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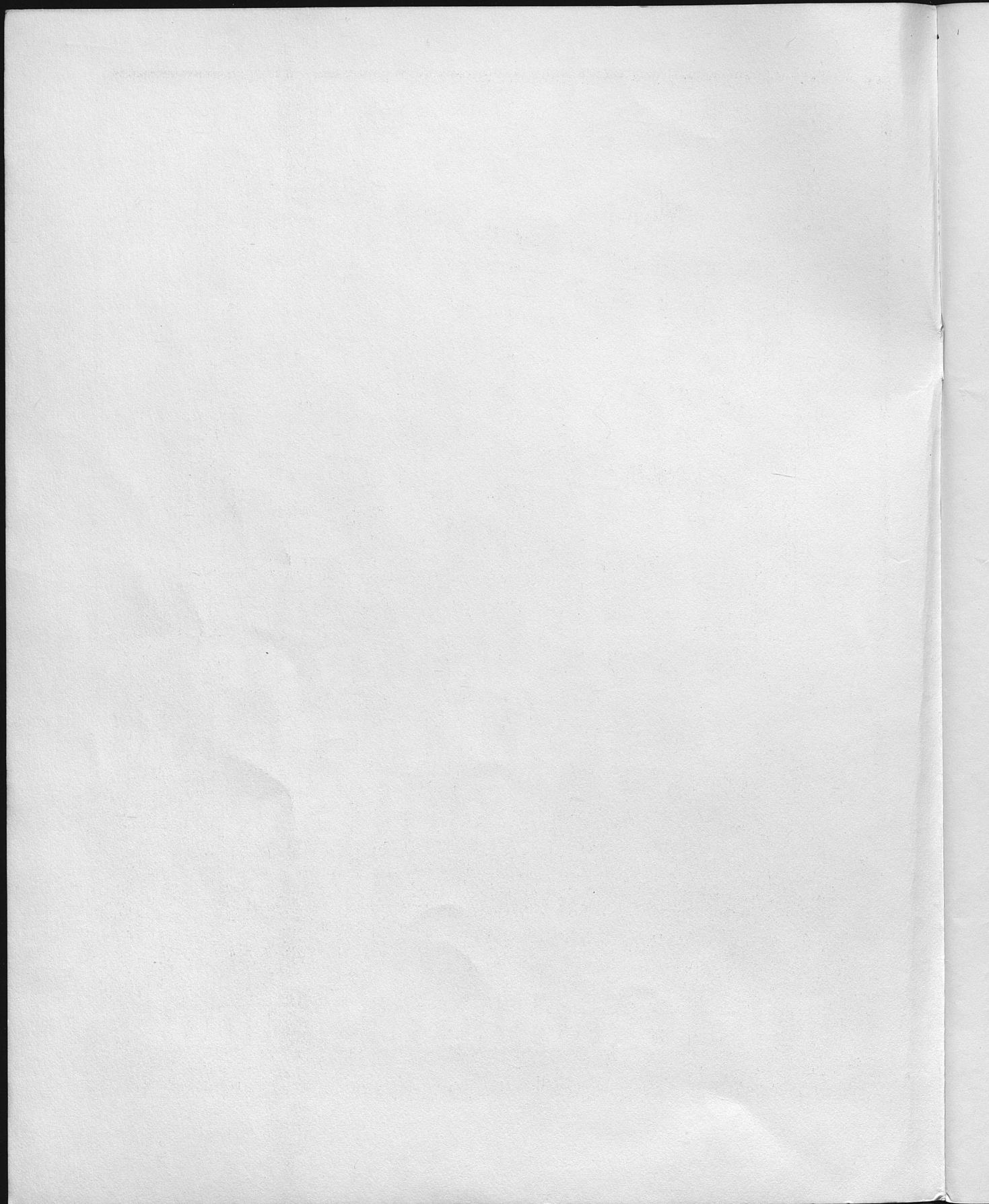


UNIVERSITY of Kentucky Bulletin

1975-76

April 1975

THE GRADUATE School





UNIVERSITY OF KENTUCKY
The Graduate School
BULLETIN 1975-76

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March 15-20—Monday through Saturday—Spring

days after final examinations commence

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CALENDAR

1975 Fall Semester

June 13—Friday—Last date to submit all required documents to Graduate Admissions Office for admission and readmission to the 1975 Fall Semester
August 25, 26—Monday and Tuesday—Classification, registration, and drop-add
August 27—Wednesday—Class work begins
September 1—Monday—Labor Day (Academic Holiday)
September 2—Tuesday—Last day to enter an organized class for Fall Semester
September 8—Monday—Last day to drop a course without a grade
September 26—Friday—Last day for filing application for a December degree in College Dean's Office
September 26—Friday—Last day for payment of registration fees in order to avoid cancellation of registration.
October 20—Monday—Last day to withdraw from the University and receive any refund

October 27—Monday—Last day to pay graduation fee in Billings and Collections Office for a December degree
October 31—Friday—Last date to submit all required documents to Graduate Admissions Office for admission and readmission to the 1976 Spring Semester
November 6—Thursday—Last day to withdraw from a class before final examinations
November 10-21—Monday through Friday—Advanced registration for 1976 Spring Semester
November 27-29—Thursday through Saturday—Thanksgiving Holidays (Academic Holidays)
December 3—Wednesday—Thesis Deadline
December 11—Thursday—Class work ends
December 13-19—Saturday through Friday—Final examinations
December 19—Saturday—End of Fall Semester—All grades due in Registrar's Office by 4 p.m. three days after final examination is administered

1976 Spring Semester

January 12-13—Monday and Tuesday—Classification, registration, and drop-add
January 14—Wednesday—Class work begins
January 20—Tuesday—Last day to enter an organized class for Spring Semester
January 26—Monday—Last day to drop a course without a grade
February 12—Thursday—Last day for filing application for a May degree in College Dean's Office
February 12—Thursday—Last day for payment of registration fees in order to avoid cancellation of registration
March 5—Friday—Last day to withdraw from the University and receive any refund
March 15—Monday—Last day to pay graduation fee in Billings and Collections Office for May degree
March 15-20—Monday through Saturday—Spring vacation (Academic Holidays)

March 29—Monday—Last day to withdraw from a class before finals
April 2—Friday—Last date to submit all required documents to Graduate Admissions Office for admission and readmission to all 1976 Summer Sessions
April 12-23—Monday through Friday—Advance registration for 1976 Fall Semester and all summer sessions
April 23—Friday—Thesis Deadline
April 24—Friday—Last date for Kentucky Teachers to submit all required documents to Graduate Admission Office for admission and readmission to all 1976 Summer Sessions
May 1—Saturday—End of class work
May 3-8—Monday through Saturday—Final examinations
May 8—Saturday—End of Spring Semester. All grades due in Registrar's Office by 4 p.m. three days after final examination is administered
May 8—Commencement Day

1976 Four-Week Intersession

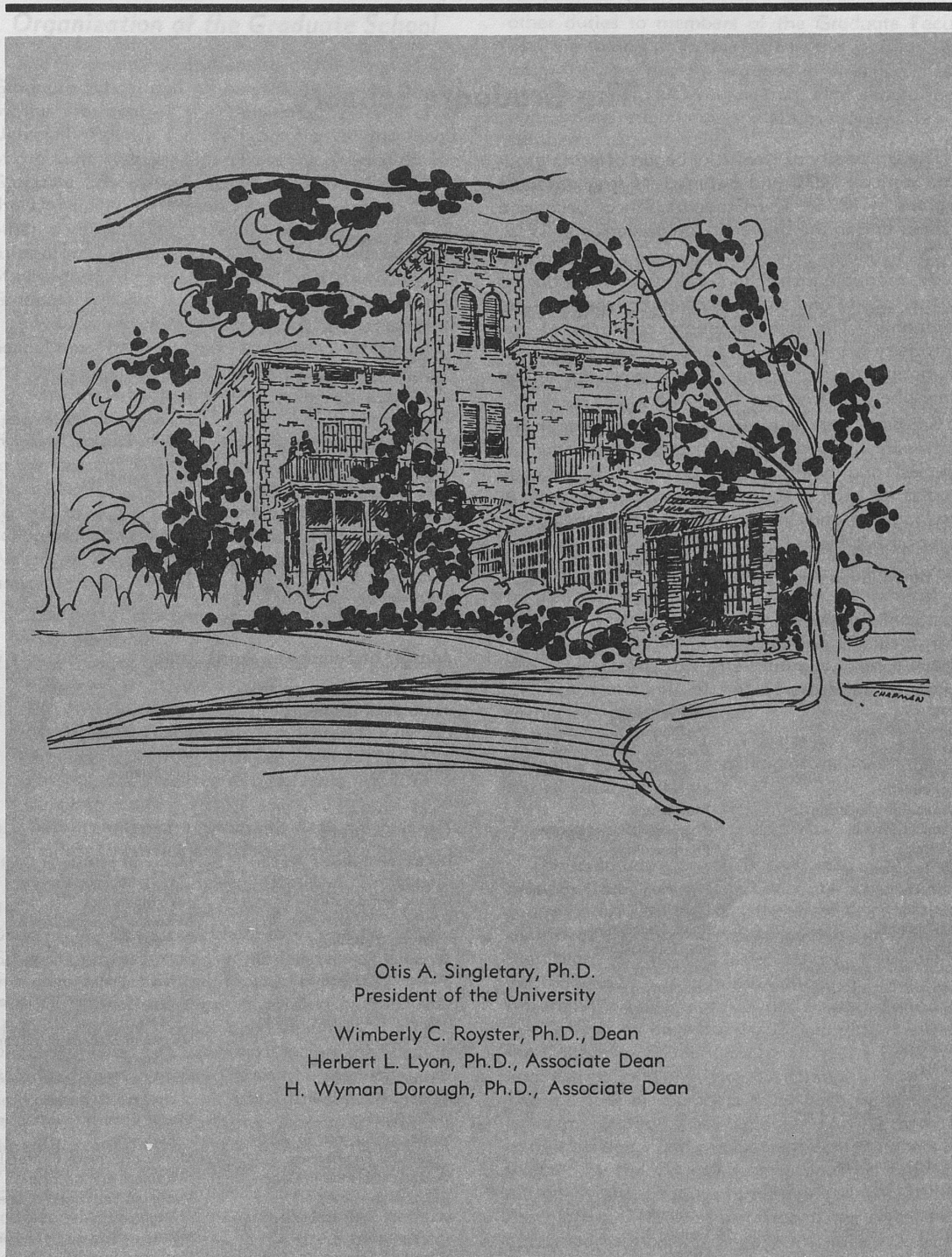
May 17—Monday—Registration
May 18—Tuesday—Class work begins
May 21—Friday—Last day to enter organized class for Four-Week Intersession
May 28—Friday—Last day to drop a course without a grade
May 31—Monday—Memorial Day (Academic Holiday)
June 1—Tuesday—Last day for payment of reg-

istration fees in order to avoid cancellation of registration
June 1—Tuesday—Last day to withdraw from a class before end of session
June 2—Wednesday—Last day to withdraw from University and receive any refund
June 15—Tuesday—End of Four-Week Intersession
June 18—Friday—All grades due in Registrar's Office by 4 p.m.

