY .....	(3)

780 PROBLEMS IN PSYCHOLOGY .....	(2)
781 RESEARCH PARTICIPATION .....	(1)
790 RESEARCH IN PSYCHOLOGY .....	(3)

## PUBLIC ADMINISTRATION

Director of Graduate Studies—Mertin M. Hackbart  
Associate Director—John Wanat

The MPA program of study reflects the conviction that administrative processes in the public and private sectors are related but different. In this program, the fields of economics, finance, political science, and management are coupled with the administrative skills of decision making, behavioral science, and accounting control. Political, legal, and policy environments are added to complete the administrative core.

The first year of study is devoted to a core which emphasizes 24 hours in the administrative areas of analysis, the environment of public administration, and planning and policy of public administration.

During the second year, the student has the flexibility to define an area of specialization. Specialization in 15 hours of course work and six hours of internship is offered in five areas: higher education, human services, urban and regional development, governmental administration, and health administration.

### Requirements

1. The Graduate Management Admission Test or the Graduate Record Examination must be taken prior to admission.
2. Completion of a minimum of 45 semester hours of graduate work.
  - a. Administrative Core (24 semester hours)
    - PA 621—Analysis of Organizations: Decision Methods ..... (4 hours)
    - PA 622—Analysis of Organizations: Financial Control Methods .... (4 hours)
    - PA 623—Analysis of Organizations: Behavioral Methods ..... (4 hours)
    - PA 626—Administration of Public Organizations ..... (3 hours)
    - PA 627—The Fiscal Setting of Public Organizations ..... (3 hours)
    - PA 628—Legal and Political Environment of Public Organizations ..... (3 hours)
    - PA 629—Public Policy Formulation and Social Planning ..... (3 hours)
  - b. Area of Concentration (21 semester hours)  
Selection of one of the following:  
Higher Education Administration  
Social Professions Administration

## Urban and Regional Development Administration

### Governmental Administration

### Health Administration

Concentration .....	(9 hours)
Related Electives .....	(6 hours)
Practicum, Internship, or Performance on Job .....	(6 hours)

621 ANALYSIS OF ORGANIZATIONS: DECISION SCIENCE METHODS .....	(4)
622 ANALYSIS OF ORGANIZATIONS: FINANCIAL CONTROL METHODS .....	(4)
623 ANALYSIS OF ORGANIZATIONS: BEHAVIORAL SCIENCE METHODS .....	(4)
626 ADMINISTRATION OF PUBLIC ORGANIZATIONS .....	(3)
627 THE FISCAL SETTING OF PUBLIC ORGANIZATIONS .....	(3)
628 LEGAL AND POLITICAL ENVIRONMENT OF PUBLIC ORGANIZATIONS .....	(3)
629 PUBLIC POLICY FORMULATION AND SOCIAL PLANNING .....	(3)
771 INTERNSHIP IN PUBLIC ADMINISTRATION .....	(6)

### HUMAN SERVICES ADMINISTRATION

602 HUMAN SERVICE DELIVERY SYSTEMS .....	(3)
604 MANAGEMENT SKILLS .....	(3)
606 INDEPENDENT STUDY .....	(3)

## RADIATION MEDICINE

**Graduate Faculty:** Professor Yosh Maruyama. Associate Professors John Calkins, Joseph Sayeg (Director of Graduate Studies). Assistant Professor Ralph Christensen.

Graduate educational programs in Radiation Medicine are closely allied with those in the Department of Health Radiation Sciences, College of Allied Health Professions. Course work deals with a study of the physical properties and characteristics of radiation, the effects of ionizing radiation upon matter and living organisms, and safety and protection considerations of radiation. Courses jointly listed with the College of Physics and Astronomy deal with the Medical Physics in Diagnostic Radiation Physics, Therapeutic Radiation Physics and the Physics and Instrumentation of Nuclear Medicine. Courses jointly listed with Biological Sciences deal with the biological effects of ionizing radiation. Research and clinical training in a health-medical setting provides the student an opportunity for exposure to radiation application in a Medical and Hospital setting.

Graduate programs are detailed under Health Radiation Sciences, College of Allied Health Programs elsewhere in this Bulletin. Inquiries should be addressed to the Director of Graduate Studies.

472 INTERACTION OF RADIATION WITH MATTER .....	(3)
540 GENERAL RADIATION BIOLOGY .....	(4)
545 RADIATION HAZARDS AND PROTECTION .....	(2)
546 GENERAL MEDICAL RADIOLOGICAL PHYSICS .....	(2)
547 MEDICAL RADIATION IMAGING—I, PHYSICAL ASPECTS OF DIAGNOSTIC RADIOLOGY .....	(2)
548 THE PHYSICS OF RADIATION THERAPY .....	(2)
549 THE PHYSICS AND INSTRUMENTATION OF NUCLEAR MEDICINE .....	(3)



640 BIOLOGICAL EFFECTS OF RADIATION .....	(3)
660 PRACTICUM IN RADIATION MEDICINE .....	(1-12)
740 MAMMALIAN RADIATION BIOLOGY .....	(2)

## SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

**Graduate Faculty:** Professor Leon Zolondek. Associate Professors Paul Forand, Roger B. Anderson (Chairman).

At present no graduate majors are offered in Slavic and Oriental Languages and Literatures.

RUSSIAN	
410 ADVANCED READINGS IN RUSSIAN LITERATURE ....	(3)
411 ADVANCED READINGS IN RUSSIAN LITERATURE ....	(3)
450 DOSTOEVSKY (IN ENGLISH) .....	(3)
460 TOLSTOY (IN ENGLISH) .....	(3)
463 RUSSIAN DRAMA (IN RUSSIAN) .....	(3)
464 SURVEY OF RUSSIAN LITERATURE TO 1800 (IN RUSSIAN) .....	(3)
480 HISTORY OF RUSSIAN POETRY (IN ENGLISH) .....	(3)
HEBREW	
458 MODERN HEBREW LITERATURE .....	(3)
ARABIC	
442 ARABIC READING I .....	(3)
443 ARABIC READING II .....	(3)
OTHER DEPARTMENTAL OFFERINGS	
444 THE WRITINGS OF THE MUSLIM MYSTICS .....	(3)
455 SPANISH ISLAM .....	(3)
457 MODERN ARABIC LITERATURE IN TRANSLATION ..	(3)

## SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION

**Graduate Faculty:** Professor David Denton, Richard Warren (Chairman). Associate Professors Clint Collins (Director of Graduate Studies), Willis Griffin.

**Associate Members:** Associate Professor Richard LaBrecque. Assistant Professors John Abrahamson, John Thelin.

The faculty of the Department of Social and Philosophical Studies in Education is engaged in the systematic analysis and interpretation of education using appropriate knowledge and methodologies of the humanities and social sciences. Their efforts are directed to (1) developing teachers and researchers with special competencies in social and philosophical studies, (2) assisting in the preparation of educational personnel, (3) contributing research based on special interests and (4) changing and improving education through active participation in redirection and reform. The Department seeks to develop competencies which assist the student in approaching education more rationally, critically, responsibly, and enthusiastically.

Graduate students may expect to develop special competencies through college course offerings, independent studies, and other experiences. In addition, students will be expected to pursue appropriate studies in other University colleges and departments to broaden their interdisciplinary perspectives and/or to gain greater

depth and scholarship. The Department represents a link between the humanities and social sciences and the preparation of professional educator. It seeks the broadest perspective on education as an important area of human endeavor.

The Department of Social and Philosophical Studies offers programs leading to the following degrees: Master of Science in Education, Master of Arts in Education (Plans A and B available), Specialist in Education (Ed.S.), and Doctor of Education (Ed.D.). The Department also participates in a joint doctoral program with regional universities. A minimum of 31 hours is required for the master of science of education degree, six of which may be thesis credit and six of which must be taken outside the College of Education. The primary difference between this degree and the Master of Arts in Education degree is that the latter requires a minimum of 12 hours outside the College of Education.

532 RACE AND ETHNIC RELATIONS .....	(3)
533 INTRODUCTION TO THE PHILOSOPHIC STUDY OF EDUCATION .....	(3)
599 FOUNDATIONS OF MULTI-CULTURAL AND INTERNATIONAL EDUCATION .....	(3)
601 PROSEMINAR .....	(1)
640 PHILOSOPHY OF EDUCATION .....	(3)
645 SOCIAL ISSUES IN EDUCATION .....	(3)
646 ANALYSIS OF THINKING .....	(3)
650 HISTORY OF WESTERN EDUCATION .....	(3)
651 HISTORY OF EDUCATION IN THE UNITED STATES ..	(3)
652 HISTORY OF EDUCATIONAL THOUGHT .....	(3)
653 HISTORY OF HIGHER EDUCATION .....	(3)
655 COMPARATIVE EDUCATION .....	(3)
656 INTERNATIONAL DEVELOPMENT EDUCATION .....	(3)
661 SOCIOLOGY OF EDUCATION .....	(3)
662 ANALYSIS OF EDUCATIONAL CHANGE .....	(3)
663 FIELD STUDIES IN EDUCATIONAL INSTITUTIONS ..	(3)
665 EDUCATION AND CULTURE .....	(3)
724 EPISTEMOLOGICAL PROBLEMS IN EDUCATION .....	(3)
725 ANALYSIS OF VALUE QUESTIONS IN EDUCATION ..	(3)
750 PROBLEMS IN SOCIOLOGY OF EDUCATION .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	
773 SEMINAR IN FOUNDATIONS OF EDUCATION .....	(3)
778 SEMINAR IN HISTORY OF EDUCATION IN KENTUCKY .....	(3)
785 INDEPENDENT STUDY IN SOCIAL AND PHILOSOPHICAL PROBLEMS IN EDUCATION .....	(3)

## SOCIAL PROFESSIONS

**Graduate Faculty:** Professors Ronda S. Connaway (Dean and Director of Graduate Studies), Zafar Hasan. Associate Professors, Kennard Wellons, Constance Wilson.

**Associate Members:** Associate Professors Richard Brautigam, Martha E. Gentry, Dorothy A. Miller, Edna Roth. Assistant Professors Elizabeth Crowell, Paul Kim, Vernon R. Wiehe.

**The College of Social Professions publishes a bulletin explaining the total program. Please write College of Social Professions, Patterson Office Tower, University of Kentucky.**

The College of Social Professions offers a graduate curriculum of four semesters duration, leading to the Master of Social Work degree in

accordance with Plan B. The MSW degree program is designed to prepare students for careers in the social professions. The College also offers a series of courses in its undergraduate social work program which may be taken for graduate credit by graduate students in other majors.

Students must meet the general requirements of The Graduate School, as listed elsewhere in this Bulletin, as well as other specific requirements of the College of Social Professions for the Master of Social Work degree as indicated below.

1. Earn 54 hours of credit with a grade average of B or above. Forty of these credits must be in the required social work courses. Four credits will be chosen from additional courses offered within the graduate social work curriculum of the College of Social Professions. The remaining 10 credits may be elected from relevant courses offered throughout the University or by the College of Social Professions.  
Graduates with a B.A. in Social Work may petition to substitute other courses for specific courses required for the MSW degree if in their opinion there is likely to be unnecessary duplication in content. Such students will be required to establish their knowledge competence in the subject area for which they are petitioning to take substitute courses. In addition, Bachelor degree graduates from other majors may, by special examination, be excused from taking specified required courses in the MSW curriculum by reason of equivalent content they may have had in their undergraduate degree courses and to substitute other related courses. These special arrangements do not change the credit hours required for the MSW degree.
2. Earn not less than 28 of the 54 required credit hours at the University of Kentucky. All social work transfer credits accepted for the degree must have been earned in a school accredited by the Council on Social Work Education.
3. Advance to degree candidacy by the end of the first year of graduate study. In order to be a degree candidate the student must be admitted to candidacy for the master's degree by The Graduate School and have completed the College of Social Professions advancement-to-candidacy review.
4. Successfully complete the final comprehensive examination. This examination consists

of an intensive review with students of the total two year educational program to determine their potential capacity for professional practice.

The MSW degree program has been developed in cooperation with the Council on Social Work Education. The program has been accredited by the Council through June 1980.

**Full-time students are admitted to the MSW degree program primarily in the fall semester.** Applications to the College of Social Professions should be filed not later than April 15, prior to entrance in the fall. A limited number of applicants for full-time study are admitted in the spring semester. An application for admission to the Graduate School must be filed before a student can be considered for the MSW program.