1976 Summer Session (Eight-Week)

June 11—Friday—Last date to submit all required documents to Graduate Admissions Office for admission and readmission to the 1976 Fall Semester
June 15—Tuesday—Registration
June 16—Wednesday—Class work begins
June 18—Friday—Last day to enter an organized class for the 1976 Summer Session
June 25—Friday—Last day to drop a course without a grade
June 28—Monday—Registration automatically cancelled if fees not paid in full

June 28—Monday—Last day for filing application for an August degree in College Dean's Office
July 5—Monday—Independence Day (Academic Holiday)
July 15—Thursday—Last day for paying graduation fees in Billings and Collections Office for August degree
July 26—Monday—Last day to withdraw from the University and receive any refund
August 2—Monday—Thesis Deadline
August 10—Tuesday—End of Summer Session
August 13—Friday—All grades due in Registrar's Office by 4 p.m.



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

Master of Science in Agriculture

Offered in following fields:

Agricultural Economics	Horticulture
Animal Sciences	Plant Pathology
Crop Science	Sociology
Entomology	Soil 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
Master of Music	Master of Science in Metallurgical Engineering
Master of Science in Accounting	Master of Science in Nuclear Engineering
Master of Science in Agricultural Engineering	Master of Science in Nursing
Master of Science in Chemical Engineering	Master of Science in Radiological Health
Master of Science in Civil Engineering	Master of Social Work
Master of Science in Clinical Nutrition	Specialist in Education

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 School 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 are appointed by the Dean of The Graduate School upon nomination by the Director of Graduate Studies. Associate membership is limited to non-tenured assistant professors who hold the doctorate, have been full-time members of a faculty for at least one year, and have initiated a significant research effort. This membership may continue no more than five years. Associate members are authorized to teach graduate courses, direct masters' theses, serve on and co-chair doctoral committees, and attend and participate in Graduate Faculty meetings. They do not have voting privileges in the Graduate Faculty.

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. He/she 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 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 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 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.

Honorary Degrees

The selection of candidates for honorary degrees originates in the Graduate Faculty, and the Graduate Faculty makes its recommendations to the University Senate.

Honorary degrees are normally conferred at the May Commencement, but may be conferred at other times with the approval of the Graduate Faculty. Recipients must be present in order to receive honorary degrees.

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, national origin, age or beliefs.

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. The College of Business and Economics may substitute the Admission Test for Graduate Study in Business 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 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 department 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

For applications purposes, **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 following a 12-year elementary-secondary program. **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. 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 Admissions Test for Graduate Study 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 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-Korean Foundation.

Candidates who plan to take TOEFL in any countries identified below must obtain a copy of the **Bulletin** form, 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, Netherlands
2. All countries in the Middle East (except Israel) and North Africa:
American Friends of the Middle East
Abou Shakra Building
Rue Bliss (Manara)
Beirut 2500, Lebanon
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

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 \$3400 available per academic year. We estimate that this amount will cover the cost of tuition fees (\$1260), books and supplies (\$200), room and meals (\$1300-\$1800), health insurance (explained below) and incidentals, **for a single person**, from the end of August to early May. The summer session costs will total \$900-\$1100 **additional**.

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, social workers and nurses who are specialists in the health problems of young adults.

Health Fees. Students pay a health fee each semester that covers most of the services offered by the Health Service.

Health Insurance. The health fee covers most of the services provided at the student clinic. However, students must have a health insurance policy to cover the cost of hospitalization, accident care, and surgery. Foreign students must have insurance that is payable in the United States.

Health Report Form. Foreign students 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 you wish to enter, that is, February 15 for the fall semester; June 15 for the spring semester; and November 1 for all summer sessions.

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.

Computerized registration cards, 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.

Applications for admission to The Graduate School as an unclassified graduate student should be on file in the Admissions Office at least 30 days in advance of the registration date for the term in which the student plans to enroll.

If a student transfers hours from the University's Non-degree status to The Graduate School, those hours must be included in the 12 hours taken as an Unclassified student.

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.

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

The Graduate Faculty has recently approved the following requirement for admission to The Graduate School, effective the fall semester, 1975. 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 I, fifth-year, and occasional students.)

The College of Business and Economics may substitute the Admission Test for Graduate Study in Business (ATGSB) for the Graduate Record Examination for MBA, DBA and Accounting students.

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

Students who have earned a 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 ATGSB is not necessary before applying, the applicant **must** take the examination during the first semester of graduate study. The application should be filed with The Graduate School at the end of the first semester of graduate study **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, be recommended by his/her Director of Graduate Studies, and have no incomplete grades on his/her record. 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: A formal application for Admission to Candidacy is no longer required for a student who is working on a doctoral degree. After the student has passed the qualifying examination, Admission to Candidacy is granted.

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 not accepted for credit toward a graduate degree.** 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 work is to be counted and none of it may be omitted in computing the 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 Registrar provides official transcripts on the same basis as for undergraduate students. Also, he provides the Dean with the grades of all students in order that the Dean may be able to advise students concerning their programs.

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 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 and under no circumstances may it exceed 15 credit hours or equivalent. In the summer session, the load for the eight-week session 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 sessions shall be 12 credit hours. Students satisfactorily completing in residence nine course credits, or equivalent, of graduate level work during a semester, are classified as full-time or full-residence students. Students satisfactorily completing in residence six course credits, or equivalent, during a summer are classified as full-time. Those completing less than these amounts

are classified as part-time except that a teaching or research assistant may be classified as full-time 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 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.

A doctoral candidate working on his/her dissertation may register for up to the equivalent of 12 course credits by signing for course 769 in the appropriate department and indicating the desired credit equivalent in parentheses on the registration card.

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 should 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.

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.

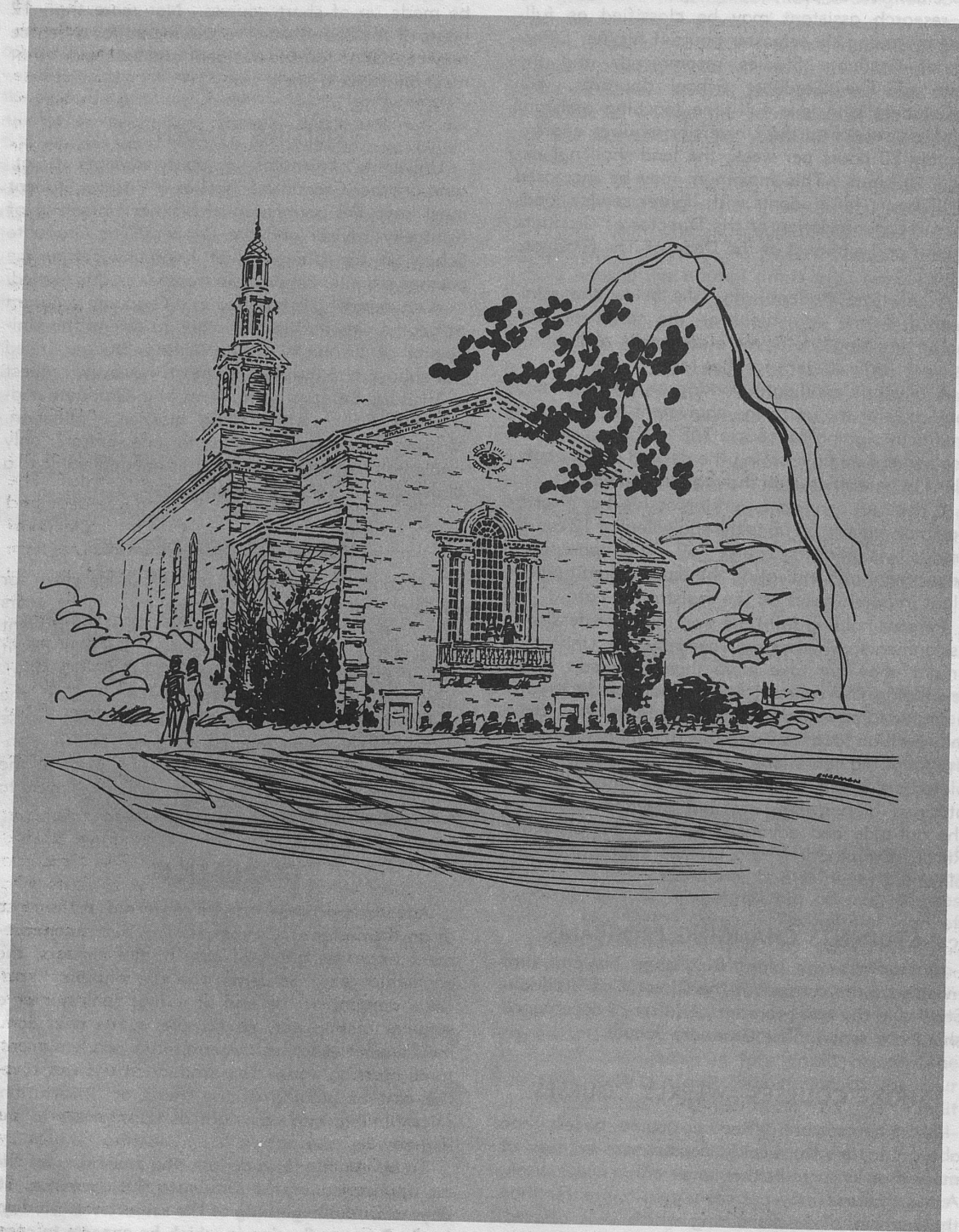
TIME LIMIT FOR DEGREES

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 graduation charges 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 expects to complete his work.**



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 \$70 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.

General Requirements for All Masters' Degrees

(See also General Requirements for All Advanced Degrees)

ON-CAMPUS RESIDENCE

At least 15 semester hours of the minimum degree requirements must be earned while in residence on the Lexington campus of the University of Kentucky. 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 inde-

pendent-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 uniform Master's final examinations are given by a department, the following procedure is used:

1. Three weeks prior to the proposed scheduled examination, the Director of Graduate Studies of the program shall provide The Graduate School Office with a list of the students who are to take the examination, and recommend to the Dean of The Graduate School a committee consisting of at least three members, all members of the Graduate Faculty and at least one member with full Graduate Faculty membership, which is to administer the examination.
2. The Graduate School will notify each student concerning the time and place of the examination.
3. Examination cards for each student will be provided the Director of Graduate Studies by The Graduate School.
4. Upon completion and scoring the examination, the Director of Graduate Studies shall provide The Graduate School with the results of the examinations by sending a list consisting of

two parts (a) students who passed the examinations and (b) students who failed the examinations. **This list shall be signed by all members of the Examining Committee.**

5. The examination cards shall be marked satisfactory or unsatisfactory in compliance with the list in paragraph 4, signed by the Director of Graduate Studies and returned to The Graduate School.

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 student 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 must make the modifications in the thesis which the committee specified.

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.

For thesis deadline dates see the Calendar in the front of this Bulletin.

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 a Special Examination given by one of the language departments. Forms may be obtained from the Registrar's Office, Administration Annex.
- 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, 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 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—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 department 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 require-

ment is to insure that the student is fully involved in University life. The student who, for example, enrolls for 769 credit while working full-time in industry or living in a distant city is not legitimately in residence.

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 at the University of Kentucky.
2. Each student must earn **two consecutive terms** (summer, fall or spring) of residence at the University of Kentucky in full-residence status **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.
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 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 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 dissertation 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 deadline for that semester must be met.

The examining committee consists of a minimum of five persons appointed by the Dean of The Graduate 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, and one member of the Graduate Faculty associated with neither the major nor minor areas. 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 degrees 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.

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 two committee members 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 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.

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.

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.)

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 Coordinator of 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.

Requirements for the Degree of Doctor of Musical Arts

The requirements for the degree of Doctor of Musical Arts are the same as for the Doctor of Philosophy, with the following exceptions:

1. Only one foreign language, normally French or German, is required for the D.M.A. degree. The candidate must also demonstrate a working knowledge of musical terms in French, German, and Italian prior to the qualifying examination.
 2. The applicant for this degree must have at least two years of successful teaching experience.
- Further and more detailed information concerning prerequisites and courses of study, can be found in the School of Music section.

The Director of Graduate Studies of the Department of Music 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 fit into the graduate program of the student.

Requirements for the Degree of Doctor of Philosophy in Musicology

In addition to the general requirements of The Graduate School for the degree of Doctor of Philosophy the following are required for a specialization in Musicology.

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.

All applicants must provide evidence of competence in research and writing. Those applicants holding or earning a baccalaureate degree should present at least one term paper or the equivalent, such as the senior honor thesis. Applicants with a Master's degree must submit the M.A. thesis. If the applicant has not completed a Master's degree including a thesis, he/she must submit research papers 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.

Language Requirements

The foreign languages required for the Ph.D. in Musicology are German and either French or Italian, plus any other languages (e.g., Latin, Spanish, Russian) required for preparing the dissertation.

Further and more detailed information concerning the Doctor of Philosophy in Musicology may be found in the School of Music section.

Requirements for the Degree of Doctor of Business Administration

The requirements for the degree of Doctor of Business Administration are the same as for the degree of Doctor of Philosophy with the exception that no foreign languages are required for the DBA degree.

The Doctor of Business Administration is designed primarily for students interested in teaching and research. It focuses on administrative science and requires additional work in research methodology, economic theory, and quantitative analysis.

Major and minor fields may be selected from Accounting, Finance, Management and Organizational Behavior, Management Science, and Marketing. Further information concerning prerequisites and courses of study can be found in the Business and Economics section, the Degree of Doctor of Business Administration.

General Statement of Regulations Governing Graduate Work in the College of 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 higher.
4. At least 12 semester hours must be outside the field of education, except for majors in higher education, counseling and guidance, and vocational education other than business and home economics education. It is expected that students in these areas will have a minimum of six hours outside education.
5. The total number of credits presented in education, undergraduate and graduate, must be at least 30 semester hours. (Exceptions are higher and adult education and school psychology.)
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. Six semester hours may be completed by extension from the University of Kentucky.
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. The National Teachers Examination is required of all candidates for the degree of Master of Arts in Education or Master of Science in Education except in the fields of higher and adult education, educational psychology and counseling, and speech and hearing. In exceptional cases an examination, either written or oral, may be required in lieu of the National Teachers Examination or departmental examinations. These examinations are to be taken just prior to or during the session in which the degree is to be conferred.
10. 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 the Associate Dean for Teacher Preparation 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 and adult 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.
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 higher. (See requirements 4 through 11 in Plan A for remaining requirements.)

Requirements for the Degree of Specialist in Education

The degree of Specialist in Education is conferred upon a candidate who satisfactorily completes a six-year 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).

A student must file application with the Coordinator of 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 department in which he/she plans to major, as well as 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 student 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 department in which he/she is to major, 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.

Graduate Students Not Applicants for Degrees

Graduate students who are not working toward advanced degrees are not required to designate a program for one year. They may elect their work with a view to the special purposes for which they are in attendance at the University.

Any course of study announced for advanced undergraduates and graduates is open for election by such students under the same conditions as apply to candidates for degrees.

Should a graduate student who has not taken his/her work with a view to obtaining a degree subsequently desire to become an applicant for a degree, the number of credit hours he/she is to receive for work already done will be determined at the time he/she applies for admission as applicant for the degree.

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.

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.

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

Advanced Study and Research by Guests of the University

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 advanced 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.

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 and summer fellowships is March 1. All fellowship applicants must submit scores on the GRE, or ATGSB or MCAT examinations (verbal and quantitative) as part of their application.

Recipients of fellowships must be registered as full-time students.

Graduate School Fellowships: These fellowships are for one academic year and are competitively renewable. The stipend is \$2800 per academic year.

Haggin Fellowships: The fellowships, endowed by Margaret Voorhis Haggin in memory of her father, George Voorhis, have a stipend of \$2800 per academic year. Each has a tenure of one academic year and is competitively renewable.

Special fellowships for which preference is given minority applicants are also available.

University of Kentucky Research Foundation Fellowships: The University of Kentucky Research Foundation supports fellowships of \$3600 per academic year, which are competitively renewable.

Dissertation Year Fellowships: One academic year fellowships open to doctoral students who have passed the qualifying examination and will be working on the dissertation. Each fellowship has a stipend of \$3100 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 graduate programs of Diplomatic History, International Government, or International Economics. The fellowship stipend is \$2800 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 sti-

pend of \$4000 for one academic year to a student who possesses outstanding qualities of character and aptitude for graduate work. Preference shall be 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. applicants in all areas of the University concerned with tobacco research. The fellows' dissertation research must apply directly to tobacco.

Kentucky Bankers Association Fellowship: For a graduate student in accounting with a stipend of \$2800 for the academic year.

Summer Fellowships: The 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.

Scholarships for the above fellowship recipients valued at \$365 per semester to be applied toward the cost of education are available to non-resident students. Tuition for resident students is \$265 per semester and \$630 per semester for non-resident students for the 1975-76 academic year.

Research and Teaching Assistantships

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

Miscellaneous Financial Support

Certain additional moneys supportive of the doctoral programs are available. These include funds to cover travel expenses necessary to dissertation research; certain dissertation costs, e.g., obtaining microfilm, reproducing and mailing questionnaires, etc.; travel expenses incurred in presenting papers based on dissertation research at national meetings; and tuition fees for doctoral students who must attend another institution in order to secure credits essential to the student's program.

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.

Since its beginning the GPSA has proven itself a responsible organization representing the views of the graduate students of the University. The Association, among other things, has initiated a comprehensive Blue Cross-Blue Shield health insur-

ance plan, obtained a 10 percent discount on all purchases at the University Bookstore for teaching and research assistants, established a speaker program, published and distributed an information booklet on the University and Lexington, secured parking privileges for graduate and professional students, circulated a newsletter to keep students abreast of developments in all graduate programs as well as in the Association itself, and inaugurated an annual picnic to bring students and administrators together.

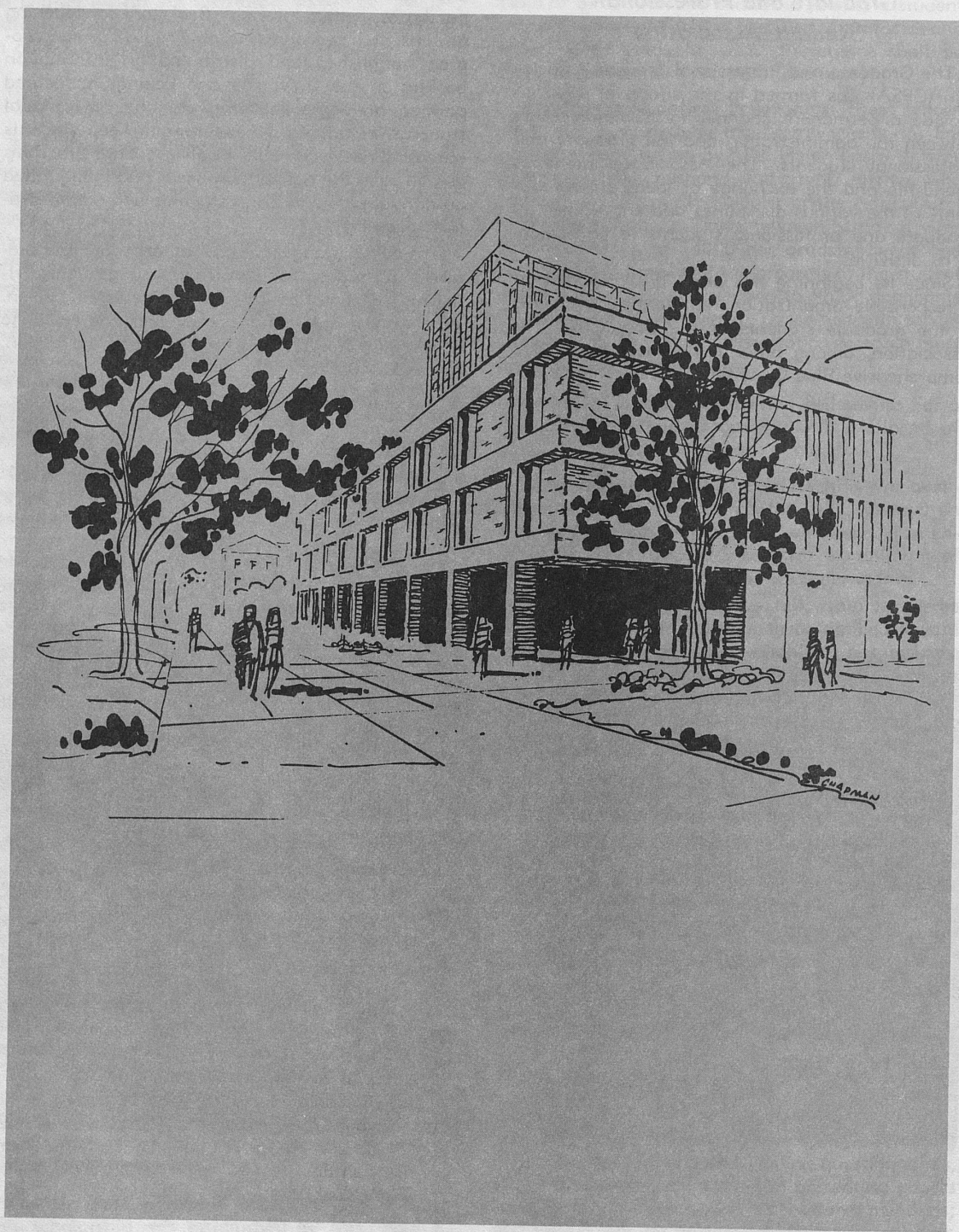
The GPSA is eager to serve all graduate and professional students and welcomes suggestions, criticisms or inquiries from any interested person. Written communications may be addressed to GPSA, P.O. Box 817, University Station, Lexington, Kentucky 40506.