444	EDUCATIONAL PRACTICUM I .....	(6 or 8)
445	EDUCATIONAL PRACTICUM II .....	(8)
477	FIELD EXPERIENCE FOR NON-MAJORS .....	(3-6)
500	PUBLIC WELFARE ADMINISTRATION .....	(3)
501	SOCIAL WELFARE POLICY: THEORY AND IMPLEMENTATION .....	(3)
505	CHILD WELFARE SERVICES .....	(2-3)
510	MENTAL HEALTH KNOWLEDGE FOR THE SOCIAL PROFESSIONS .....	(2-3)
511	PERSPECTIVES ON HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT .....	(3)
512	MEDICAL KNOWLEDGE FOR THE SOCIAL PROFESSIONS .....	(3)
516	SOCIAL WORK RESEARCH .....	(3)
520	INTERVENTIVE METHODS IN SOCIAL WORK .....	(4)
523	SOCIAL PERSPECTIVES ON RACISM AND ETHNIC PREJUDICES IN AMERICA .....	(2-3)
527	SENIOR SEMINAR .....	(3)
541	ADMINISTRATION AND SUPERVISION IN THE SOCIAL PROFESSIONS .....	(3)
551	PUBLIC ASSISTANCE PROGRAMS .....	(3)
561	THE ROLE OF SOCIAL WORK IN CRIMINAL JUSTICE .....	(3)
571	SOCIAL WORK AND THE LAW .....	(3)
580	TOPICAL SEMINAR IN SOCIAL WORK .....	(2-4)
601	SOCIAL WORK PRACTICE .....	(4)
602	SOCIAL WORK PRACTICE WITH ADULTS .....	(2)
603	SOCIAL WORK PRACTICE WITH CHILDREN AND YOUTH .....	(2)
604	SOCIAL WORK PRACTICE WITH THE AGING .....	(2)
605	SOCIAL WORK PRACTICE IN HEALTH SERVICES .....	(2)
606	SOCIAL WORK IN CRIMINAL JUSTICE PROCESSES .....	(2)
607	SOCIAL WORK PRACTICE WITH FAMILIES .....	(2)
608	SOCIAL WORK PRACTICE FOR SOCIAL REFORM .....	(2)
609	CLINICAL SOCIAL WORK PRACTICE .....	(2)
613	URBAN ECOLOGY AND AGING .....	(2)
620	HUMAN GROWTH AND THE SOCIAL ENVIRONMENT .....	(4)
621	PERSPECTIVES ON DEVIANCE FOR SOCIAL WORKERS .....	(2-3)
622	GROUP THEORY FOR SOCIAL WORKERS .....	(2)
624	PERSPECTIVES ON HUMAN SEXUALITY FOR THE SOCIAL PROFESSIONS .....	(2)
625	COMPARATIVE SOCIAL WELFARE POLICIES AND PROGRAMS .....	(2-3)
630	SOCIAL WELFARE POLICIES AND SERVICES .....	(4)
632	SOCIAL WORK AND THE HISTORY OF SOCIAL REFORM .....	(2)
633	SOCIAL WELFARE AND THE POLITICAL PROCESSES .....	(2-3)
640	GRADUATE EDUCATIONAL PRACTICUM I .....	(10)
642	PSYCHOLOGICAL ASPECTS OF HUMAN AGING .....	(2)
650	PROBLEM-SOLVING SEMINAR .....	(2)
652	PUBLIC POLICY AND AGING .....	(2)
662	INCOME SECURITY AND AGING .....	(2)
680	SPECIAL PROBLEMS IN SOCIAL WORK PRACTICE .....	(2-4)
711	ADVANCED LEADERSHIP ROLES IN SOCIAL WORK .....	(3)
712	PRINCIPLES AND METHODS OF FIELD INSTRUCTION IN SOCIAL WORK I .....	(2)
713	PRINCIPLES AND METHODS OF FIELD INSTRUCTION IN SOCIAL WORK II .....	(2)
720	ORGANIZATIONAL AND ADMINISTRATIVE THEORY FOR SOCIAL WORKERS .....	(2-4)
721	ORGANIZATION AND MANAGEMENT METHODS FOR THE SOCIAL PROFESSIONS .....	(2-3)



730	PUBLIC SOCIAL POLICY AND THE DELIVERY OF SOCIAL SERVICES .....	(2)
731	SOCIAL WORK AND COMMUNITY PLANNING .....	(2-3)
732	SOCIAL PLANNING AND DEVELOPMENT .....	(2-3)
740	GRADUATE EDUCATIONAL PRACTICUM II .....	(8)
745	ADVANCED SPECIALIZED EDUCATIONAL PRACTICUM .....	(2-4)
750	SEMINAR ON EVALUATIVE RESEARCH FOR THE SOCIAL PROFESSIONS .....	(2)
770	SEMINAR ON SOCIAL ISSUES AND SOCIAL WORK PRACTICE .....	(2)
780	INDEPENDENT WORK .....	(2-6)
790	METHODS IN SOCIAL WORK RESEARCH .....	(2-6)

## SOCIOLOGY

**Graduate Faculty:** Professors James Brown, Lee Coleman, C. M. Coughenour, Thomas Ford, Eugene Gallagher, James Gladden, William Kenkel, John O'Donnell, Jon Shepard, Robert Straus, Willis Sutton (Chairman), Harwin Voss, George Wilber, Grant Youmans. Associate Professors Richard Clayton, Thomas Garrity, Philip Moody, Gerald Slatin, (Director of Graduate Studies).

**Associate Members:** Associate Professors Walter Abbott, James Christenson. Assistant Professors Lawrence Busch, Jon Hendricks, James Hougland, William Lacy.

Graduates from accredited colleges who meet the requirements of the Graduate Program in Sociology and The Graduate School may work toward the following advanced degrees with major work in sociology: Master of Arts, Master of Science in Agriculture, and Doctor of Philosophy. Both Plan A and B are offered for the Master's degree, and an applied community development option is now available within Plan B. Only one modern foreign language is required for the Ph.D. degree in sociology.

Graduate students pursuing the Ph.D. degree are expected to choose either two specialty areas within sociology or one specialty area in sociology and a minor area outside the department. Areas of specialization in sociology currently stressed are: community, demography-ecology, deviance, family, medical sociology, rural, social change & development. While core seminars in these specialties are offered, individual program flexibility is maintained so that a student may develop his/her own interests.

To aid in financing graduate education a considerable number of assistantships are available to qualified students. Outstanding students may compete for fellowships.

Sociologists at the University of Kentucky carry on a substantial variety of research projects, consultative activities, extension education programs and community services. Specialized experience and training is available to graduate students through affiliations with nearby institutions.

Research opportunities within the prisons and other correctional institutions of the state may be arranged. Experience is available in rural

sociological research at the Agricultural Experiment Station. Opportunity for applied sociology experience in the Cooperative Extension Service is also available.

The Department participates in the University's Center for Developmental Change, which is devoted to interdisciplinary research and training in planned change. The Department of Behavioral Science, College of Medicine, includes sociologists on its staff and conducts research and other activities of a sociological nature. Sociology graduate students with appropriate interests and training are eligible for assistantships and other appointments in these several units.

Department standards for admission to graduate work in sociology are similar to those of The Graduate School, including satisfactory scores on the verbal and quantitative tests of the Graduate Record Examination. For additional information on departmental requirements and opportunities for financial assistance, write to the Director of Graduate Study in Sociology.

409	THE FAMILY .....	(3)
413	COMMUNITY ANALYSIS* .....	(3)
418	SOCIAL CHANGE .....	(3)
436	SOCIOLOGY OF DEVIANT BEHAVIOR .....	(3)
437	CRIMINOLOGY .....	(3)
441	GROUP ORGANIZATION AND LEADERSHIP .....	(3)
444	SOCIAL PSYCHOLOGY .....	(3)
493	SOCIAL AND CULTURAL DETERMINANTS OF ECONOMIC GROWTH AND DEVELOPMENT .....	(3)
501	POPULATION ANALYSIS .....	(3)
502	METHODS OF DEMOGRAPHIC ANALYSIS .....	(3)
503	SOCIAL CLASSES .....	(3)
510	SOCIALIZATION IN THE FAMILY .....	(3)
515	DIFFUSION OF TECHNOLOGY IN MODERN SOCIETY* .....	(3)
517	RURAL SOCIOLOGY* .....	(3)
519	SOCIOLOGY OF URBAN LIFE .....	(3)
521	INDUSTRIAL SOCIOLOGY .....	(3)
522	SOCIOLOGY OF COMPLEX ORGANIZATIONS .....	(3)
525	RELIGION AND CULTURE .....	(3)
526	CULTURE AND PERSONALITY .....	(3)
527	SOCIETY AND HEALTH .....	(3)
529	POLITICAL SOCIOLOGY .....	(3)
531	SOCIOLOGICAL ANALYSIS OF AMERICAN SOCIETY ..	(3)
532	RACE AND ETHNIC RELATIONS .....	(3)
533	SOCIAL ANTHROPOLOGY .....	(3)
534	THE SOUTHERN APPALACHIANS: A SOCIOLOGICAL INTERPRETATION* .....	(3)
538	JUVENILE DELINQUENCY .....	(3)
540	COLLECTIVE BEHAVIOR AND SOCIAL MOVEMENTS ..	(3)
542	HUMAN RELATIONS IN ADMINISTRATION .....	(3)
549	SOCIOLOGICAL ASPECTS OF MASS COMMUNICATION ..	(3)
551	ADVANCED PRINCIPLES OF SOCIOLOGY .....	(3)
561	COMPARATIVE SOCIOLOGY .....	(3)
565	SPECIAL PROBLEMS IN SOCIOLOGY* .....	(1-3)
571	CONTEMPORARY SOCIOLOGY .....	(3)
581	TECHNIQUES OF SOCIAL INVESTIGATION .....	(3)
615	ANALYSIS OF COMMUNITY RESEARCH* .....	(3)
618	THEORIES OF SOCIAL CHANGE .....	(3)
620	SOCIOLOGY OF COMMUNITY DEVELOPMENT .....	(3)
625	SOCIOLOGY OF RELIGION .....	(3)
632	SEMINAR IN RACE AND ETHNIC RELATIONS .....	(3)
636	THEORY AND RESEARCH IN DEVIANT BEHAVIOR ..	(3)
651	SYSTEMATIC SOCIOLOGY .....	(3)
653	FAMILY THEORY AND DYNAMICS .....	(3)
661	SOCIOLOGY OF EDUCATION .....	(3)
670	SEMINAR ON ROLE THEORY .....	(3)
671	SEMINAR IN CONTEMPORARY SOCIOLOGY .....	(0)
681	RESEARCH DESIGN AND ANALYSIS .....	(3)
685	INTEGRATION OF THEORY AND RESEARCH .....	(3)
690	COMMUNITY ACTION ANALYSIS .....	(3)
695	SOCIAL ECOLOGY .....	(3)
702	SEMINAR IN SOCIAL DEMOGRAPHY .....	(3)
720	SEMINAR IN COMMUNITY THEORIES .....	(3)
727	SEMINAR ON SOCIO-CULTURAL CHANGE .....	(3)
731	SEMINAR IN COMPARATIVE SOCIAL ORGANIZATION ..	(3)

738 SEMINAR: DRUG USE AS DEVIANT BEHAVIOR .....	(3)
751 SEMINAR IN SOCIOLOGICAL THEORY .....	(3)
766 CONCEPTS IN MEDICAL SOCIOLOGY .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
772 TOPICAL SEMINAR IN SOCIOLOGY .....	(3)
773 TOPICAL SEMINAR* .....	(3)
775 SEMINAR IN THE FAMILY .....	(3)
776 SEMINAR IN DEPENDENCY BEHAVIOR .....	(3)
777 SEMINAR IN MENTAL ILLNESS CONCEPTS, RESEARCH AND POLICY .....	(3)
779 SEMINAR IN SOCIAL PSYCHOLOGY .....	(3)
780 SPECIAL PROBLEMS IN SOCIOLOGY .....	(1-6)
790 RESEARCH IN RURAL SOCIOLOGY* .....	(1-3)
792 RESEARCH IN SOCIOLOGY .....	(1-6)
797 COMMUNITY DEVELOPMENT PRACTICUM .....	(1-9)

\* These courses are also offered in the Department of Sociology, College of Agriculture.

## SOIL SCIENCE

**Graduate Faculty:** Professors H. H. Bailey, A. J. Hiatt, H. F. Massey, D. E. Peaslee, R. E. Phillips (Director of Graduate Studies), J. L. Ragland, J. L. Sims, G. W. Thomas. Associate Professors R. I. Barnhisel, R. L. Blevins, Charles Rieck.