GRADUATE COUNCIL

1974 - 1975

Joseph A. Bryant (English)	1972-1975
Gordon P. Liddle (Educational Psychology)	1972-1975
Vernon A. Musselman (Vocational Education)	1973-1975
Frances Thomas (Nursing)	1974-1975
Robert Kiser (Chemistry)	1974-1975
James A. Knoblett (Accounting)	1973-1976
Gerald Silberstein (History)	1973-1976
A. H. Peter Skelland (Chemical Engineering)	1973-1976
David R. Wekstein (Physics and Biology)	1973-1976
Ronald Phillips (Agronomy)	1974-1977
Dean Jaros (Political Science)	1974-1977

(Member to be appointed—1975-76)



Programs and Directors of Graduate Studies

College of Agriculture

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

Programs

Agricultural Economics	33
Chairman and Director of Graduate Studies— Robert W. Rudd	
Agronomy	34
Chairman—A. J. Hiatt	
Director of Graduate Studies— N. L. Taylor, Crop Science R. E. Phillips, Soil Science	
Animal Sciences	36
Chairman—Virgil Hays	
Directors of Graduate Studies—Virgil Hays, George E. Mitchell, Jr.	
Entomology	63
Chairman and Director of Graduate Studies— B. C. Pass	
Forestry	64
Chairman—Thomas Hansbrough	
Horticulture	76
Chairman—Hubert C. Hohn	
Director of Graduate Studies—Raymond Lockhard	
Plant Pathology	90
Chairman and Director of Graduate Studies— Stephen Diachun	
Veterinary Science	105
Chairman and Director of Graduate Studies— John T. Bryans	

College of Allied Health Professions

Dean—Joseph Hamburg

Programs

Center for Learning Resources for Allied Health	45
Richard D. Kingston	
Clinical Nutrition	49
Chairman and Director of Graduate Studies— Paul Thornton	
Clinical Pastoral Counseling	49
Chairman—Ralph S. Carpenter	
Community Health	50
Chairman—Joe Fred Sills	
Health Radiation Sciences	71
Chairman and Director of Graduate Studies— Joseph Sayeg	

College of Arts and Sciences

Dean—Art Gallaher, Jr.

Programs

Anthropology	37
Chairman and Director of Graduate Studies— William Adams	
Art	38
Chairman—Joseph Fitzpatrick	
Directors of Graduate Studies— James Pierce, Art History John Tuska, Fine Arts	
Thomas H. Morgan School of Biological Sciences	40
Director—S. F. Conti	
Biology	40
Director of Graduate Studies—Eugene Crawford	
Botany	42
Director of Graduate Studies—Eugene Crawford	
Microbiology	81
Director of Graduate Studies—S. F. Conti	
Zoology	107
Director of Graduate Studies—Eugene Crawford	
Chemical Physics	46
Directors of Graduate Studies—William Ehmann, Fletcher Gabbard	
Chemistry	46
Chairman and Director of Graduate Studies— William Ehmann	
Classical Languages and Literature	48
Chairman—Louis Swift	
Director of Graduate Studies—Hubert Martin, Jr.	
Communication	49
Acting Director—Lewis Donohew	
Director of Graduate Studies—John Basehart	
Computer Science	51
Chairman—Thaddeus Curtz	
Director of Graduate Studies—A. C. R. Newberry	
Diplomacy and International Commerce	55
Director and Director of Graduate Studies— Vincent Davis	
English	62
Chairman—Joseph Bryant	
Directors of Graduate Studies—Joseph Gardner, Jerome Meckier	
French	64
Chairman and Director of Graduate Studies— Raymond LaCharite	
Geography	66
Chairman and Director of Graduate Studies— P. P. Karan	
Geology	67
Chairman—John Thraikill	
Director of Graduate Studies—William R. Brown	

German	68
Chairman and Director of Graduate Studies— Wayne Wonderly	
History	73
Chairman—George Herring	
Director of Graduate Studies—J. A. Thompson	
Mathematics	78
Chairman—Raymond Cox	
Director of Graduate Studies—James Wells	
School of Music	82
Chairman—Wesley K. Morgan	
Director of Graduate Studies—Kenneth Wright	
Philosophy	88
Chairman—Dallas High	
Director of Graduate Studies—Allan Perreiah	
Physics and Astronomy	89
Chairman and Director of Graduate Studies— Fletcher Gabbard	
Plant Physiology	91
Director of Graduate Studies—James Leggett	
Political Science	91
Chairman—Bradley Canon	
Director of Graduate Studies—Dean Jaros	
Psychology	93
Chairman—Ronald Dillehay	
Director of Graduate Studies—Juris Berzins	
Slavic and Oriental Languages	95
Chairman—Roger B. Anderson	
Sociology	97
Chairman—William Kenkel	
Director of Graduate Studies—Thomas Ford	
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Chairman—John Keller	
Director of Graduate Studies—Daniel Reedy	
Statistics	102
Chairman and Director of Graduate Studies— Richard Anderson	
Theatre Arts	104
Chairman and Director of Graduate Studies— Robert Wills	

College of Business and Economics

Dean—Charles Haywood
 Director of Graduate Studies—W. W. Ecton

Programs

Accounting	31
Chairman—James Knoblett	
Coordinator of Graduate Studies— Donald Madden	
Business Administration	42
Chairman—Clyde Irwin	
Coordinators of Graduate Studies— Joseph Massie, (DBA); John Dittich, (MBA)	

College of Dentistry

Economics	56
Chairman—Robert Stroup	
Coordinator of Graduate Studies—William Stober	
Dentistry	54
Acting Dean—Gene Lewis	
Chairman—Robert Biggerstaff	
Director of Graduate Studies—Stanley Saxe	

College of Education

Dean—George W. Denemark
 Associate Dean for Graduate Studies—G. Allan Stull

Programs

Administration and Supervision	32
Chairman and Director of Graduate Studies— Charles Faber	
Curriculum and Instruction	51
Chairman—Harry Barnard	
Directors of Graduate Studies— James Moore, Elementary Education Harry Barnard, Secondary Education Earl Rankin, Reading	
Educational Psychology and Counseling	58
Chairman—Gordon Liddle	
Director of Graduate Studies—James Barclay	
Health, Physical Education, and Recreation	69
Acting Chairman and Director of Graduate Studies—Donald Kirkendall	
Higher and Adult Education	71
Chairman—Collins Burnett	
Director of Graduate Studies—Charles Elton	
Social and Philosophical Studies	95
Chairman and Director of Graduate Studies— Richard Warren	
Special Education	100
Chairman—Edward Blackhurst	
Director of Graduate Studies—C. M. Nelson	
Vocational Education	105
Chairman—Harold Binkley	
Directors of Graduate Studies— Harold Binkley, Agricultural Education V. A. Musselman, Business Education Clayton Riley, Distributive Education Harold Binkley, Home Economics Education L. C. McDowell, Industrial Education	

College of Engineering

Dean—James E. Funk
 Associate Dean for Graduate Studies—Don J. Wood

Programs

Agricultural Engineering	34
Chairman and Director of Graduate Studies— John Walker	

Biomedical Engineering	41
Chairman—(See Mechanical Engineering)	
Chemical Engineering	45
Chairman and Director of Graduate Studies— Robert B. Grieves	
Civil Engineering	47
Chairman—B. O. Hardin	
Director of Graduate Studies—John Deacon	
Electrical Engineering	60
Chairman and Director of Graduate Studies— Earl L. Steele	
Engineering Mechanics	61
Chairman and Director of Graduate Studies— Donald Leigh	
Mechanical Engineering	79
Chairman—Roger Eichhorn	
Director of Graduate Studies—C. J. Cremer	
Metallurgical Engineering	80
Chairman and Director of Graduate Studies— Hans Conrad	

College of Home Economics

Home Economics	75
Dean—Marjorie Stewart	
Directors of Graduate Studies—	
Richard Rankin, Housing and Interior Design	76
Lisa Barclay, Human Development and Family Relations	76
Carolyn McKinney, Management and Family Economics	78
Leonard Packett, Nutrition and Food Science	86
Patricia Horridge, Textiles, Clothing and Merchandising	103

College of Library Science

Library Science	76
Dean and Director of Graduate Studies— Lawrence Allen	

College of Medicine

Dean—D. Kay Clawson

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Anatomy	35
Chairman and Director of Graduate Studies— Harold Parks	
Behavioral Science	39
Chairman—Robert Strauss	
Director of Graduate Studies—Russell Jones	
Biochemistry	40
Chairman—Robert Lester	
Director of Graduate Studies—A.S.L. Hu	
Cell Biology	44
Chairman—Ernest Chick	
Pathology	86
Chairman—A. Wendell Musser	
Pharmacology	87
Chairman—T. Z. Csaky	
Director of Graduate Studies—William Waddell	
Physiology and Biophysics	90
Chairman—Fred Zechman	
Director of Graduate Studies—David Wekstein	
Radiation Medicine	94
Chairman—Yosh Maruyama	
Toxicology	104
Chairman and Director of Graduate Studies— T. Z. Csaky	

College of Nursing

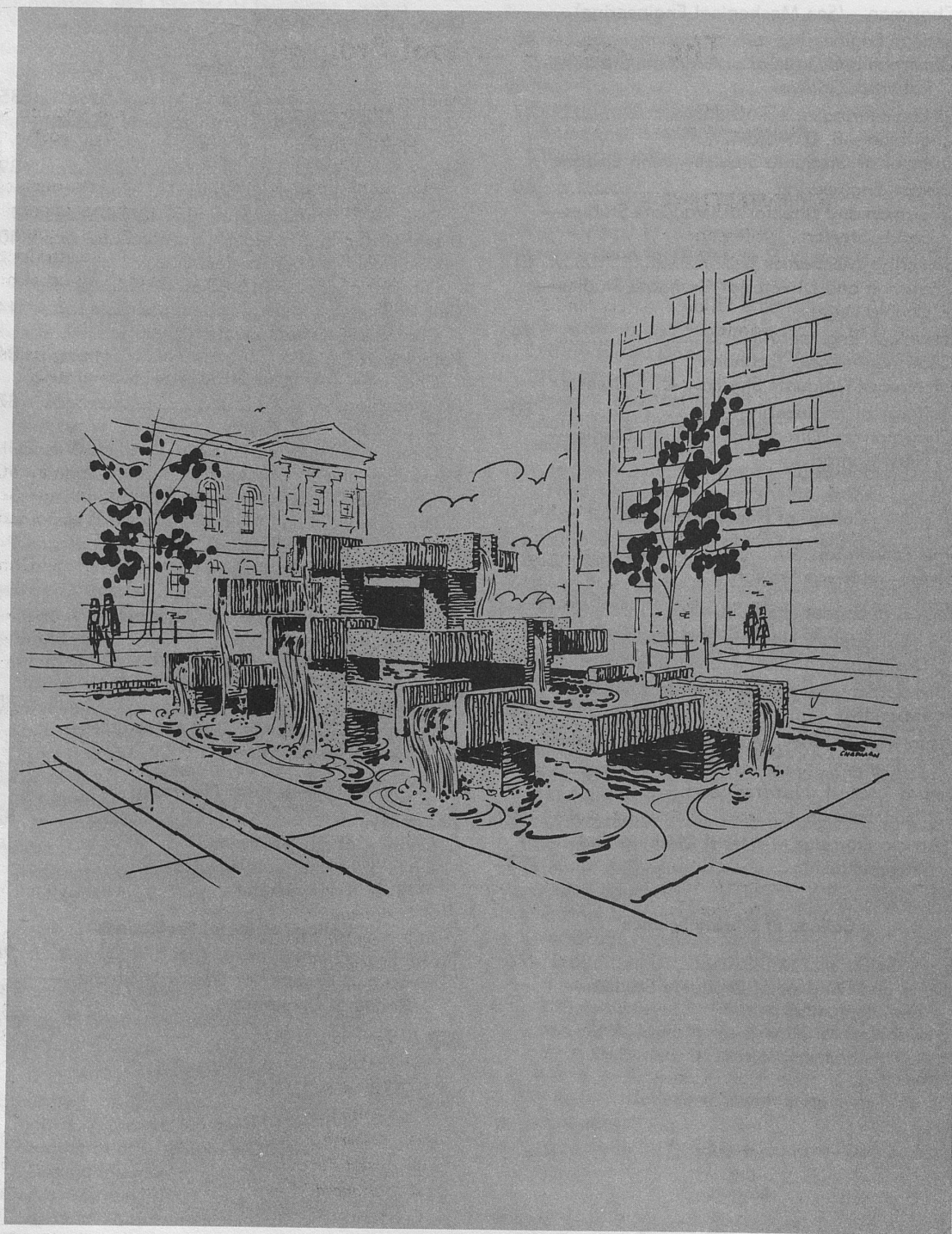
Nursing	85
Dean and Director of Graduate Studies— Marion McKenna	

College of Pharmacy

Pharmacy	87
Dean—Joseph Swintosky	
Director of Graduate Studies — H. B. Kostenbauder	

College of Social Professions

Social Professions	96
Dean and Director of Graduate Studies— Ronda S. Connaway	



The Graduate School Programs

COURSE LISTINGS

The course listings in The Graduate School Bulletin include all courses approved through December 1974.

ACCOUNTING

Graduate Faculty: Professors William Ecton, James Knoblett (Chairman), Albert Patrick. Associate Professors Paul Davis, Donald Madden (Coordinator of Graduate Studies), Levis McCullers, Relmond P. Van Daniter.

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 Admission Test for Graduate Study in Business. If the grade-point average is between 2.4 and 2.7, the Admission Test for Graduate Study in Business must be 490 or above.
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

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

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 in Economics.
 - 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 while enrolled in Graduate School.
7. Successful completion of a comprehensive examination.

401 <i>Accounting Theory.</i>	(3)
403 <i>Auditing.</i>	(3)
408 <i>Cost Accounting.</i>	(3)
410 <i>Accounting for Institutions and Regulated Industries.</i>	(3)
416 <i>Accounting for Business Combinations.</i>	(3)
417 <i>Income Taxation.</i>	(3)
419 <i>Internship in Accounting.</i>	(3)
422 <i>Functions of Accounting.</i>	(3)
515 <i>C.P.A. Problems.</i>	(3)
517 <i>Tax Accounting Problems.</i>	(3)
518 <i>Controllorship</i>	(3)
601 <i>Research in Accounting Theory.</i>	(3)
603 <i>Attest Function.</i>	(3)
608 <i>Advanced Managerial Accounting.</i>	(3)
615 <i>Advanced Professional Problems.</i>	(3)
617 <i>Income Tax Development.</i>	(3)
619 <i>Independent Study in Accounting.</i>	(1-3)

622 Analysis of Organizations: Financial Control Methods	(4)
624 <i>Accountometrics</i> .	(3)
628 <i>Accounting for Control and Planning</i> .	(3)
701 <i>Seminar in Accounting</i> .	(3)
703 Topical Seminar in Accounting	(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 <i>Independent Study in Accounting</i> .	(1-6)

ADMINISTRATION AND SUPERVISION

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

Associate Member: Assistant Robert Wynkoop

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 avail-

able to graduate students through this membership.

The University is a partner with the University of Louisville and the Louisville Public Schools in the operation of the Urban Education Center, which provides a laboratory for research and development work in urban education. Internships for graduate students are available through the Center and can also 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 40506, 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 <i>The Administration of Pupil Personnel</i> . | (3) |
| 601 <i>Administration of Educational Organizations</i> . | (3) |
| 602 <i>Organization and Administration of American Education</i> . | (3) |
| 603 <i>Constitutional and Legal Basis of Public School Administration</i> . | (3) |
| 604 <i>School Buildings and Equipment</i> . | (3) |
| 608 <i>Internship in Educational Administration and Supervision</i> . | (3) |
| 628 <i>Field Studies in Educational Administration and Supervision</i> . | (3) |
| 629 <i>The Principal</i> . | (3) |
| 633 <i>Administration and Supervision of Instructional Programs</i> . | (3) |
| 634 <i>Administration of Educational Personnel</i> . | (3) |
| 635 <i>Business Administration and Finance of Public Education</i> . | (3) |
| 639 <i>The Supervisor</i> . | (3) |
| 768 <i>Residence Credit for the Master's Degree</i> . | (1-6) |
| 769 <i>Residence Credit for the Doctor's Degree</i> . | (0-12) |
| 771 <i>Seminar in Administration</i> . | (1-3) |
| 772 <i>Seminar</i> . | (1) |
| 785 <i>Independent Work in School Administration</i> | (3) |
| 792 <i>Research in Educational Administration and Supervision</i> . | (3) |

AGRICULTURAL ECONOMICS

Graduate Faculty: Professors Kurt Anschel, Russell Brannon, Fred Justus, John Redman, Robert Rudd (Chairman and Director of Graduate Studies), Milton Shuffett, Eldon Smith. Associate Professors Robert Beck, Barry Bobs, Frank Bordeaux, Garnett Bradford and Loys Mather. Assistant Professor Alan Randall.

Associate Member: Assistant Professor Harry Hall.

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 trains the student broadly in subjects that will have a continuing usefulness in business, agricultural program administration, extension, foreign service and the like. 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 Ph.D.-level work. 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. 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, and resource 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

- 401 *Marketing Tobacco.* (2)
- 402 *Tobacco Market Grades and Grading.* (1)
- 403 *Marketing Livestock and Livestock Products.* (2)
- 501 *Economics of Agricultural Marketing.* (3)
- 505 *Structure and Organization of Agricultural Businesses.* (3)
- 606 *Advanced Agricultural Marketing.* (3)

AGRICULTURAL POLICY AND LAND ECONOMICS

- 540 *Agricultural Policy.* (3)
- 545 *Natural Resource and Environmental Economics.* (3)
- 640 *Advanced Agricultural Policy.* (3)

FARM MANAGEMENT

- 409 *Decision-making in Agricultural Business Firms.* (3)
- 415 *Farm Accounting and Record Analysis.* (3)
- 511 *Advanced Farm Management.* (3)
- 516 *Land Value and Appraisal.* (3)
- 518 *Farm Labor Utilization.* (3)

PRODUCTION ECONOMICS

- 520 *Production Economics.* (3)
- 620 *Advanced Production Economics I.* (3)
- 621 *Advanced Production Economics II.* (3)

AGRICULTURAL PRICES AND FINANCE

- 455 *Agricultural and Farm Finance.* (3)
- 550 *Agricultural Prices.* (3)
- 650 *Advanced Agricultural Prices.* (3)

ECONOMIC DEVELOPMENT

- 626 *Agriculture and Economic Development.* (3)

GENERAL AGRICULTURAL ECONOMICS COURSES

- 580 *Special Problems in Agricultural Economics.* (1-3)
- 590 *Introduction to Mathematical 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)

AGRICULTURAL ENGINEERING

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

Associate Member: Assistant Professor Otto Loewer.

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)
- 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)
- 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

Graduate Faculty for Crop Science: Professors R. C. Buckner, W. G. Duncan, V. C. Finkner, M. J. Kasperbauer, N. L. Taylor (Director of Graduate Studies), T. H. Taylor, W. C. Templeton, G. T. Webster. Associate Professors G. B. Collins, D. L. Davis, D. Knavel, P. G. Legg.

Associate Members: Assistant Professors D. B. Egli, C. G. Poneleit.

Graduate Faculty for Soil Science: Professors H. H. Bailey, Herbert Massie, D. E. Peaslee, R. E. Phillips (Director of Graduate Studies), J. L. Ragland, G. W. Thomas. Associate Professors R. I. Barnhisel, Charles Rieck, J. L. Sims.

Associate Members: Associate Professor Robert L. Blevins. Assistant Professor John Ellis.

The Department of Agronomy offers graduate work leading to the Master of Science (Plan A or Plan B available) and Doctor of Philosophy de-

degrees with majors in Crop Science or Soil Science. Work leading to advanced degrees must conform to the general rules and regulations of The Graduate School. A reading knowledge of one modern foreign language is required for the Ph.D. degree.

The Department of Agronomy also participates in an interdepartmental graduate program leading to the Ph.D. degree with a major in plant physiology.

GENERAL COURSES

- 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)

COURSES IN CROP SCIENCE

- 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 Grasslands.* (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)

COURSES IN SOIL SCIENCE

- 468 *Soil Conservation and Management.* (3)
 470 *Fertilizers and Soil Fertility.* (3)
 473 *Soil Morphology and Mapping.* (3)
 562 *Forest Soils.* (3)
 566 *Soil Biology.* (3)
 575 *Soil Physics.* (4)
 581 *Chemical Analysis of Soils and Plants.* (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 of Soil Chemistry.* (1-4)

- 691 *Topics in Soil Mineralogy.* (1-4)
 712 *Advanced Soil Fertility.* (3)
 721 *Soil Genesis.* (3)
 741 *Clay Mineralogy.* (3)

COURSES IN BOTANY

(May be used for agricultural credit, subject to the approval of adviser).

- 501 *Plant Physiology.* (3-5)
 634 *Cytogenetics.* (4)
 701 *Plant Metabolism.* (3)

ANATOMY

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

Associate Members: Assistant Professors Daniel Matulionis 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 spe-

cial 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 <i>Independent Work in Anatomy.</i>	(3)
511 <i>Introduction to Anatomy.</i>	(4)
512 <i>Microscopy and Ultrastructure.</i>	(3)
513 <i>Developmental Anatomy.</i>	(2)
516 <i>Anatomy of the Nervous System.</i>	(3)
529 <i>Concepts of Morphology.</i>	(2)
531 <i>Combined Gross and Neuroanatomy.</i>	(6)
532 <i>Combined Histology, Embryology, and Special Oral Microanatomy.</i>	(6)
533 <i>Oral Histology.</i>	(2)
611 <i>Regional Gross Anatomy.</i>	(8)
629 <i>Techniques of Anatomical Research.</i>	(2)
631 <i>Advanced Gross Anatomy.</i>	(3-5)
633 <i>Advanced Developmental Anatomy.</i>	(2-5)
634 <i>Advanced Endocrinology.</i>	(2-5)
636 <i>Advanced Neuroanatomy.</i>	(3-5)
638 <i>The Basis of Human Morphology.</i>	(2-5)
651 <i>Anatomy of Head and Neck.</i>	(3-5)
662 <i>Ultrastructural Anatomy.</i>	(2-5)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)

ANIMAL SCIENCES

Graduate Faculty: Professors Charles Barnhart, Neil Bradley, Ray Dutt, Virgil Hays (Co-director of Graduate Studies), Roger Hemkin, James Kemp, Oran Little, George Mitchell (Co-Director of Graduate Studies), William Moody, Durward Olds, Patch Woolfolk. Associate Professors John Baker, John Begin, James Boling, Gary Cromwell, Donald Ely, Joe Fox, Dal Kratzer, Bruce Langlois, Paul Thornton, Frederick Thrift.