**Associate Member:** Assistant Professor J. H. Ellis.

The Soil Science graduate program offers graduate work leading to the Master of Science and the Doctor of Philosophy degrees with options in soil chemistry, soil fertility, soil genesis, morphology and classification, soil mineralogy, soil microbiology and soil physics. For the M.S. degree, 24 hours of course work plus an acceptable thesis are required (Plan A). In certain exceptional cases, the thesis may be replaced by six additional hours of course work. Work leading to advanced degrees must conform to the general rules and regulations of The Graduate School. A reading knowledge of one foreign language is required for the Ph.D. degree.

Preparation for graduate work in Soil Science should include some course work in mathematics, chemistry, physics and biological sciences. Students with deficiencies in any of these areas will be expected to make up any deficiency early in the course of their graduate study.

468 SOIL CONSERVATION AND MANAGEMENT .....	(3)
470 FERTILIZERS AND SOIL FERTILITY .....	(3)
473 SOIL MORPHOLOGY AND MAPPING .....	(3)
560 SOIL-PLANT RELATIONSHIPS .....	(3)
562 FOREST SOILS .....	(3)
566 SOIL BIOLOGY .....	(3)
675 ADVANCED SOIL PHYSICS .....	(3)
581 CHEMICAL ANALYSIS OF SOILS AND PLANTS .....	(4)
599 SPECIAL PROBLEMS IN AGRONOMY .....	(1-4)
652 SOIL CLASSIFICATION AND GEOGRAPHY .....	(3)
660 ADVANCED SOIL BIOLOGY .....	(2)
671 SOIL CHEMISTRY .....	(4)
675 ADVANCED SOIL PHYSICS .....	(3)
681 MINERALOGICAL AND CHEMICAL ANALYSIS OF SOILS .....	(4)
690 TOPICS IN SOIL CHEMISTRY .....	(1-4)
691 TOPICS IN SOIL MINERALOGY .....	(1-4)
712 ADVANCED SOIL FERTILITY .....	(3)
721 SOIL GENESIS .....	(3)
741 CLAY MINERALOGY .....	(3)
768 RESIDENCE CREDIT FOR MASTER'S DEGREE .....	(1-6)
769 RESIDENCE CREDIT FOR DOCTOR'S DEGREE .....	(0-12)
770 AGRONOMY SEMINAR .....	(1)
799 RESEARCH IN AGRONOMY .....	(1-4)

## SPANISH AND ITALIAN LANGUAGES AND LITERATURES

**Graduate Faculty:** Professors Joseph Jones (Director of Graduate Studies), Margaret Jones, John Kellér, John Lihani, William McCrary, Daniel Reedy (Chairman), Gerardo Saenz. Associate Professors Brian Dendle, Michael Impy.

The Department of Spanish and Italian offers the Master of Arts and the Doctor of Philosophy degrees. Graduate Record Examination scores are required for admission.

**Master of Arts Degree.** Prerequisites: Attainment in Spanish equivalent to that required for the undergraduate major in Spanish at the University of Kentucky.

**Requirements:** standard Graduate School Requirements; reading knowledge of a second foreign language; successful completion of 30 hours of course work (Plan B), or successful completion of 24 hours of course work and an acceptable thesis (Plan A). All M.A. candidates are required to take the final written and oral examinations during the semester in which they will have completed the degree requirements. The M.A. written examination is designed to test the candidate's knowledge of the following areas: 1) Hispanic civilization and literary history, 2) the M.A. reading list, and 3) the candidate's composite course work. SPI 502 (Survey of the Spanish Language) is recommended but not required. For individuals who contemplate further work leading to the doctorate SPI 651 (Bibliography and Methods of Research) is recommended but not required.

**Doctor of Philosophy Degree Recommendations and Requirements:** SPI 502 (Survey of the Spanish Language), SPI 601 (Old Spanish I), SPI 602 (Old Spanish II); SPI 651 (Bibliography and Methods of Research) are recommended but not required; a reading knowledge of two languages other than Spanish and English is required; successful completion of a series of four written examinations and an oral examination is required for qualification for candidacy for the doctorate (see Remarks below); presentation of acceptable dissertation.

**Remarks:** All candidates for the Ph.D. degree are required to spend at least two consecutive semesters of full-time residence beyond the M.A. degree (excluding summer sessions) in the Department. Full-time residence is defined as nine course hours per semester (excluding SPI 782 Special Studies in Spanish) for fellowship or scholarship holders. Experience has shown that



doctoral candidates should plan to complete two years of full-time course work beyond the M.A. degree.

Doctoral candidates may choose to organize their studies either periodically or generically. Periodic organization requires that the candidate pass qualifying examinations in the following areas: 1) Spanish linguistics (especially Old Spanish) and Medieval Spanish literature, 2) Spanish Renaissance and Golden Age literature, 3) Modern Spanish literature, 4) Spanish American literature. Generic organization requires that the candidate pass qualifying examinations in the following areas: 1) Hispanic drama, 2) Hispanic prose fiction, 3) Hispanic poetry, 4) Hispanic non-fiction prose, essay, civilization, and linguistics (the term Hispanic includes both Peninsular and Spanish American studies).

All candidates for the doctorate are asked to declare an area of special competence, either generic or periodic. It is assumed that the candidate's record will reflect more course work in his/her area. Accordingly, the examination for the special area will be longer and more detailed than those for the remaining three. Individuals who elect to declare linguistics as an area of special competence, in consultation with the Graduate Director, may combine two of the four required written examinations (e.g., Medieval-Renaissance literature).

#### SPANISH

400 SENIOR SEMINAR .....	(3)
405 THE WORKS OF CERVANTES .....	(3)
406 SPANISH LITERATURE OF THE 20TH CENTURY .....	(3)
407 LITERATURE OF SOCIAL PROTEST IN SPANISH AMERICA .....	(3)
420 TWENTIETH CENTURY SPANISH AMERICAN LITERATURE IN TRANSLATION .....	(3)
421 MASTERPIECES OF THE SPANISH BAROQUE THEATER IN TRANSLATION .....	(3)
422 CERVANTES IN TRANSLATION .....	(3)
423 LITERARY CURRENTS OF 20TH CENTURY SPANISH LITERATURE IN TRANSLATION .....	(3)
501 SPANISH PHONETICS, PRONUNCIATION AND PHONEMICS .....	(3)
502 SURVEY OF THE SPANISH LANGUAGE .....	(3)
503 STRUCTURE OF THE SPANISH LANGUAGE .....	(3)
504, 505 ADVANCED SPANISH GRAMMAR AND COMPOSITION .....	(3 ea.)
506 INTRODUCTION TO COMPARATIVE SPANISH, PORTUGUESE, AND ITALIAN LINGUISTICS .....	(3)
511 SPANISH CULTURAL AND INTELLECTUAL BACKGROUND TO 1500 .....	(3)
521 INTELLECTUAL AND CULTURAL BACKGROUND OF THE 16TH AND 17TH CENTURIES .....	(3)
522 SURVEY OF THE COMEDIA I .....	(3)
523 SURVEY OF THE COMEDIA II .....	(3)
531 STUDIES IN MODERN SPANISH CIVILIZATION .....	(3)
532 THE GENERATION OF 1898 .....	(3)
541 SPANISH AMERICAN SHORT STORY .....	(3)
551 TUTORIAL SEMINAR FOR MAJORS IN SPANISH .....	(1)
552 THE TEACHING OF MODERN FOREIGN LANGUAGES .....	(3)
601 OLD SPANISH: PHONOLOGY AND PALEOGRAPHY .....	(3)
602 OLD SPANISH: MORPHOLOGY AND SYNTAX .....	(3)
611 MEDIEVAL SPANISH LITERATURE I .....	(3)
612 MEDIEVAL SPANISH LITERATURE II .....	(3)
613 SPANISH EPIC AND LONG NARRATIVE POETRY .....	(3)
614 SPANISH AND SPANISH AMERICAN BALLAD .....	(3)
615 SPANISH POETRY OF THE 13TH, 14TH, AND 15TH CENTURIES .....	(3)

616 EARLY BRIEF NARRATIVE 13TH, 14TH, AND 15TH CENTURIES .....	(3)
617 SPANISH MEDIEVAL AND RENAISSANCE DRAMA .....	(3)
621 THE SPANISH NOVEL TO CERVANTES .....	(3)
622 CERVANTES I .....	(3)
623 CERVANTES II .....	(3)
624 THE SPANISH NOVEL FROM CERVANTES TO ROMANTICISM .....	(3)
625 MYSTIC AND ASCETIC WRITERS OF THE 16TH AND 17TH CENTURIES .....	(3)
626 LOPE DE VEGA .....	(3)
627 THE THEATRE TIRSO DE MOLINA .....	(3)
628 THE THEATRE OF CALDERON DE LA BARCA .....	(3)
629 SPANISH POETRY OF THE 16TH AND 17TH CENTURIES .....	(3)
631 THE ROMANTIC MOVEMENT IN SPAIN .....	(3)
632 SPANISH DRAMA FROM THE GENERATION OF 1898 TO THE PRESENT .....	(3)
633 THE SPANISH NOVEL OF THE 19TH CENTURY .....	(3)
634 PROSE FICTION FROM THE GENERATION OF 1898 TO THE PRESENT .....	(3)
635 THE SPANISH ESSAY FROM THE 18TH CENTURY TO THE PRESENT .....	(3)
636 SPANISH POETRY FROM THE 18TH CENTURY THROUGH THE GENERATION OF 1898 .....	(3)
637 SPANISH POETRY FROM THE GENERATION 1927 TO THE PRESENT .....	(3)
641 SPANISH AMERICAN DRAMA .....	(3)
642 SPANISH AMERICAN POETRY: COLONIAL PERIOD TO INDEPENDENCE .....	(3)
643 SPANISH AMERICAN POETRY: 1800-1910 .....	(3)
644 SPANISH AMERICAN POETRY: 1910 TO PRESENT .....	(3)
645 SPANISH AMERICAN NOVEL: 1800-1910 .....	(3)
646 SPANISH AMERICAN NOVEL: 1910-1940 .....	(3)
647 SPANISH AMERICAN NOVEL: 1940 TO THE PRESENT .....	(3)
648 LITERARY CURRENTS IN CONTEMPORARY SPANISH AMERICAN FICTION .....	(3)
649 THE SPANISH AMERICAN ESSAY .....	(3)
651 BIBLIOGRAPHY AND METHODS OF RESEARCH .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6) .....	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12) .....	
770 SEMINAR IN SPANISH STUDIES .....	(3)
771 SEMINAR IN SPANISH LINGUISTICS .....	(3)
772 SEMINAR IN MEDIEVAL SPANISH LITERATURE .....	(3)
773 SEMINAR IN GOLDEN AGE NON-DRAMATIC LITERATURE .....	(3)
774 SEMINAR IN GOLDEN AGE THEATRE .....	(3)
775 SEMINAR IN MODERN SPANISH LITERATURE .....	(3)
776 SEMINAR IN SPANISH AMERICAN LITERATURE .....	(3)
782 SPECIAL STUDIES IN SPANISH .....	(3)

#### ITALIAN

543 SURVEY OF ITALIAN LITERATURE I .....	(3)
544 SURVEY OF ITALIAN LITERATURE II .....	(3)
561 OLD ITALIAN .....	(3)
563 DANTE I .....	(3)
564 DANTE II .....	(3)
565 PETRARCH AND BOCCACCIO .....	(3)
566 LITERATURE OF THE ITALIAN RENAISSANCE .....	(3)
571 MODERN ITALIAN NOVEL .....	(3)
572 MODERN ITALIAN DRAMA .....	(3)
573 MODERN ITALIAN POETRY .....	(3)
591 DANTE IN TRANSLATION .....	(3)
592 ITALIAN RENAISSANCE MASTERPIECES IN TRANSLATION .....	(3)
593 MODERN ITALIAN LITERATURE IN TRANSLATION ..	(3)

#### RUMANIAN

461 RUMANIAN I .....	(3)
462 RUMANIAN II .....	(3)

## SPECIAL EDUCATION

**Graduate Faculty:** Professor Edward Blackhurst (Chairman), Associate Professors Patricia Cegelka, M. C. Martinson, C. M. Nelson (Director of Graduate Studies), James Tawney.  
**Associate Members:** Assistant Professors William Berdine, Richard Culatta, Joseph Helmick, James McLoughlin, Catherine Morsink.