Associate Members: Assistant Professors Robert Goodwill, Gerald Schelling, Ray Tucker.

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 <i>Sheep Science.</i>	(3)
406 <i>Beef Cattle Science.</i>	(3)
408 <i>Swine Science.</i>	(3)
410 <i>Horse Sciences.</i>	(3)
412 <i>Advanced Horse Husbandry.</i>	(3)
420 <i>Dairy Cattle Science.</i>	(2-3)
430 <i>Sensory Evaluation of Foods.</i>	(3)
436 <i>Dairy Processing and Plant Management.</i>	(6)
442 <i>Poultry Science.</i>	(3)
460 <i>Animal Breeding.</i>	(3)
486 <i>Advanced Dressage.</i>	(2)
526 <i>Reproduction and Artificial Insemination of Farm Animals.</i>	(3)
530 <i>Animal Food Microbiology.</i>	(4)
532 <i>Advanced Animal Food Microbiology.</i>	(5)
534 <i>Chemistry of Animal Products.</i>	(4)
562 <i>Advanced Genetics.</i>	(3)
564 <i>Milk Secretion.</i>	(3)
580 <i>Principles of Animal Nutrition.</i>	(3)
600 <i>Methods and Techniques in Animal Sciences.</i>	(3)
630 <i>Advanced Meat Science.</i>	(4)
660 <i>Physiology of Reproduction.</i>	(3)
662 <i>Population Genetics.</i>	(3)
664 <i>Advanced Animal Breeding.</i>	(3)
680 <i>Laboratory Methods in Animal Nutrition and Meats.</i>	(4)
681 <i>Energy Metabolism.</i>	(2)
683 <i>Protein Metabolism.</i>	(2)
684 <i>Advanced Ruminant Nutrition.</i>	(3)
685 <i>Mineral Metabolism.</i>	(2)
686 <i>Advanced Non-ruminant Nutrition.</i>	(3)
687 <i>Vitamin Metabolism.</i>	(2)
688 <i>Equine Nutrition.</i>	(2)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
771 <i>Animal Science Seminar.</i>	(1)
780 <i>Special Problems in Animal Derived Foods.</i>	(1-4)
781 <i>Special Problems in Genetics or Physiology.</i>	(1-4)
782 <i>Special Problems in Animal Nutrition.</i>	(1-4)
790 <i>Research in Animal Derived Foods.</i>	(1-6)
791 <i>Research in Genetics or Physiology.</i>	(1-6)
792 <i>Research in Animal Nutrition.</i>	(1-6)

ANTHROPOLOGY

Graduate Faculty: Professors William Adams, (Director of Graduate Studies) Philip Drucker, Art Gallaher, Jr., Donald Hochstrasser, Marion Pearsall. Associate Professors Robert Biggerstaff, Anthony Colson, Lathel Duffield (Chairman), John Van Willigin.

Associate Members: Assistant Professors Albert Bacdayan, Michael Collins.

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), and Applied Social Anthropology. 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. 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, both native and present-day. 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)
- 428 *Contemporary Cultures and Societies in Southeast Asia* (3)
- 438 *Ethnology of the Near East and North Africa.* (3)
- 439 *Circumpolar Peoples.* (3)
- 442 *New World Prehistory.* (3)
- 490 *Pre-Field Study Seminar.* (3)
- 510 *History of Anthropological Theory.* (3)
- 512 *Comparative Civilizations.* (3)
- 514 *Descriptive Linguistics: Phonetics.* (3)
- 515 *Descriptive Linguistics: Phonemics.* (3)
- 516 *Descriptive Linguistics: Morphemics.* (3)
- 517 *Syntax.* (3)
- 518 *Language in Culture.* (3)
- 521 *Ethnology of the New World.* (3)
- 522 *North Pacific Coast Cultures.* (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)
- 533 *Social Anthropology.* (3)
- 534 *The Southern Appalachians: A Sociological Interpretation.* (3)
- 536 *European Peasantries.* (3)
- 541 *Archaeological Theory and Method.* (3)
- 542 *North American Archaeology.* (3)
- 546 *Prehistoric Meso-America and Peru.* (3)
- 547 *Cultures of the Southwestern United States.* (3)
- 548 *European and Near Eastern Archaeology.* (3)
- 550 *Field Studies in Anthropology.* (1-6)

555 <i>Eastern North American Archaeology.</i>	(3)
560 <i>Ethnographic Principles and Practice.</i>	(3)
561 <i>Anthropology: Man and His Works.</i>	(3)
575 <i>Prehistory of Eastern Asia.</i>	(3)
581 <i>Independent Work in Anthropology.</i>	(1-4)
582 <i>Tutorial Seminar.</i>	(2)
585 <i>Field Laboratory in Archaeological Research.</i>	(3-6)
605 <i>Seminar in Method and Theory in Anthropology.</i>	(3)
610 <i>History of Anthropology.</i>	(3)
611 <i>Seminar in Ethnology.</i>	(3)
612 <i>Seminar in Culture History.</i>	(3)
613 <i>Seminar in Physical Anthropology.</i>	(3)
614 <i>Field Methods in Linguistics.</i>	(3)
670 <i>Seminar on Role Theory.</i>	(3)
690 <i>Advanced Pre-Field Study Seminar.</i>	(3)
727 <i>Seminar on Socio-Cultural Change.</i>	(3)
731 <i>Seminar in Comparative Social Organization.</i>	(3)
741 <i>Seminar in Regional Archaeology.</i>	(3)
742 <i>Advanced Seminar in Culture History.</i>	(3)
750 <i>Graduate Field Study in Anthropology.</i>	(1-6)
764 <i>Topical Seminar in Psychological Anthropology.</i>	(3)
765 <i>Research Problems in Medical Anthropology.</i>	(3)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
770 <i>Seminar.</i>	(3)
790 <i>Research Problems in Anthropology.</i>	(3)

ART

Graduate Faculty: Professors William Geis, James Pierce (Director of Graduate Studies for Art History). Associate Professors Gerald Ferstman, Elizabeth Finkenstaedt, Deborah Frederick, Lowell Jones, John Tuska (Director of Graduate Studies), Derrick Woodham.

Associate Member: Assistant Professor Arthur Jones.

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 certification 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

768 *Residence Credit for the Master's Degree.* (1-6)

ART EDUCATION

575 *Art in Elementary Schools.* (3)
 577 *Art in Secondary Schools.* (3)
 579 *Seminar in Art Education* (2)
 670 *School and Community Art.* (3)

ART-HISTORY

510 *Studies in Ancient Art.* (3)
 520 *Studies in Medieval Art.* (3)
 530 *Studies in Renaissance Art.* (3)
 540 *Studies in Modern Art.* (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 *Advanced Painting.* (3)
 525 *Advanced Printmaking.* (3)
 540 *Textiles: Advanced Weaving.* (3)
 555 *Advanced Casting.* (3)
 560 *Advanced Welding.* (3)
 565 *Advanced Wood Sculpture.* (3)
 570 *Theory of Glazes and Refractories.* (3)
 571 *Advanced Problems in Ceramics.* (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, Marion Pearsall, Robert Straus. Associate Professors John Haley, Russell Jones (Director of Graduate Studies), Philip Moody.

Associate Members: Assistant Professors Judith Archambo, Thomas Garrity, Helen Weise.

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)
- 790 *Research in Medical Behavioral Science.* (1-6)

BIOCHEMISTRY

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

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. A reading knowledge of two modern foreign languages, of which one should be German and the other French or Russian, should be acquired as an undergraduate. 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.

- 401 *Fundamentals of Biochemistry.* (3)
- 502 *General Biochemistry.* (3)
- 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)
- 769 *Residence Credit for the Doctor's Degree.* (0-12)
- 780 *Topics in Biochemistry.* (1-3)

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

Laboratory facilities and equipment are excellent for doctoral work in all branches of biology. A very good biology library containing over 26,000 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, J. M. Carpenter, S. F. Conti, W. H. Davis. Associate Professors J. M. Baskin, J. C. Calkins, E. C. Crawford (Director of Graduate Studies), N. K. Das, D. O. Harris, J. J. Just, R. A. Kuehne, W. Meijer, Nicholas Pisacano, G. Rosenthal, P. S. Sabharwal.

Associate Members: Assistant Professors M. A. Hafeez, R. S. Hakim, D. J. Prior.

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

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 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)
- 420 *Biological Macromolecular and Life Process* (3)
- 450 *Introductory Ecology.* (4)
- 515 *General Cell Biology.* (3)

- 555 *Gnotobiotic Methodology.* (2)
- 615 *Molecular Biology* (3)
- 620 *Genetic Structure of Populations.* (3)
- 630 *Experimental Techniques in Plant Physiology.* (3)
- 678 *Statistical Genetics.* (3)
- 707 *Contemporary Topics in Immunology* (3)
- 740 *Mammalian Radiation Biology.* (2)
- 760 *Developmental Genetics.* (3)
- 768 *Residence Credit for the Master's Degree.* (1-6)
- 769 *Residence Credit for the Doctor's Degree.* (0-12)
- 770 *Seminar in Genetics.* (1)
- 771 *Seminar in Plant Physiology.* (1)

BIOMEDICAL ENGINEERING

The central theme of the Biomedical Engineering Program at the University of Kentucky is the advancement of understanding in the life sciences through maximum interplay between engineering and biological insights. Graduate education in the program is designed to guide the student who wishes to participate in this interplay and achieve excellence in biomedical engineering research and teaching. Achieving this goal is made possible by provision of (1) an environment which promotes independent development and habits of lifelong scholarship; (2) a broad base of interdisciplinary knowledge and understanding from both didactic course work and research experience; and (3) experience and training in teaching.

The program offers the opportunity for an individualized plan with numerous options in a broad range of fields, through a combination of formal course work, interaction with scholars at the tutorial level, and independent research activities.

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 of seven colleges (Arts and Sciences, Engineering, Medicine, Nursing, Allied Health, Pharmacy, and Dentistry) as well as personnel from 10 external groups including five other academic institutions. 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, rota-

- 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)
- 790 *Research in Medical Behavioral Science.* (1-6)

BIOCHEMISTRY

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

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. A reading knowledge of two modern foreign languages, of which one should be German and the other French or Russian, should be acquired as an undergraduate. 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.

- 401 *Fundamentals of Biochemistry.* (3)
- 502 *General Biochemistry.* (3)
- 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)
- 769 *Residence Credit for the Doctor's Degree.* (0-12)
- 780 *Topics in Biochemistry.* (1-3)

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

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

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Research programs now underway include the study of physiological and behavioral responses to environmental stress (i.e., acceleration, rota-

tion, 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: Professor S. F. Conti. Associate Professors J. M. Baskin, Eugene Crawford (Director of Graduate Studies), D. O. Harris, W. Meijer, G. Rosenthal, P. S. Sabharwal.

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.

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| 400 <i>Fundamentals of Biology for Secondary School Teachers.</i> | (4) |
| 402 <i>Advanced Topics in Biology for Secondary School Teachers.</i> | (4) |
| 403 <i>Economic Botany.</i> | (3) |
| 501 <i>Plant Physiology.</i> | (3-5) |

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| 502 <i>Laboratory in Plant Physiology.</i> | (2) |
| 506 <i>Special Problems.</i> | (1-3) |
| 507 <i>Algology.</i> | (4) |
| 513 <i>Plant Autecology.</i> | (4) |
| 515 <i>Seminar.</i> | (1) |
| 521 <i>Anatomy of Vascular Plants.</i> | (4) |
| 524 <i>Mycology.</i> | (4) |
| 530 <i>Introduction to Heredity.</i> | (3) |
| 541 <i>Plant Pathology.</i> | (3) |
| 551 <i>Taxonomy of Vascular Plants.</i> | (4) |
| 560 <i>Plant Microtechnique.</i> | (3) |
| 600 <i>Plant Morphogenesis.</i> | (5) |
| 620 <i>Topics in Modern Botany.</i> | (1-3) |
| 626 <i>Experimental Mycology.</i> | (4) |
| 634 <i>Cytogenetics.</i> | (4) |
| 701 <i>Plant Metabolism.</i> | (3) |
| 732 <i>Mineral Nutrition of Plants.</i> | (3) |
| 734 <i>Physiology of Growth and Development.</i> | (3) |
| 735 <i>Biosystematics.</i> | (3) |
| 768 <i>Residence Credit for the Master's Degree.</i> | (1-6) |
| 769 <i>Residence Credit for the Doctor's Degree.</i> | (0-12) |
| 770 <i>Seminar.</i> | (1) |
| 790 <i>Research in Botany.</i> | (1-6) |

BUSINESS ADMINISTRATION

Graduate Faculty: Professors John Douglas, James Gibson, Joseph Massie (Coordinator of Graduate Studies), Lawrence Tarpey. Associate Professors Philip Berger, James Donnelly, Michael Etzel, Andrew Grimes, John Ivancevich, Herbert Lyon, William Sartoris, Martin Solomon, Norman Willard.

Associate Members: Assistant Professors John Dittrich (Coordinator of Graduate Studies), Keith Johnson, Richard Oliver, Ronda Paul, Donald Shannon, Lynn Spruill, Ralph Steuer, Carl Tower, Bruce Walker, Marc Wallace.

The Degree of Master of Business Administration

1. Admission to this program is open to students who hold a bachelor's degree from any accredited college or university, meeting the following conditions: Total of four-year grade-point average times 200 plus ATGSB score in excess of 950; or total of junior-senior grade-point average times 200 plus ATGSB score in excess of 1000.
2. Graduate study in business 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.B.A. program upon approval of the Director of Graduate Studies. The student coming into the program should have minimum exposure in the following areas:

Principles of Economics
Principles of Accounting
Statistical Method
Business Finance
Marketing
Management
Mathematics, including Calculus

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
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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 while enrolled in Graduate School.
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 ATGSB 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
International Business
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, 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.

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)
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)
621	Analysis of Organization: Decision Science Methods.	(4)
622	Analysis of Organization: Financial Control Methods.	(4)
623	Analysis of Organization: Behavioral Science Methods.	(4)

626	Administration of Public Organizations.	(3)
627	Fiscal Setting of Public Administration.	(3)
628	Legal and Political Environment of Public Organizations.	(3)
629	Public Policy Formulation and Social Planning.	(3)
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)
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)

CELL BIOLOGY

At present there is no graduate program in this area.

Graduate Faculty: Associate Professor Jesse Siskin.

- 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)

CENTER FOR LEARNING RESOURCES FOR ALLIED HEALTH

Richard Kingston, Director

Through the structure of a cooperative program with the Department of Higher and Adult Education in the College of Education, the Center makes available both the Master of Science in Education and the Doctor of Education degrees.

Persons with a baccalaureate degree in an allied health profession, with experience in their discipline and a desire to teach in or administer an allied health education program, and who meet the requirements of the Department of Higher and Adult Education as well as The Graduate School (see those sections), are eligible to make application for entry into these graduate programs. Admission decisions are made either in December or April.

The programs are described in the "Higher and Adult Education" section of this Bulletin.

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), Peter Skelland. Associate Professors William Conger, Charles Hamrin, Jr., Richard Kermode, Edward Moorhead, Thomas Schrodtt.

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
- Electrochemical engineering
- 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.* (2)
- 432 *Chemical Engineering Laboratory II.* (2)
- 455 *Chemical Engineering Process Design.* (4)
- 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 *Chemical Engineering Process Design II.* (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)
- 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)

CHEMICAL PHYSICS

Directors of Graduate Studies—

William D. Ehmann and Flecher 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, Paul Corio, William Ehmann (Chairman and Director of Graduate Studies), Ellwood Hammaker, Robert Kiser, Kurt Niedenzu, John Patterson, Donald Sands, Paul Sears, Walter Smith, Jr., William Wagner. Associate Professors: Rodney Black, Robert Guthrie, William Plucknett, Stanford Smith, Joseph Wilson.

Associate Members: Carolyn Brock, James O'Reilly, Merle Pattengill.

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 *Qualitative Organic Analysis.* (3)
- 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.* (1-2)
- 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.	(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, H. Gesund, B. O. Hardin (Chairman), J. W. Hutchinson, R. A. Lauderdale, Don Wood, F. D. Wright. Associate Professor J. A. Deacon (Director of Graduate Studies), J. A. Dearing, V. P. Drnevich, E. G. Foree, Y. H. Huang, D. Kao, Richard Mateer.

Associate Members: Assistant Professors S. B. Biggers, Robert Howell, J. R. Rose, S. T. Wang.

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, sanitary and water resource engineering
- Fluid mechanics, hydraulics and hydrology
- Mining and rock mechanics
- Planning and management of engineering systems
- Soil mechanics, soil dynamics and foundation engineering
- Structural engineering and structural systems
- Transportation engineering and transportation systems

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.

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 amount 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)
480 Structural Mechanics II.	(3)
515 Geometronics.	(3)
523 Photogrammetry.	(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)
566 Public Health Engineering.	(3)
568 Sanitary Engineering Laboratory.	(3)
580 Theory of Structures III.	(3)
599 Topics in Civil Engineering	(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. For major work, a candidate must hold a bachelor's degree in Civil Engineering or its equivalent.

621 Terrain Analysis	(3)
624 Experimental Methods in Soil Mechanics.	(3)
625 Advanced Soil Mechanics.	(3)
626 Groundwater and Seepage.	(3)
627 Soil Engineering for Transportation Facilities.	(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)
642	Highway Location Analysis.	(3)
643	Urban Transportation Planning.	(3)
644	Operational Effects of Geometrics in Transportation.	(3)
645	Highway Design, Construction and Maintenance.	(3)
647	Portland Cement Concrete and Bituminous Materials.	(3)
652	Open Channel Flow.	(3)
653	Advanced Hydrology.	(3)
655	Water-Resources Planning.	(3)
659	Advanced Sanitary Engineering Design I.	(3)
660	Advanced Sanitary Engineering Design II.	(3)
662	Fundamentals of Water Quality Control I.	(3)
663	Water Quality Control Laboratory.	(3)
664	Fundamentals of Water Quality Control II.	(3)
668	Advanced Instrumentation for Water Resources Research.	(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)
686	Advanced Metal Structures.	(3)
690	Suspended 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. (Director of Graduate Studies), Lawrence Thompson. Associate Professors Louis Swift (Chairman). **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	<i>The Heroic Ideal: Greek and Roman Epic</i>	(3)
501	<i>Lucretius and Epicureanism.</i>	(3)
503	<i>Cicero.</i>	(3)
504	<i>Roman Satire.</i>	(3)
505	<i>Virgil and the Roman Epic.</i>	(3)
506	<i>Medieval Latin.</i>	(3)
507	<i>Roman Drama.</i>	(3)
511, 512	<i>Studies in Roman Philology.</i>	(3 ea.)
530	<i>The Teaching of Latin.</i>	(3)
603	<i>Studies in Latin Literature of the Republic.</i>	(3)
604	<i>Studies in Latin Literature of the Empire.</i>	(3)

GREEK

424	<i>Greek Literature in Translation.</i>	(3)
426	<i>Classical Drama: Tragedy and Comedy in Greece and Rome</i>	(3)
500	<i>Latin Lyric Poetry.</i>	(3)
552	<i>Greek Epic and Lyric Poetry.</i>	(3)
553	<i>Greek Philosophical Literature.</i>	(3)
556	<i>Greek Dramatic Literature.</i>	(3)
557	<i>Greek Historical Literature.</i>	(3)
561, 562	<i>Studies in Greek Philology.</i>	(3 ea.)
601	<i>Studies in Greek Literature I.</i>	(3)
602	<i>Studies in Greek Literature II.</i>	(3)

CLASSICS IN GENERAL

580	<i>Independent Work in Classics.</i>	(3)
600	<i>Bibliography of Classical Scholarship.</i>	(3)
605	<i>Comparative Greek and Latin Grammar.</i>	(3)
768	<i>Residence Credit for the Master's Degree.</i>	(1-6)
790	<i>Research in the Teaching of Classical Languages.</i>	(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	Biochemistry for Dental Students	3	I
CNU 502	Principles of Human Physiology, 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 Medical Behavioral Science	1-3	II
SOC 532	Intergroup Relations	3	I, S
EDF 661	Educational Sociology	3	
EDP 548	Educational Psychology	3	I, II, S
EDC 607	Programmed Instruction in the Classroom	3	
Elective		3	

502	<i>Principles of Human Physiology.</i>	(5)
504	<i>Principles in Human Physiology Lectures.</i>	(4)
601	<i>Clinical Nutrition.</i>	(4)
602	<i>Current Trends in Nutrition.</i>	(1)
701	<i>Advanced Clinical Nutrition.</i>	(2)
702	<i>Advanced Clinical Nutrition</i>	(2)
768	<i>Residence Credit for the Master's Degree in Clinical Nutrition.</i>	(1-6)
CNU 780, 781, 782	<i>Independent Study.</i>	(1 ea.)
CM 601	<i>Principles of Nutrition in Population Groups.</i>	(2)

CLINICAL PASTORAL COUNSELING

At present there is no graduate program in this area.