Students may enroll for either degree or non-degree graduate programs in special education. Non-degree programs are designed primarily for those who are seeking Kentucky Provisional, Rank II or Rank I Teacher Certification in the following areas:

1. Certification in teaching the:
  - Educable Mentally Handicapped (until 1980)
  - Trainable Mentally Handicapped
  - Orthopedically Handicapped (until 1980)
  - Neurologically Impaired (Learning Disabilities (until 1980)
  - Emotionally Disturbed
  - Multiple Handicapped
2. Certification in Speech Pathology and Audiology
3. Certification in Administration and Supervision of Special Education
4. Certification in Learning and Behavior Disorders

Already certified special education teachers may also pursue the standard teaching certificate by selecting an area of emphasis in one of the following:

- Early Childhood Education for the Handicapped
- Severely Retarded Multiple Handicapped
- Career and Vocational Education for the Handicapped
- Speech Pathology
- Special Education Resource Teaching

The Degree programs that are offered lead to the Master of Arts in Education or Master of Science in Education (Plan A and B available), Specialist in Education and Doctor of Education Degrees. Within the framework of College and University requirements, all graduate degrees are individually planned. This flexibility makes it possible to structure an appropriate program for each student, based upon previous background and career aspirations. It should be noted, however, that graduate degree programs in the area of the mildly handicapped emphasize a non-categorical approach to Special Education. That is, although students may pursue one of the above mentioned teaching certification areas in greater depth as part of their degree programs, they also receive training that will enable them to diagnose and remediate learning problems of other types of exceptional children, regardless of the handicapping condition. Following are brief descriptions of the various graduate degree programs.

Minimum requirements for the Master of Arts in Education Degree are either (1) the completion of 30 semester hours of course work under Plan B or (2) 24 hours of course work and a thesis under Plan A as outlined at the beginning of the Education section of this Bulletin. These **minimum**

course credit requirements are distributed as follows:

Special Education .....	12
Electives in Education .....	6
Course work outside the College of Education .....	12

Minimum hours for the Master of Science in Education Degree are distributed as follows:

Department of Special Education and support areas in College .....	24
Course work outside College of Education ..	6

30

(At least 15 semester hours must be earned in courses at the 600 or 700 level and a comprehensive final examination is required.)

Students without a teaching certificate must meet deficiencies, including certification requirements, as outlined by their adviser, in addition to completing the 30 semester hours. Depending upon their educational background, students may obtain Rank II Certification concurrently with their Master's Degree. Students preparing for positions not requiring certification may petition for waiver of certification requirements upon application for admission to the program.

Candidates for the Master of Arts in Education or Master of Science in Education degree with concentration in speech pathology and audiology are expected to meet the academic and clinical requirements established by the American Speech and Hearing Association for the Certificate of Clinical Competence. Briefly, these requirements include: (1) a total of 60 semester hours of study, of which, at least 30 must be in courses acceptable toward a graduate degree; and (2) 300 clock hours of supervised, direct clinical experience with individuals presenting a variety of communication disorders, of which at least 150 hours must be obtained at the graduate level. Master of Arts in Education or Master of Science in Education candidates in speech pathology and audiology must complete a minimum of 12 semester hours from the 600-700 level courses in speech pathology and audiology listed under special education. Successful completion of a comprehensive examination in speech pathology and audiology is also required.

General requirements for the Specialist in Education (Ed.S.) degree have been described in a previous section of this Bulletin. Ed.S. programs are individually planned for in-depth study in an



area of special education. Students who hold a Kentucky Rank II Certification are awarded Rank I Certification upon completion of this degree.

The Doctor of Education (Ed.D.) program is designed to prepare leadership personnel for the field of special education. Although various programs of study can be planned, primary emphasis is placed upon training persons for positions in higher education and administration of special education programs. The requirements for this program are described in the Doctor of Education section.

Two major types of financial assistance are available, on a competitive basis, to graduate students in special education.

1. Students may apply for graduate assistantships at all levels of graduate study. These are awarded from funds granted to the Department by the U.S. Office of Education, Bureau of Education for the Handicapped.
2. WHAS Crusade for Children traineeships for full-time study during summer school are available only to Kentucky teachers who are in the process of obtaining Provisional Certification in an area of special education.

Assistantships and traineeships are awarded on the basis of (1) commitment to the field, as evidenced by previous work experience, references, and/or volunteer service; (2) prior academic record; and (3) financial need. Applications for financial assistance may be obtained from the Departmental Director of Graduate Studies.

500	SPEECH ANALYSIS AND PERCEPTION .....	(3)
502	DEVELOPMENT AND EVALUATION OF INSTRUCTIONAL MATERIALS IN SPECIAL EDUCATION .....	(3)
505	EDUCATION OF THE TRAINABLE MENTALLY RETARDED .....	(3)
510	EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED .....	(2)
511	SPEECH AND LANGUAGE DEVELOPMENT .....	(3)
512	LANGUAGE DISORDERS I .....	(3)
514	SPECIAL EDUCATION LEARNING ENVIRONMENTS .....	(2)
515	CAREER EDUCATION IN SPECIAL EDUCATION .....	(2)
516	PRINCIPLES OF BEHAVIOR MANAGEMENT WITH EXCEPTIONAL CHILDREN .....	(2)
517	PROSTHETICS FOR HANDICAPPED CHILDREN .....	(2)
518	WORKING WITH PARENTS OF THE HANDICAPPED .....	(2)
523	LANGUAGE DISABILITIES OF THE MENTALLY RETARDED .....	(3)
524	PROGRAMS FOR THE ADOLESCENT MENTALLY RETARDED .....	(3)
525	EDUCATION OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED .....	(3)
526	EDUCATION OF THE EDUCABLE MENTALLY RETARDED .....	(3)
527	CHARACTERISTICS OF THE ORTHOPEDICALLY AND NEUROLOGICALLY HANDICAPPED .....	(3)
528	EDUCATIONAL ASSESSMENT OF THE MILDLY HANDICAPPED .....	(3)
529	EDUCATIONAL PROGRAMMING FOR THE MILDLY HANDICAPPED .....	(3)
530	CHARACTERISTICS OF THE MENTALLY RETARDED .....	(3)
541	CHARACTERISTICS OF THE TRAINABLE MENTALLY HANDICAPPED .....	(2)
547	DIRECT OBSERVATION AND ASSESSMENT .....	(2)

	PROCEDURES .....	(2)
548	CURRICULUM AND MATERIALS FOR THE TRAINABLE MENTALLY HANDICAPPED CLASSROOM .....	(2)
549	PRACTICUM IN THE TRAINABLE MENTALLY HANDICAPPED CLASSROOM .....	(4)
558	PROBLEMS IN SPECIAL EDUCATION: (VARIABLE TOPIC) .....	(1-9)
570	CHARACTERISTICS OF EMOTIONALLY DISTURBED CHILDREN .....	(3)
577	SPEECH PATHOLOGY: A SURVEY .....	(3)
578	SPEECH PATHOLOGY: AN INTRODUCTION TO THERAPY .....	(3)
579	STUTTERING .....	(3)
583	SPEECH MECHANISMS .....	(3)
584	INTRODUCTION TO AUDIOLOGY .....	(3)
587	AUDIOMETRY .....	(3)
591	AURAL REHABILITATION .....	(3)
592	PROBLEMS AND NEEDS OF THE HEARING IMPAIRED .....	(3)
600	SURVEY OF SPECIAL EDUCATION .....	(3)
601	BEHAVIORAL MANAGEMENT OF EXCEPTIONAL CHILDREN .....	(3)
602	ADMINISTRATION AND SUPERVISION IN SPECIAL EDUCATION .....	(3)
610	EDUCATIONAL EVALUATION OF EXCEPTIONAL CHILDREN .....	(3)
611	EDUCATIONAL REMEDIATION OF LEARNING DISABILITIES OF EXCEPTIONAL CHILDREN .....	(3)
612	ADVANCED PRACTICUM IN SPECIAL EDUCATION .....	(3-6)
613	ARTICULATION AND ARTICULATION DISORDERS .....	(3)
614	VOICE AND VOICE DISORDERS .....	(3)
617	CLEFT PALATE AND CEREBRAL PALSY .....	(3)
627	PRACTICUM IN SPEECH THERAPY .....	(3)
647	DISORDERS OF LANGUAGE .....	(3)
671	EDUCATION OF EMOTIONALLY DISTURBED CHILDREN .....	(3)
672	THEORIES OF EDUCATING EMOTIONALLY DISTURBED CHILDREN .....	(3)
702	SEMINAR IN SPEECH PATHOLOGY .....	(3)
710	SEMINAR IN MILD LEARNING AND BEHAVIOR DISORDERS .....	(2)
711	SEMINAR IN SEVERE DEVELOPMENTAL DISABILITIES .....	(2)
712	SEMINAR IN SPECIAL EDUCATION PROFESSIONAL SERVICES .....	(2)
720	SEMINAR IN SPECIAL EDUCATION TEACHER PREPARATION .....	(2)
721	PRACTICUM IN SPECIAL EDUCATION PERSONNEL PREPARATION .....	(1-9)
730	SEMINAR IN SPECIAL EDUCATION ADMINISTRATION .....	(2)
731	PRACTICUM IN SPECIAL EDUCATION ADMINISTRATION .....	(1-9)
768	RESIDENCE CREDIT FOR THE MASTER'S DEGREE .....	(1-6)
769	RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE .....	(0-12)
779	SEMINAR IN SPECIAL EDUCATION (VARIABLE TOPIC) .....	(3)
789	INDEPENDENT STUDY IN SPECIAL EDUCATION .....	(1-6)
799	RESEARCH TECHNIQUES IN SPECIAL EDUCATION .....	(3)

## STATISTICS

**Graduate Faculty:** Professors Richard Anderson (Chairman), Vasant Bhapkar, Saul Blumenthal (Director of Graduate Studies), Zakkula Govindarajula, Harlley McKean. Associate Professor David Allen, Peter Purdue.

**Associate Members:** Assistant Professors Emad El Newehi, James W. Evans, Dennis Haack.

The Department of Statistics offers programs of study leading to the degrees of Master of Science (Plan A or B available), and Doctor of Philosophy. Close cooperation with the Departments of Computer Science and Mathematics exists on matters related to courses, graduate programs and faculty. The University is expanding its research capability in areas associated with statistics, such as biological and engineering systems, econometrics, operations research and quantitative genetics.

A student intending to pursue graduate work in statistics should have one course each in ad-

vanced calculus (equivalent of Mathematics 432 or 471) and matrix algebra (equivalent of Mathematics 462) for the first year's graduate courses. If possible, mathematical deficiencies should be corrected during the summer prior to entering The Graduate School.

Students with an undergraduate major in mathematics, statistics or an applied field are urged to apply.

The University of Kentucky is represented on the Committee on Statistics of the Southern Regional Education Board.

### Master's Program

The department offers the degree of Master of Science with (Plan A) or without (Plan B) a thesis. The core curriculum expected of all master's students is comprised of the following three areas:

1. Statistical Inference: STA 531 and 601
2. Linear Models and Design: STA 503 and 603
3. Probability and Stochastic Processes: STA 524 and 624

Programs of study for Plan B require a total of at least 30 semester hours, which should include the equivalent of the six courses in the core curriculum and at least three other courses at the 500 level or higher. Those for Plan A should include the core curriculum and at least one other course at the 500 level or higher. At least 50 percent of the course hours in any master's program must be at the 600 level or higher. The non-core courses can be selected from a variety of courses both within and outside the Statistics Department. There are no formal minor requirements.

All master's candidates are required to take a departmental written examination. These exams are normally administered in January and August.

### Doctoral Program

The Department endeavors to provide a program with considerable breadth. Every student must take the equivalent of the six courses required for the Master's degree plus STA 701, 702 and 703. In addition, he/she takes at least seven other University 600-700 level courses, of which at least three should be from List A and at least two more should be from either List A or List B (below):

List A	List B
STA 612	STA 616

STA 630	STA 641
STA 661	STA 642
STA 665	STA 643
STA 621	STA 644

The last requirement may be modified for a student desiring an inter-departmental program such as operations research or for a student desiring a specialized program in an area such as probability. A reading knowledge of one foreign language is required of all Ph.D. candidates.

A student must pass the Master's departmental written examination at a Ph.D. level of competence to be eligible for the doctoral qualifying examination. The qualifying examination consists of a written examination taken by all Ph.D. students and an oral examination administered by the student's special committee.

Areas of dissertation research include Bayesian inference; categorical data analysis; decision theory; design and analysis for linear and non-linear models with emphasis on response surfaces, selection of predictors and variance components; empirical Bayesian procedures; misclassification problems; multivariate analysis; non-parametric inference; probability and stochastic processes; reliability; life-testing and sequential analysis.

417	PRINCIPLES OF OPERATIONS RESEARCH II	(3)
421	BASIC STATISTICAL THEORY I	(3)
422	BASIC STATISTICAL THEORY II	(3)
423	INTRODUCTORY PROBABILITY	(3)
482	DISCRETE METHODS AND MODELS IN APPLIED MATHEMATICS	(3)
503	INTRODUCTION TO STATISTICAL METHODS	(3)
515	MATHEMATICAL PROGRAMMING AND EXTENSIONS	(3)
523	PROBABILITY MODELS	(3)
524	PROBABILITY	(3)
525	INTRODUCTORY STATISTICAL INFERENCE	(3)
531	THEORY OF STATISTICAL INFERENCE I	(4)
601	THEORY OF STATISTICAL INFERENCE II	(3)
603	INTRODUCTION TO LINEAR MODELS AND EXPERIMENTAL DESIGN	(4)
612	SELECTED AREAS IN STATISTICS	(3)
616	DESIGN AND ANALYSIS OF SAMPLE SURVEYS	(3)
621	NONPARAMETRIC INFERENCE	(3)
624	APPLIED STOCHASTIC PROCESSES	(3)
626	TIME SERIES ANALYSIS	(3)
630	BAYESIAN INFERENCE	(3)
641	DESIGN AND ANALYSIS FOR VARIANCE COMPONENT MODELS	(3)
642	RESPONSE SURFACE TECHNIQUES	(3)
643	ADVANCED EXPERIMENTAL DESIGN	(3)
644	ADVANCED TOPICS IN DATA ANALYSIS	(3)
661	MULTIVARIATE ANALYSIS I	(3)
665	ANALYSIS OF CATEGORICAL DATA	(3)
670	BASIC STATISTICAL ANALYSIS	(4)
671	REGRESSION AND CORRELATION	(2)
672	DESIGN AND ANALYSIS OF EXPERIMENTS	(2)
673	DISTRIBUTION-FREE STATISTICAL INFERENCE AND ANALYSIS OF CATEGORICAL DATA	(2)
675	SURVEY SAMPLING	(2)
677	APPLIED MULTIVARIATE METHODS	(3)
678	STATISTICAL GENETICS	(3)
681	STATISTICAL TECHNIQUES FOR ENGINEERS AND PHYSICAL SCIENTISTS	(3)
690	SEMINAR IN STATISTICS	(1)
691	SPECIAL TOPICS IN THE PLANNING AND ANALYSIS OF EXPERIMENTS	(3)
695	SPECIAL TOPICS IN STATISTICAL THEORY	(3)
701	ADVANCED STATISTICAL INFERENCE I	(3)
702	ADVANCED STATISTICAL INFERENCE II	(3)
703	ADVANCED PROBABILITY	(3)
704	ADVANCED PROBABILITY-STOCHASTIC PROCESSES	(3)



722 TOPICS IN NONPARAMETRIC INFERENCE .....	(3)
762 MULTIVARIATE ANALYSIS II .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE (0-12)	

## TEXTILES, CLOTHING AND MERCHANDISING

**Graduate Faculty:** Professor Marjorie Stewart (Dean and Director of Graduate Studies).

**Associate Member:** Assistant Professor Betty McClaskey

412 MERCHANDISING I—PROMOTION .....	(3)
414 MERCHANDISING II—BUYING PROCEDURES .....	(3)
430 TAILORING .....	(3)
439 THE CHILD AND HIS CLOTHING .....	(3)
520 TEXTILES II .....	(3)
522 HISTORY OF TEXTILES .....	(3)
526 DECORATIVE TEXTILES .....	(3)
533 HISTORY OF COSTUME .....	(2)
537 SOCIO-PSYCHOLOGICAL AND ECONOMIC ASPECTS OF APPAREL .....	(3)
540 TEXTILES AND DESIGN STUDY TOUR .....	(1-3)
590 MERCHANDISING III—INTERNSHIP .....	(5)
592 SPECIAL PROBLEMS IN CLOTHING AND COSTUME DESIGN .....	(1-3)
597 SPECIAL PROBLEMS IN TEXTILES .....	(1-3)
660 EXPERIMENTAL APPAREL CONSTRUCTION .....	(3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE (1-6)	
772 SEMINAR IN TEXTILES AND CLOTHING .....	(2)
782 SPECIAL PROBLEMS IN CLOTHING AND COSTUME DESIGN .....	(1-3)
787 SPECIAL PROBLEMS IN TEXTILES .....	(1-3)

## THEATRE ARTS

**Graduate Faculty:** Professor J. Robert Wills (Director of Graduate Studies).

Theatre lives at the moment of contact between actor and audience. This Department expects its graduate students to approach that moment from several points: historical, critical, practical, theoretical and experimental. Within this framework, each candidate for a Master of Arts degree must complete a minimum of 30 semester hours. A maximum of six of these may be taken in allied subjects. Graduate students are encouraged to concentrate in one of the following areas: acting, directing, design, production.

It is assumed that a student who seeks a Master's degree in the Department of Theatre Arts will have had courses approximating those required for an A.B. degree with a major in theatre arts. If not he/she must remove the deficiency by taking (without graduate credit) courses in addition to those normally specified for the Master's degree.

The Department offers the Master's degree according to Plan B only at the present time.

588 CONTEMPORARY THEATRE .....	(3)
589 HISTORY OF THEATRE IN THE UNITED STATES ....	(3)
590 HISTORY OF THE THEATRE I .....	(3)
591 HISTORY OF THE THEATRE II .....	(3)
592 SCENOGRAPHY I .....	(3)
593 SCENOGRAPHY II .....	(3)
594 ACTING III .....	(3)
595 ACTING IV .....	(3)
596 PLAYWRITING .....	(3)
597 TEACHING OF THEATRE ARTS .....	(3)

598 THEATRE DIRECTING I .....	(3)
599 THEATRE DIRECTING II .....	(3)
690 STUDIES IN TECHNICAL THEATRE: PRODUCTION ..	(3)
691 STUDIES IN TECHNICAL THEATRE: LIGHTING .....	(3)
694 ADVANCED STYLES OF ACTING .....	(3)
770 SEMINAR IN THEATRE .....	(3)
780 INDEPENDENT STUDY IN THEATRE .....	(3)
798 DIRECTING .....	(3)

## TOXICOLOGY

**Director of Graduate Studies—Tihamer Z. Csaky**

**Associate Director of Graduate Studies—H. Wyman Dorough**

**Graduate Faculty:** Professors Charles Ambrose, Wesley Birge, T. Z. Csaky, Wyman Dorough, Helmut Gordon, Malcolm R. Siegal, William Waddell. Associate Professors James W. Flesher, Mark Luckens, Thomas Tobin.

**Associate Member:** Assistant Professor John Dougherty.

The Graduate Program in Toxicology is inter-departmental with members of the various faculties of the Medical Center, the College of Arts and Sciences, and the College of Agriculture participating. Both the M.S. (Plan A) and Ph.D. degrees are offered.

Toxicology, the science of poisons, is concerned with the interaction of chemical agents or changes in the physico-chemical environment with living systems. The Graduate Program in Toxicology is designed to train individuals to utilize the biological, physical, and mathematical sciences in the study of the causes, mechanisms, and evaluation of poisoning as well as the sources, identification and quantitation of poisons.

Graduates of accredited colleges with baccalaureate degrees in the biological sciences, chemistry, or physics or professional degrees in medicine, dentistry, pharmacy, or veterinary medicine may apply for graduate study in the toxicology program. It is advisable that candidates have a good background in chemistry, physics, biological sciences, and mathematics. Students with other advanced degrees may be considered for admission. However, the number of credits and courses transferable will be considered on the merits of each individual case.

Since each candidate may be expected to have specific interests, the actual curriculum will be tailored to meet individual needs. Only one modern foreign language is required for the Ph.D. degree in Toxicology.

Inquiries concerning the details of the program as well as possible financial support for graduate students should be addressed to the Director of Graduate Studies in Toxicology, Department of Pharmacology.

521 GENERAL PHARMACO-AND TOXICODYNAMICS .....	(2)
640 DETOXIFICATION MECHANISMS .....	(3)
680 TOXICOLOGY .....	(5)

768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTORAL DEGREE	(0-12)
770 PROSEMINAR IN TOXICOLOGY	(1)
790 RESEARCH IN TOXICOLOGY	(1-5)

## VETERINARY SCIENCE

**Graduate Faculty:** Professors John Bryans (Chairman), R. W. Darlington (Director of Graduate Studies), J. H. Drudge, W. H. McCollum. Associate Professors R. G. Loy, E. T. Lyons, T. W. Swerczek, Thomas Tobin.

**Associate Member:** Assistant Professors J. W. Blake, Judith Pachcianz

The Department of Veterinary Science offers a program of study and research leading to the Master of Science (Plan A only) and Doctor of Philosophy degrees. Possible areas of concentration are comparative pathology, parasitology, reproductive physiology, pharmacology and toxicology, immunology and virology. The program is designed for individuals with the Doctor of Veterinary Medicine degree who desire research training in one of the above areas and for qualified graduates of accredited undergraduate institutions. Individuals electing pathology as their area of concentration must be graduate veterinarians. Individual programs of study must conform with the general rules and regulations of The Graduate School.

A limited number of research assistantships and fellowships are available.

768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE	(0-12)
770 VETERINARY SCIENCE SEMINAR	(1)
781 CORRELATIVE PATHOLOGY	(1-3)
782 NUTRITIONAL PATHOLOGY	(3)
783 INFECTIOUS DISEASES OF DOMESTIC ANIMALS	(3)
784 ADVANCED VETERINARY IMMUNOLOGY	(2)
785 ADVANCED VETERINARY PARASITOLOGY	(3)
786 ADVANCED VETERINARY PATHOLOGY	(3)
787 ADVANCED VETERINARY PATHOLOGY	(3)
791 RESEARCH IN VETERINARY MICROBIOLOGY	(1-9)
792 RESEARCH IN GENERAL VETERINARY PATHOLOGY	(1-9)
793 RESEARCH IN VETERINARY PARASITOLOGY	(1-9)
794 RESEARCH IN NUTRITIONAL PATHOLOGY	(1-9)

## VOCATIONAL EDUCATION

**Graduate Faculty:** Professors Harold R. Binkley (Chairman and Director of Graduate Studies), Herbert Bruce, Carl Lamar, Vernon Musselman (Director of Graduate Studies for Business Education). Associate Professors Clayton Omvig, David McMurtry.

**Associate Members:** Professors Bernard Fagan, Leonard McDowell. Associate Professors Ray Bernardi, Charles Byers. Assistant Professors Maynard Iverson, Betty Powers, Rodney Tulloch.

The Department of Vocational Education offers programs leading to the Master of Arts in Education in the fields of business education and distributive education and the Master of Science in Education in the other areas (Plan A and Plan B available), the Specialist in Education (Ed.S.)

degree, and the Doctor of Education (Ed.D.) degree. These advanced degree programs are designed to prepare candidates for leadership positions in vocational education—administration, curriculum, teacher education, research, and vocational guidance.

In addition, the Department offers programs leading to: (1) the professional certification of administrators, coordinators, and supervisors in vocational education and (2) certification of master's equivalent for Rank II classification (for Kentucky salary purposes) for teaching.

For further information, write the Department of Vocational Education.

### Master's Degree Programs in Vocational Education

For a master's degree in vocational education (agricultural education, business education, distributive education, home economics education, industrial education, or vocational education) a minimum of 30 semester hours of graduate work must be taken with a minimum of 12 hours of graduate work in professional education. At least 12 semester hours shall be taken from three of six areas—I through VI. This program qualifies the teacher for a Standard Certificate if he has completed a four-year undergraduate curriculum.

### All Program Service Areas

Area II: Research

EDP 522, EDP 656, and EDP 657.

Area III: Advanced Study in Human Development

SOC 521, SOC 542, EDP 600, EDP 739, EDP 759.

Area IV: Psychology of Learning

PSY 540, EDP 548, and EDP 658.

Area VI: Foundations in Education

EDF 640, EDF 645, EDF 651, EDF 655, and EDF 661 (SOC 661).

### Agricultural Education

Area I: Curriculum Development

EDV 672, EDV 678, and EDC 732.

Area V: A Seminar in Instruction Devoted to Method in Teaching

EDV 670, EDV 671, EDV 675, EDV 679, EDV 680, EDV 681, EDV 682, EDV 695, EDV 779, and EDV 789.

### Business Education

Area I: Curriculum Development

EDV 615, EDV 626, EDV 678, EDC 714, and EDC 732.



Area V: A Seminar in Instruction Devoted to Method of Teaching  
EDV 511, EDV 512, EDV 615, EDV 618, EDV 695, EDV 779, and EDV 789.

### Distributive Education

Area I: Curriculum Development  
EDV 517, EDV 678, and EDC 732.

Area V: A Seminar in Instruction Devoted to Method of Teaching  
EDV 516, EDV 526, EDV 610, EDV 670, EDV 671, EDV 695, EDV 779, and EDV 789.

### Home Economics Education

Area I: Curriculum Development  
EDV 678, EDV 685, and EDC 732.

Area V: A Seminar in Instruction Devoted to the Method of Teaching  
EDV 670, EDV 684, EDV 686, EDV 687, EDV 695, EDV 779, and EDV 789.

### Industrial Education

Area I: Curriculum Development  
EDV 678, and EDC 732.

Area V: A Seminar in Instruction Devoted to the Method of Teaching  
EDV 516, EDV 518, EDV 529, EDV 537, EDV 670, EDV 693, EDV 695, EDV 779, and EDV 789.

### Vocational Education

Area I: Curriculum Development  
EDV 517, EDV 672, EDV 678, EDV 685, and EDC 732.

Area V: A Seminar in Instruction Devoted to the Method of Teaching  
EDV 516, EDV 518, EDV 528, EDV 615, EDV 670, EDV 693, EDV 695, EDV 779, and EDV 789.

### The Ed.S. and Doctoral (Ed.D.) Degree Programs in Vocational Education

For information, write the appropriate director of graduate studies in the Department of Vocational Education. See Graduate School section of Bulletin.

### Certification of Administrators, Supervisors, and Coordinators of Vocational Education

For certification as an administrator, coordinator, or supervisor of Vocational Education the student must complete a minimum of 15 semester hours of graduate level courses **above and beyond**

the course requirements for the 10-year teaching certificate. Courses are to be selected from those listed below, including at least one course in each of the four curriculum areas.

Curriculum Areas and Courses		Sem. Hrs.
Organization and Administration of Vocational Education		
EDV 535	Principles and Philosophy of Vocational Education	2
EDV 694	Administration of Vocational Education	3
EDV 779	Seminar in Vocational Education	1-3
Administration and Supervision of Education Personnel		
EDA 633	Administration and Supervision of Instructional Programs	3
EDA 634	Administration of Educational Personnel (Required in this area)	3
EDV 608	Internship in Vocational Education	3
EDV 693	Supervision in Vocational Education	3
Program Planning, Research, and Evaluation in Vocational Education		
EDV 529	Evaluation on Industrial and Distributive Education	2
EDV 695	Special Problems in Vocational Education	3
EDP 656	Methodology in Educational Research	3
EDP 660	Research Design and Analysis in Education	3
Vocational Guidance, Industrial Psychology, Human Relations		
EDP 764	Using Occupational and Educational Information in Counseling	3
EDV 523	Vocational Guidance	2-3
EDV 702	Career Development, Research Theories and Practice	2-3
PSY 540	Introduction to Industrial Psychology	3
PSY 541	Psychology of Industrial Personnel Procedure	3
PSY 545	Small Group Behavior	3
SOC 521	Industrial Sociology	3
SOC 542	Human Relations in Administration	3

## AGRICULTURAL EDUCATION

580 MATERIALS AND METHODS FOR TEACHING VOCATIONAL AGRICULTURE .....	(3)
581 ADULT-FARMER SCHOOLS AND YOUNG-FARMER COURSES IN AGRICULTURE .....	(3)
583 EXPERIENCE PROGRAMS IN VOCATIONAL AGRICULTURE .....	(3)
672 DETERMINING CONTENT IN VOCATIONAL AGRICULTURE .....	(3)
673 PROGRAM DEVELOPMENT IN VOCATIONAL AGRICULTURE .....	(3)
675 MODERN PROBLEMS IN AGRICULTURAL EDUCATION .....	(3)
679 ADULT EDUCATION IN AGRICULTURE .....	(3)
680 DIRECTING OCCUPATIONAL EXPERIENCE IN AGRICULTURE .....	(3)
681 TEACHING FARM SHOP .....	(3)
682 EDUCATION IN AGRICULTURE FOR YOUNG ADULTS .....	(3)

## BUSINESS EDUCATION

511 TEACHING SECRETARIAL SUBJECTS .....	(3)
512 TEACHING BOOKKEEPING AND ACCOUNTING .....	(3)
513 TEACHING TYPEWRITING AND CLERICAL PRACTICE .....	(3)
514 TEACHING GENERAL BUSINESS SUBJECTS IN THE SECONDARY SCHOOLS .....	(3)
615 PROBLEMS IN BUSINESS EDUCATION .....	(3)
618 THE SOCIAL BUSINESS SUBJECTS IN HIGH SCHOOL .....	(3)
623 ADMINISTRATION AND SUPERVISION OF BUSINESS EDUCATION .....	(3)
626 CLASSIFICATION AND POSSIBLE USE OF COMMUNITY RESOURCES IN BUSINESS EDUCATION .....	(3)

## BUSINESS AND OFFICE EDUCATION (BOE is the abbreviation for these courses.)

445 OFFICE ADMINISTRATION AND SERVICES .....	(3)
519 RECORDS MANAGEMENT .....	(3)
556 BUSINESS RESEARCH REPORTS .....	(3)
640 ADVANCED METHODS IN THE SECRETARIAL SUBJECTS .....	(3)

## HOME ECONOMICS EDUCATION

539 THE ELEMENTARY CURRICULUM .....	(3)
540 PROBLEMS IN TEACHING READING .....	(3)
EDC 542 CHILDREN'S LITERATURE .....	(3)
EDC 543 TEACHING IN THE KINDERGARTEN .....	(3)
EDC 544 UTILIZATION OF EDUCATIONAL MEDIA .....	(3)
586 TEACHING HOME ECONOMICS IN THE SECONDARY SCHOOL .....	(3)
588 ADULT EDUCATION IN HOME ECONOMICS .....	(3)
590 PROBLEMS IN HOME ECONOMICS EDUCATION .....	(3)
610 SIMULATED OCCUPATIONAL EXPERIENCE PROGRAM IN DISTRIBUTIVE EDUCATION .....	(2-4)
683 CURRENT PROBLEMS IN HOME ECONOMICS EDUCATION .....	(3)
684 CURRENT TRENDS IN HOME ECONOMICS EDUCATION .....	(3)
685 HOME ECONOMICS CURRICULUM CONSTRUCTION ..	(3)
686 EVALUATION IN HOME ECONOMICS EDUCATION ..	(3)
687 HOME ECONOMICS SUPERVISION .....	(3)

## VOCATIONAL EDUCATION

516 PROBLEMS OF THE COORDINATOR IN VOCATIONAL EDUCATION .....	(2-3)
523 VOCATIONAL GUIDANCE .....	(2-3)
535 PRINCIPLES AND PHILOSOPHY OF VOCATIONAL EDUCATION .....	(2-3)
608 INTERNSHIP IN VOCATIONAL EDUCATION .....	(6)
641 APPRAISAL OF CURRENT LITERATURE IN VOCATIONAL EDUCATION .....	(3)
670 METHOD IN TEACHING VOCATIONAL EDUCATION ..	(3)
671 YOUTH ORGANIZATIONS IN VOCATIONAL EDUCATION .....	(3)

678 SELECTING TEACHING MATERIALS .....	(3)
693 SUPERVISION IN VOCATIONAL EDUCATION .....	(3)
694 THE ADMINISTRATION OF VOCATIONAL EDUCATION .....	(3)
695 SPECIAL PROBLEMS IN VOCATIONAL EDUCATION ..	(3)
702 CAREER DEVELOPMENT: RESEARCH, THEORIES AND PRACTICES .....	(2-3)
768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE ..	(1-6)
769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE ..	(0-12)
779 SEMINAR IN VOCATIONAL EDUCATION .....	(1-3)
789 INDEPENDENT WORK IN VOCATIONAL EDUCATION .....	(1-3)
799 RESEARCH IN VOCATIONAL EDUCATION .....	(1-3)

## DISTRIBUTIVE EDUCATION

515 PROBLEMS IN DISTRIBUTIVE EDUCATION .....	(2-3)
517 DETERMINING TEACHING CONTENT IN DISTRIBUTIVE EDUCATION .....	(2-3)
526 ORGANIZATION AND OPERATION OF ADULT PROGRAMS IN DISTRIBUTIVE EDUCATION .....	(3)
528 TECHNIQUE OF TEACHING DISTRIBUTIVE EDUCATION .....	(2-3)

## INDUSTRIAL EDUCATION

518 METHODS IN INDUSTRIAL EDUCATION .....	(2)
524 MODERN INDUSTRIAL ANALYSIS .....	(2)
525 SUPERVISED WORK EXPERIENCE IN BUSINESS OR INDUSTRY .....	(3)
529 EVALUATION IN INDUSTRIAL AND DISTRIBUTIVE EDUCATION .....	(2)
534 ORGANIZATION AND OPERATION OF PART-TIME AND EVENING CLASSES .....	(2)
536 SURVEYS IN INDUSTRIAL EDUCATION .....	(2)
537 SPECIAL PROBLEMS IN INDUSTRIAL EDUCATION ..	(1-3)
540 SUPERVISION OF STUDENT TEACHING IN INDUSTRIAL EDUCATION .....	(2)

## ZOOLOGY

**Graduate Faculty:** Professors R. W. Barbour, T. C. Barr, W. J. Birge, S. F. Conti, E. C. Crawford and W. H. Davis. Associate Professors, J. C. Calkins, J. J. Just, and R. A. Kuehne.

**Associate Members:** Assistant Professors P. H. Bonner, R. S. Hakim, D. J. Prior, and G. Uglem.

Graduates of accredited colleges with a bachelor's degree in Zoology or Biological Sciences who satisfy the requirements of the graduate school may apply for admission to the graduate program for work leading to degrees of Master of Science or Master of Arts in Zoology according to Plan A or Plan B or a Doctor of Philosophy in Biology. (See the Thomas Hunt Morgan School of Biological Sciences.) Almost all fields of study encompassed by Zoology are available to students in the program.

(See courses in Biology.)



# COURSE LISTINGS BY SEMESTER

This listing is not intended to reflect all graduate courses offered during any semester but to serve only as a guide for scheduling selected courses.

The following symbols are used—F: fall semester; S: spring semester, SS: summer session

COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS
<b>ACCOUNTING</b>				658		x		538		x		742		x		670		x	
401	x	x		660		x		562	x			750	x	x	x	672	x		
403	x	x		750	x	x	x	564		x		764		x		680	x		
408	x	x		775	x	x		580	x			765	x			707		x	
410	x			795	x	x	x	600	x			767	x	x	x	714	x		
416	x	x		<b>AGRONOMY</b>				630	x			768	x	x	x	716		x	
417	x	x		554		x		660		x		769	x	x	x	718		x	
419	x	x	x	556		x		662		x		770	x	x	x	720		x	
515	x	x		560		x		664		x		790	x	x	x	732	x		
517	x	x		560		x		680	x			<b>BEHAVIORAL SCIENCE</b>				735		x	
518	x	x		599	x	x	x	681			x	527		x		740		x	
527	x	x		620		x		683			x	529		x		768	x	x	x
537	x	x		658		x		684		x		546		x		769	x	x	x
547	x	x		666	x			685	x			670		x		770	x	x	
601	x			678		x		686	x			761	x			771	x	x	
603		x		768	x	x	x	687		x		764	x			772	x	x	
608	x			769	x	x	x	688		x		765	x			773	x	x	
617	x			770	x	x	x	768	x	x	x	766	x			774	x	x	
619	x	x	x	799	x	x	x	769	x	x	x	767	x	x	x	795	x	x	x
624	x	x		404	x			771	x	x		772		x		796	x	x	x
628	x	x		406	x			780	x	x	x	777		x		797	x	x	x
701	x	x		408	x			781	x	x	x	778	x			798	x	x	x
708	x	x		412	x			782	x	x	x	790	x	x	x	<b>CHEMICAL ENGINEERING</b>			
795	x	x	x	502	x			790	x	x	x	412		x		422	x		
<b>ADMINISTRATION</b>				510		x		791	x	x	x	422		x		430	x		
<b>SUPERVISION</b>				630	x			792	x	x	x	431		x		432		x	
601		x	x	730		x		<b>ANTHROPOLOGY</b>				401	x			455	x		
602	x		x	732	x			402	x			501	x			456		x	
603		x		734		x		428	x			502		x		462	x		
604	x			736		x		430		x		503	x			505	x		
608	x	x		470		x		438		x		517		x	x	515	x		
628	x	x		473	x			442	x			618	x			520	x		
629	x		x	562	x			490	x	x	x	619	x	x		530		x	
633	x		x	566		x		510	x			640	x	x		550	x		
634		x	x	575		x		512	x			<b>BIOCHEMISTRY</b>				552	x		
635		x	x	581	x			515	x			401	x			555		x	
639		x	x	652		x		516		x		501	x			560	x		
649	x			660	x			518		x		502	x	x		565		x	
769	x	x	x	671	x			519		x		508	x			570	x		
771	x	x	x	675	x			520	x			515	x	x		580		x	
772	x	x	x	681		x		521	x			522	x	x	x	615	x		
785	x	x	x	712	x			523	x			523	x	x		617	x		
<b>AGRICULTURAL</b>				721		x		524	x			524	x	x		619		x	
<b>ECONOMICS</b>				741		x		525		x		525	x	x		621		x	
501		x		<b>ANATOMY</b>				526	x	x	x	530	x	x		625	x		
545	x			503	x	x	x	527	x			531	x			631	x		
606		x		511	x			529		x		535	x			633	x		
620	x			512	x			530		x		540		x		635	x		
580	x	x	x	513	x			531	x			542	x	x		637		x	
590	x		x	516		x		532	x			544		x		638		x	
660	x			529		x		533	x			550	x			642	x		
768	x	x	x	530	x			534		x		551	x	x		643		x	
769	x	x	x	532		x		536		x		552	x	x		650	x		
780	x	x	x	533	x			538		x		553	x	x		665	x		
<b>AGRICULTURAL</b>				534		x		541		x		555	x			671		x	
<b>ENGINEERING</b>				536		x		542		x		557		x		680		x	
400	x			538		x		546		x		559	x	x		768	x	x	x
405	x			611	x		x	548		x		560	x			769	x	x	x
406		x		629		x		550	x	x	x	563	x			771	x	x	
410	x			631	x			555	x			565		x		780	x	x	x
417	x			634		x		560	x			570		x		<b>CHEMISTRY</b>			
427		x		636		x		570	x	x		571		x		440	x		
430	x			638		x		580	x	x		573	x			441		x	
437	x			651		x		581	x	x	x	574	x			442		x	
447		x		662			x	582	x	x		575	x			443		x	
450	x	x	x	768	x	x	x	585	x	x	x	576	x			444	x		
503	x			769	x	x	x	605		x		580	x			490			x
505	x			<b>ANIMAL SCIENCES</b>				610		x		585	x			510	x		
519	x	x		404		x		611	x			590	x			512		x	
525		x		406	x	x		612	x			594		x		520	x		
535	x			408	x			613		x		617		x		522		x	
548	x			410	x			614	x			619		x		532	x		
599	x	x	x	412		x		670	x			621	x	x		533		x	
606		x		420	x			690	x	x	x	625	x			538	x		
618	x			430		x		710	x			630	x			547		x	
628		x		442		x		720		x		635		x		548	x		
635		x		442		x		721		x		640		x		550	x		
645		x		530		x		725		x		655	x			552		x	
648	x			532		x		727		x		660		x					
				534		x		731	x			667	x						
				536	x			741		x									

COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS
572	x	x		705	x			533	x	x	x	661	x			562			x
626	x	x		721		x		534		x		662		x		564	x		
623	x	x		730		x		538			x	671		x		567		x	
635	x	x		731	x			539			x	673	x			580	x		
776	x	x		741		x		540	x		x	676	x			581		x	
				768	x	x	x	542			x	679	x			601	x		
				781	x	x	x	543	x	x	x	686	x			602		x	
<b>CIVIL ENGINEERING</b>								544	x	x	x	687		x		611	x		
425	x	x						545	x	x	x	688	x	x		612		x	
435		x		<b>Journalism</b>				546	x	x	x	692		x		624	x		
515	x			501	x	x		549	x		x	761		x		640	x		
523		x		503	x	x		550	x		x	771	x			641		x	
528		x		509	x	x		552		x		773		x					
529		x		511	x			562		x		776		x		<b>ENTOMOLOGY</b>			
531	x			513	x		x	563				779		x		400	x		
532		x		531	x	x		564				783		x		402	x		
533	x			535	x			565	x	x		786		x		530		x	
540	x			537		x		572			x	788		x		561		x	
543		x		539	x	x		575	x	x	x	792		x		562	x		
545	x			541		x		576			x	793	x			563	x		
550	x	x		561	x	x		596			x	795		x		564		x	
553		x		563	x	x		600			x	796			x	606		x	
554		x		575		x		606	x		x	797	x	x		626		x	
555	x	x		581	x	x		607	x							635		x	
559		x						619		x		<b>EDUCATIONAL PSYCHOLOGY AND COUNSELING</b>				650	x		
568	x			<b>Telecommunication</b>				620	x	x	x	518	x	x	x	660		x	
580	x			432		x		641		x		520	x	x		665		x	
621	x			500	x			642	x			521	x			667	x		
623		x		501		x		643		x		522	x	x	x	670	x		
624	x			504		x		646	x			600	x	x	x	680	x		
625	x			505	x			650			x	601	x			768	x	x	x
626		x		507		x		670		x	x	605	x	x	x	769	x	x	x
628		x		510	x			712	x	x	x	610	x			770	x	x	x
629	x			511		x		714	x	x	x	611		x		780	x	x	x
635		x		512	x			717				640	x	x		790	x	x	x
639		x		530		x		724	x	x	x	641	x	x		<b>FORESTRY</b>			
640	x			599	x	x	x	730	x	x	x	649	x	x	x	400	x		
641	x							732	x	x	x	652	x	x	x	402	x		
643		x		<b>COMMUNITY HEALTH</b>				735			x	653	x			405		x	
644		x		420		x		740	x	x	x	656	x	x	x	410		x	
645	x			481	x	x	x	745		x		657	x	x	x	412		x	
646			x	500	x			746	x			658	x			415	x		
648				501		x		747	x			659	x			420		x	
652		x		511	x	x	x	750			x	660	x	x		425	x		
655		x		515		x		751				661	x	x	x	430	x		
662	x			521		x		757			x	664	x			440	x		
663	x			600	x			768	x	x	x	665	x	x		445	x		
664		x						769	x	x	x	666	x			450		x	
669	x			<b>COMPUTER SCIENCE</b>				777	x	x	x	675	x	x		455		x	
674	x			415	x			780	x	x	x	677	x			460	x		
678	x			420	x			781	x	x	x	680	x	x		512		x	
681		x		421	x	x	x	790	x	x	x	683	x	x		562	x		
683	x			472	x	x		791	x	x	x	701	x	x		599	x	x	
686	x			502	x	x						702	x	x		601	x		
691		x		510		x		<b>DIPLOMACY AND INTERNATIONAL COMMERCE</b>				707		x		612	x		
692	x			520	x	x		768	x	x		708	x	x	x	<b>GEOGRAPHY</b>			
693		x		538	x	x		769	x	x		747	x			501			x
694	x			540	x	x		<b>ECONOMICS</b>				759	x			505		x	
695		x		541		x		461	x			762	x			520	x	x	
				562		x		462		x		763	x	x	x	522	x	x	
<b>CLINICAL NUTRITION</b>				570	x	x		463		x		765	x	x	x	524	x		
502	x	x		575	x	x		464	x			768	x	x	x	526	x		
504	x	x		605	x			465	x	x		769	x	x	x	532		x	
601	x			612	x	x	x	466		x		777	x	x		534		x	
602		x		650	x	x		467	x			778	x	x		540	x		
701	x			670		x		468		x		782	x	x		544	x		
702		x		682	x			469	x	x						550		x	
780	x	x	x	683		x		471	x	x		<b>ELECTRICAL ENGINEERING</b>				560	x	x	
781	x	x	x	685	x	x		472	x	x		402		x		565	x	x	
782	x	x	x	690	x	x		473	x	x		403	x	x		601			x
				768	x	x	x	474	x	x		415	x	x		655	x	x	
								477	x	x		416	x	x		695		x	
<b>CLINICAL PASTORAL COUNSELING</b>				<b>CROP SCIENCE</b>				478	x	x		420	x	x		700		x	
501	x	x	x	404	x			479	x	x		435	x	x		707	x		
				406	x			480	x			461	x	x		715	x	x	
<b>COMMUNICATION</b>				502	x			481		x		462	x	x		730	x	x	
550	x	x		510		x		483		x		467	x	x		768	x	x	
551	x	x		599	x	x	x	484	x			468	x	x		769	x	x	
553	x	x	x	630	x			485	x	x		471	x	x		771	x	x	
554	x	x		768	x	x	x	486		x		511		x		772	x		
581	x	x		769	x	x	x	487	x	x		512		x		<b>GEOLOGY</b>			
582	x	x		770	x	x	x	488	x	x		517		x		401	x		
601	x		x	779	x	x	x	490			x	520	x			420	x		
605		x						492	x			528	x			423			x
607		x		<b>CURRICULUM AND INSTRUCTION</b>				592				537	x			424			x
608		x		500	x	x		660	x			538		x		450	x		
614	x	x		501	x	x	x					560	x			501		x	
615	x			521	x	x													
650	x			522	x	x													
651		x	x	524	x	x													
665		x	x	525	x	x													



COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS
510		x		734		x	x	LIBRARY SCIENCE				534		x	
511	x			768	x	x	x	500	x			535	x		
530	x			769	x	x	x	501		x		536		x	
531		x		798	x	x	x	502	x		x	538		x	
540		x		799	x	x	x	503	x			539	x		
552	x							504		x		541	x		
560				HISTORY				509	x		x	544		x	
561	x			500	x			510	x	x		550		x	
571		x		501		x		525	x	x	x	551	x		
572		x		502	x			586	x	x	x	552		x	
612	x			503		x		600	x			553	x		
620	x			512	x			601	x	x		566	x		
624	x			513		x		602	x		x	599	x	x	
654		x		519	x			603		x	x	632		x	
655		x		520		x		604	x			633	x		
660		x		524	x			605	x	x		635		x	
665	x			525		x		606		x		636			
670		x		542	x			608	x			637	x		
671	x			543		x		609	x	x	x	641	x		
720		x		550	x			610		x	x	650		x	
732	x			551		x		611	x			659	x		
733	x			554	x			613	x			661		x	
760				555		x		614		x		662	x		
768	x	x	x	556	x			617	x			663	x		
769	x	x	x	557		x		618		x		666		x	
782	x	x	x	572	x			619	x			768	x	x	
GERMANIC LANGUAGES AND LITERATURE				573		x		620		x		769	x	x	
536		x		574	x			621				771	x	x	
537	x			575		x		623		x		781	x	x	
538		x		576	x			624		x	x	782	x	x	
539	x			577		x		625							
553	x			590	x		x	626		x					
621	x			591				627		x		SCHOOL OF MUSIC			
622		x		606	x			628	x			506		x	
								630	x			520	x		
				HORTICULTURE AND LANDSCAPE ARCHITECTURE				635	x		x	521	x		
				402		x		640			x	522		x	
				510		x		641		x		524	x	x	
				512		x		687	x	x	x	530	x	x	
				515	x			690	x	x	x	561			x
				524		x		695	x	x	x	565		x	
				570		x						568	x	x	
				582	x		x	462	x			570		x	
				601		x		586	x	x		571		x	
				625	x			596	x	x		572	x		
				732	x			602	x			573		x	
				734		x		668		x		574	x		
				736		x						575		x	
				770	x	x		MECHANICAL ENGINEERING				578	x		x
				790	x	x	x	475		x		601		x	
								480		x		617	x		
				HOUSING AND INTERIOR DESIGN				514	x			618		x	
				401	x			515		x		620	x		
				402		x		517	x			621	x		
				405	x			530	x			622		x	
				507	x			565		x		623		x	
				508		x		566	x			624	x		
				528		x	x	567	x			625	x		
				526	x			583	x			650			x
				548			x	590		x		671	x		
				593	x	x	x	611		x		672		x	
				772		x		620	x	x		673	x	x	
				783	x	x	x	621		x		674	x		
								625	x			675		x	
				HUMAN DEVELOPMENT AND FAMILY RELATIONS				630	x			677	x		
				540	x	x		631		x		700		x	
				541	x	x		642	x			701	x		
				542	x	x		643		x		702		x	
				551	x			664		x		703		x	
				552		x		666	x			718	x		
				553	x		x	667		x		719	x	x	x
				554	x		x					750		x	
				555	x			412	x	x		751	x		x
				557		x		413	x			762		x	
				573		x		421		x		766	x		
				595	x	x		425	x			767	x	x	x
				599	x	x		426		x		768	x	x	x
				604	x			442		x		769	x	x	x
				605	x	x		443	x			770		x	
				652	x		x	444		x		771	x	x	x
				653		x		451	x			790	x	x	x
				655	x		x	505	x			791	x	x	x
				658		x		506		x					
				785	x	x		531				NURSING			
				790		x		532		x		543			
												560	x		
												610			
												612			
												614	x		
												615		x	
												616			x
												620	x	x	x
												622		x	
												</			

COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS	COURSE	F	S	SS
663		x		769	x	x	x	501	x	x		524		x	x	770	x	x	
665	x			770	x	x		511	x	x		525		x	x	790	x	x	x
724	x			799	x	x	x	516	x	x		526		x	x				
725		x						520	x	x	x	527	x		x				
750		x		<b>SPECIAL EDUCATION</b>				601	x	x		530	x	x	x	<b>VETERINARY SCIENCE</b>			
768	x	x	x	500	x			620	x	x		558	x	x	x	770	x	x	
				501	x			630	x	x		570	x	x	x				
<b>PHYSIOLOGY AND BIOPHYSICS</b>				502		x	x	640	x	x	x	577	x	x	x	<b>VOCATIONAL EDUCATION</b>			
502	x			505	x	x	x	650	x	x	x	578	x	x	x	<b>Agricultural Education</b>			
503				523	x			690	x	x		579	x			580	x	x	
504	x	x	x	627		x		701	x			583	x			581	x	x	
507	x			629	x			720		x		584	x			583	x	x	
511		x		630	x			721		x		587		x		672			x
512	x			631	x			740	x			591		x		673			x
520		x		632		x		745		x		592		x		675			x
522	x			633		x		750	x			600	x	x	x	679			x
602			x	636	x			770	x	x		601	x	x	x	680			x
603			x	637	x			780	x	x	x	602	x	x	x	681			x
606	x			640	x							610	x			682			x
627		x		641	x			<b>SOCIOLOGY</b>				611		x					
630	x	x		647	x			409	x	x		612	x	x	x	<b>Business Education</b>			
660	x	x		703	x			413	x			613	x			511	x		
767	x			705		x		418	x			614	x			512		x	x
768	x	x	x	710	x			436		x		617		x		513	x	x	x
769	x	x	x	713		x		437	x	x		627	x	x	x	514	x	x	x
771	x			761	x			501	x			647	x			515	x	x	x
772		x		767	x			502		x		671		x	x	618			x
774	x	x		768	x	x	x	503		x		672	x			623			x
791	x	x	x	769	x	x	x	510		x		702	x	x	x	626			x
				772	x	x		517		x		710	x						
<b>PLANT PATHOLOGY</b>				775	x			521		x		711		x		<b>Business and Office Education</b>			
410		x		777		x		522		x		712		x		445	x	x	
543		x		778		x		525	x			720	x			519	x		x
545		x		779	x	x	x	531	x			721	x	x	x	556		x	x
558		x		780	x	x	x	532	x			730		x		640			x
575	x			781	x	x	x	538		x		731	x	x	x				
652	x			790	x	x	x	544	x	x		768	x	x	x	<b>Distributive Education</b>			
656		x						547	x			769	x	x	x	515	x	x	x
660	x	x		<b>PUBLIC ADMINISTRATION</b>				551	x	x		779	x	x	x	517	x		
768	x	x		621	x			565	x	x	x	789	x	x	x	528	x		x
769	x	x		622	x			581	x										
770		x		623	x			620	x			<b>TEXTILE CLOTHING AND MERCHANDISING</b>							
784	x	x		626		x		632		x		412		x		<b>Home Economics Education</b>			
794	x	x		627		x		636		x		414	x		x	586	x	x	
				628		x		651	x			430		x		588	x	x	
				629		x		670	x			439	x			683	x		x
<b>PLANT PHYSIOLOGY</b>								671	x			520	x			684	x		
501	x			<b>SLAVIC AND ORIENTAL LANGUAGE AND LITERATURE</b>				681		x		522	x			685		x	
630	x			410	x			685	x			526		x		686		x	
660	x			411		x		751		x		533		x		687	x		
701		x		450	x	x		766	x			537	x						
732	x			460		x		768	x	x	x	540			x	<b>Industrial Education</b>			
734		x		463		x		769	x	x	x	590	x		x	518	x		x
769	x	x	x	464	x			772	x	x	x	592	x	x	x	524		x	
771	x	x		480		x		773	x	x	x	597	x	x	x	525	x	x	x
				<b>Arabic</b>				776		x		660		x		529	x	x	x
<b>PSYCHOLOGY</b>				442	x			777	x			772		x		534	x		x
501	x	x	x	443		x		780	x	x	x	782	x	x	x	536		x	x
505	x	x						790	x	x	x	787	x	x	x	537	x	x	x
507	x			<b>SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION</b>				792	x	x	x					540		x	x
509		x		532	x			797	x	x	x	<b>THEATRE ARTS</b>							
511	x	x		533		x						588		x		<b>Vocational Education</b>			
512	x			599	x	x		468		x		589	x			516		x	x
518				601	x			470		x		590	x			523	x		
521		x	x	640	x		x	473	x			591		x		535	x		
530				645	x	x	x	562	x			592	x	x		608	x	x	x
535	x	x		646	x	x	x	566		x		593		x		641			x
543	x	x	x	650	x			581	x	x	x	594	x			670		x	
544	x	x	x	651	x			599	x	x	x	595		x		671			x
545		x		652	x		x	660	x			596		x		678			
546	x			653		x		768	x	x	x	597		x	x	693	x		
570	x			655		x		769	x	x	x	598	x			694		x	
575		x		656		x		770	x	x	x	599		x		695	x	x	x
579	x			661	x	x	x	779	x	x	x	690	x			702		x	
603		x		662	x							691		x		768	x	x	x
610	x			769	x	x	x	<b>SPECIAL EDUCATION</b>				694	x	x	x	769	x	x	x
611		x		785	x	x	x	500	x			794	x	x	x	779	x	x	x
618		x						501		x		798	x	x		789	x	x	x
621	x			<b>SOCIAL PROFESSIONS</b>				502		x	x	<b>TOXICOLOGY</b>				799	x	x	x
622		x		444	x	x	x	505		x	x	640		x					
623		x		445	x	x	x	523		x		768	x	x	x				
624	x																		
625	x																		



## Administrative Organization

### BOARD OF TRUSTEES

#### MEMBERS

James A. Sutherland, Bloomfield, Kentucky, December 31, 1976.  
John R. Crockett, Louisville, Kentucky, June 30, 1977.  
Richard E. Cooper, Somerset, Kentucky, December 31, 1977  
Homer Wendell Ramsey, Whitley City, Kentucky, December 31, 1977  
Thomas B. Kessinger, Lexington, Kentucky, June 30, 1978  
John R. Gaines, Lexington, Kentucky, December 31, 1978  
Mrs. David Hermansdorfer, Ashland, Kentucky, December 31, 1978  
Zirl A. Palmer, Lexington, Kentucky, June 30, 1979  
George W. Griffin, Jr., London, Kentucky, December 31, 1979  
L. D. Gorman, Hazard, Kentucky, December 31, 1979  
William Sturgill, Hazard, Kentucky, December 31, 1979  
John Woodyard, Covington, Kentucky, June 30, 1980

Albert G. Clay, Mt. Sterling, Kentucky, December 31, 1980

David A. Hull, Lexington, Kentucky, December 31, 1980

#### ALUMNI MEMBERS

William R. Black, Paducah, Kentucky, December 31, 1980

Frank Ramsey, Jr., Madisonville, Kentucky, December 31, 1977

Mrs. Robert Clark, Glasgow, Kentucky, December 31, 1978

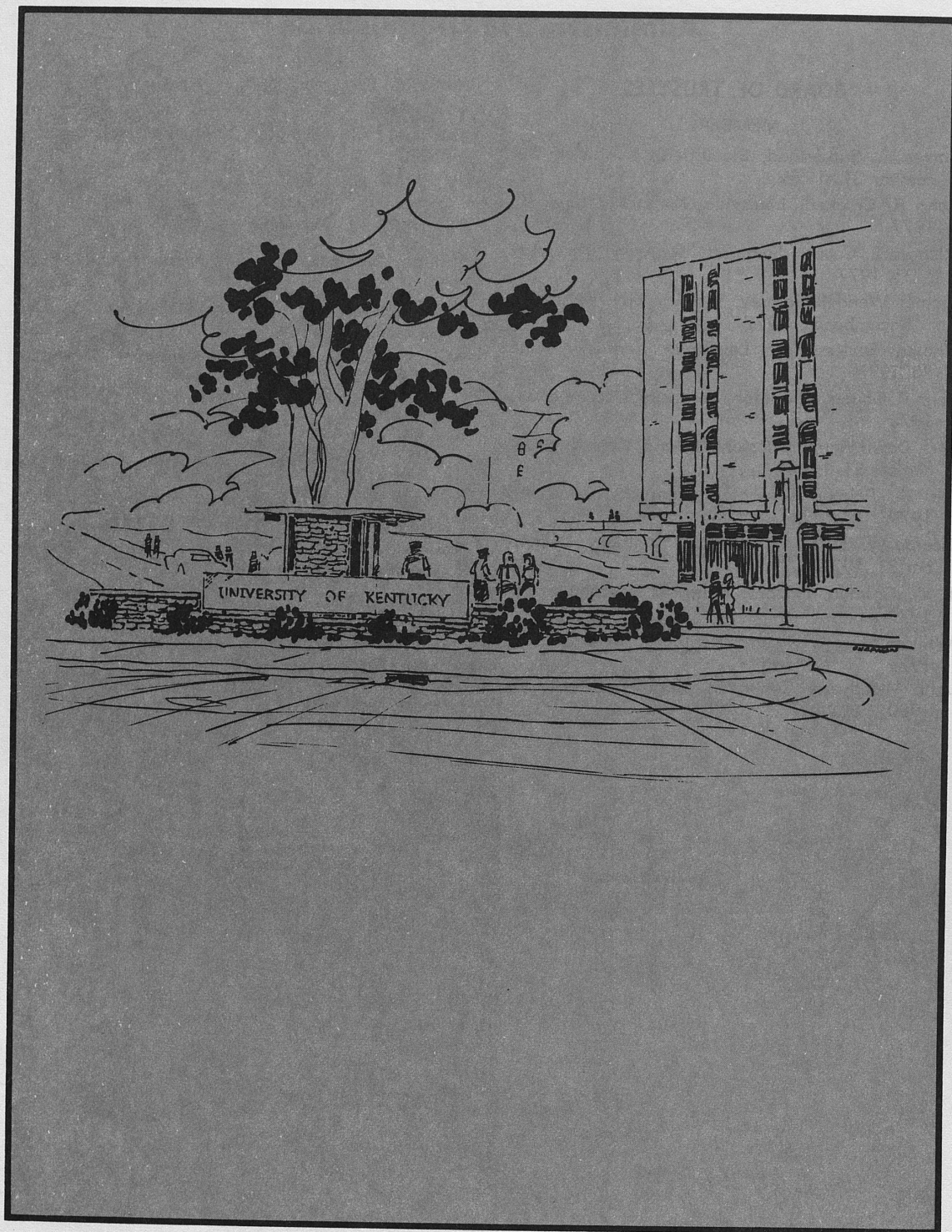
#### FACULTY MEMBERS

Michael Adelstein, College of Arts and Sciences, University of Kentucky, June 30, 1977

Paul G. Sears, College of Arts and Sciences, University of Kentucky, June 30, 1978

#### STUDENT MEMBER

James H. Newberry, Jr., President, Student Government, May 1977





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