501	<i>Perspectives in Religion and Health.</i>	(3)
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COMMUNICATION

Graduate Faculty: Professors Robert Bostrom, Lewis Donohew (Acting Director), Robert Murphy, Joseph Ripley, Dwight Teeter, Bruce Westley. Associate Professors John Baseheart (Director of Graduate Studies), Barnett Pearce.

Associate Members: Assistant Professors Leonard Tipton, Norman Van Tubergen.

The School of Communications offers a program leading to the Master of Arts degree. 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. The program is open to students with previous work in communication, journalism, radio-television-film, speech, or other academic areas. Students with no previous work in a communications 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 CMO 601, 651, and 665, plus a course in statistics such as STA 670 or EDP 657. A total of 30 hours of graduate level courses 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 (Plan A)
2. Professional Research—Thesis or research report (Plan B)
3. Professional management or message preparation—Thesis or position paper (Plan B)
4. Academic teaching below university level—Thesis or summary and evaluation of research on a given topic. (Plan B)

Additionally, it is required that a minimum of 18 hours of the total 30 must be at the 600 course 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 School of Communications.

Near the end of their last semester, students who write a thesis will take an oral comprehensive examination covering their course work and their thesis. Students who do not write a thesis will take comprehensive written and oral examinations.

Courses within the School of Communications 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)
- 601 *Pro-Seminar in Communication.* (3)
- 605 *Introduction to Information Science.* (3)
(Same as LS 605)
- 607 *Evaluating and Communicating Information.* (3)
- 608 *Mass Communications and Society.* (3)
- 614 *Information Storage and Retrieval Systems.* (3)
- 615 *Information Systems Design.* (Same as LS 615) (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.* (3)
- 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)

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)
- 599 *Advanced Writing for the Mass Media.* (3)

SPEECH

- 500 *Speech Analysis and Perception.* (3)
- 581 *Communication Processes in Discussion.* (3)
- 582 *Persuasion.* (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)

TELECOMMUNICATIONS

- 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.	(2)
770 Seminar.	(1)

COMPUTER SCIENCE

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

Associate Member: Assistant Professor Johnson Hart.

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.

401 Computer Applications to Allied Health Education.	(3)
415 Graphy Theory.	(3)
420 Algorithmic Languages and Compilers.	(3)
421 Elementary Numerical Analysis.	(3)
440 Data Structures.	(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)
510 Discrete Computer Mathematics I.	(3)
515 Study of Computer Arithmetic	(3)
520 Fundamentals of Program Languages	(3)
525 Analog and Hybrid Computer Techniques.	(3)
530 Computational Methods.	(3)
538 Elementary Numerical Analysis.	(3)
540 Systems Simulation.	(3)
541 Advanced Computer Design I.	(3)
550 Introduction to Coding Theory.	(3)
560 Non-Numerical Applications of Computers.	(3)
570 Computers and Programming Systems.	(3)
575 Formal Language Theory.	(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.	(3)
630 Numerical Evaluation of Transcendental Functions.	(3)
631 Error Analysis and Certification.	(3)
641 Advanced Compiler Design.	(3)
650 Problem Seminar.	(3)
680 Seminar in Computer Science.	(2)
682 Switching Theory.	(3)
683 Automata Theory.	(3)
685 Special Topics in Computer Science.	(3)
690 Advanced Programming Systems I.	(3)
691 Advanced Programming Systems II.	(3)
768 Residence Credit for the Master's Degree.	(1-6)

CURRICULUM AND INSTRUCTION

Graduate Faculty: Professors Harry Barnard (Chairman and Director of Graduate Studies in Secondary Education), James Moore (Director of Graduate Studies in Elementary Education), Theodore Mueller, Earl Rankin (Director of Graduate Studies in Reading). Associate Professors Ronald Atwood, William Peters, Virginia Rogers, Leland Smith.

Associate Members: Associate Professor Daniel Arnold. Assistant Professor Frank Colton, Merrell Hansen, Herbert Heger, Phil Nacke.

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, and senior high 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 620,* EDC 641, and EDC 642.

*Enrollment in these courses should be limited to reading majors only.

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 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 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.

(Enrollment in EDC 619 or EDC 620 is normally limited to reading majors; however, other students may be admitted by the consent of the instructor.)

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

** At least one course from either Area II or Area VI, or an equivalent course outside Education, is required for Administration 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, it may be granted only to those students whose hours taken in courses outside the College of Education are in the areas of mathematics and the natural and biological sciences.

Master of Arts in Education (Reading)

Requirements for a Master of Arts in Education 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 requirements, 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 distribution:
 - 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 requirements 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)

521	<i>Materials and Methods in Teaching Mathematics in the Secondary School.</i>	(3)
522	<i>Materials and Methods in Teaching Social Studies in the Secondary School.</i>	(3)
524	<i>Materials and Methods for Teaching Science in the Secondary School.</i>	(3)
525	<i>Materials and Methods of Teaching English in the Secondary School.</i>	(3)
533	<i>Teaching Reading in the Secondary School.</i>	(3)
534	<i>Reading Study Skills in English</i>	(3)
538	<i>Advanced Arts and Crafts in the Elementary School.</i>	(3)
539	<i>The Elementary Curriculum.</i>	(3)
540	<i>Problems in Teaching Reading.</i>	(3)
542	<i>Children's Literature.</i>	(3)
543	<i>Teaching in the Kindergarten.</i>	(3)
544	<i>Utilization of Educational Media.</i>	(3)
545	<i>Preparation of Instructional Materials.</i>	(3)
546	<i>Introduction to Early Childhood Education.</i>	(3)
549	<i>Aspects of Mass Communication.</i>	(3)
550	<i>Teaching the Disadvantaged.</i>	(3)
552	<i>Modern Educational Problems.</i>	(3)
562	<i>Modern Educational Problems.</i>	(3)
563	<i>Modern Educational Problems.</i> (General Elementary Curriculum)	
564	<i>Modern Educational Problems.</i> (General Secondary Curriculum)	
565	<i>Modern Educational Problems.</i> (General Curriculum)	
572	<i>Modern Educational Problems.</i> (Vocational Education)	

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, and senior high 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 620,* EDC 641, and EDC 642.

*Enrollment in these courses should be limited to reading majors only.

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 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 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.

(Enrollment in EDC 619 or EDC 620 is normally limited to reading majors; however, other students may be admitted by the consent of the instructor.)

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

** At least one course from either Area II or Area VI, or an equivalent course outside Education, is required for Administration 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, it may be granted only to those students whose hours taken in courses outside the College of Education are in the areas of mathematics and the natural and biological sciences.

Master of Arts in Education (Reading)

Requirements for a Master of Arts in Education 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 requirements, 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 distribution:
 - 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 requirements 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)

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| 521 <i>Materials and Methods in Teaching Mathematics in the Secondary School.</i> | (3) |
| 522 <i>Materials and Methods in Teaching Social Studies in the Secondary School.</i> | (3) |
| 524 <i>Materials and Methods for Teaching Science in the Secondary School.</i> | (3) |
| 525 <i>Materials and Methods of Teaching English in the Secondary School.</i> | (3) |
| 533 <i>Teaching Reading in the Secondary School.</i> | (3) |
| 534 <i>Reading Study Skills in English</i> | (3) |
| 538 <i>Advanced Arts and Crafts in the Elementary School.</i> | (3) |
| 539 <i>The Elementary Curriculum.</i> | (3) |
| 540 <i>Problems in Teaching Reading.</i> | (3) |
| 542 <i>Children's Literature.</i> | (3) |
| 543 <i>Teaching in the Kindergarten.</i> | (3) |
| 544 <i>Utilization of Educational Media.</i> | (3) |
| 545 <i>Preparation of Instructional Materials.</i> | (3) |
| 546 <i>Introduction to Early Childhood Education.</i> | (3) |
| 549 <i>Aspects of Mass Communication.</i> | (3) |
| 550 <i>Teaching the Disadvantaged.</i> | (3) |
| 552 <i>Modern Educational Problems.</i> | (3) |
| 562 <i>Modern Educational Problems.</i> | (3) |
| 563 <i>Modern Educational Problems.</i> | |
| (General Elementary Curriculum) | |
| 564 <i>Modern Educational Problems.</i> | |
| (General Secondary Curriculum) | |
| 565 <i>Modern Educational Problems.</i> | |
| (General Curriculum) | |
| 572 <i>Modern Educational Problems.</i> | |
| (Vocational Education) | |

- 575 *Modern Educational Problems.* (Unclassified)
 576 *Modern Educational Problems.* (Unclassified)
 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 School.* (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 Harry Bohannon (Dean), Emmitt Costich (Associate Dean), Raymond Kopczyk, Harold Laswell, James Little,

Stanley Saxe (Director of Graduate Studies). Associate Professors Robert Biggerstaff (Chairman), Gerald Roth.

Associate Members: Professor Thomas Mullaney. Associate Professors Raymond Bridges, Donald Carman, Donald Chase, Roland Duell, Thomas Lillich, Patrick Sammons, Billie Rae Shivers, Richard Wynn. Assistant Professor Jan H. Kraal.

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.* (3)
 ORT 700 *Orthodontic Seminar.* (1)
 ORT 750 *Research in Orthodontics.* (1-5)

ORT 768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
CDS 550 <i>Research Methodology and Instrumentation.</i>	(2)
CDS 611 <i>Child Growth and Development, Part I.</i>	(2)
CDS 612 <i>Child Growth and Development, Part II.</i>	(1)
CDS 631 <i>Dental Care for the Chronically Ill and Handicapped Child.</i>	(2)
CD 655 <i>Practice Environment and Practice Management.</i>	(1)
ODM 610 <i>Developments in Oral Medicine.</i>	(2)
OP 651 <i>Patho-Physiology of Oral Disease.</i>	(3)
OS 651 <i>Anatomical Relationships in Surgery.</i>	(1)
ODO 631 <i>Principles of Dental Occlusion.</i>	(2)
PER 661 <i>Modern Concepts in Periodontics.</i>	(2)
PDO 631 <i>Dental Care for the Chronically Ill.</i>	(2)
EN 600 <i>Basic Endodontic Theory.</i>	(2)
EN 610 <i>Clinical Endodontics.</i>	(2)
EN 620 <i>Endodontic Research.</i>	(2)
EN 630 <i>Endodontic Seminar.</i>	(2)
EN 650 <i>Dentistry and Basic Science Review.</i>	(4)

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 service 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, Eco-

nomics 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 Economic 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 Grad-

uate 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)

ECONOMICS

The Degree of Master of Science

Graduate Faculty: Professors Carl Cabe, Virgil Christian, H. W. Hargreaves, Charles F. Haywood (Dean, College of Business and Economics), Charles Hultman, Joseph Krislov, Hirofumi Shibato, Don Soule, Robert Stroup (Chairman of Economics). Associate Professors M. M. Ali, Richard Gift, Stuart Greenbaum, Merlin Hackbart, Curtis Harvey, John Madden, James Marsden, Randolph McGee, Brian Motley, David Richardson, David Ross, William Stober (Coordinator of Graduate Studies).

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 and 661, Economic Theory.
2. Successful examination in one modern foreign language or competence in mathematical sciences evidenced by nine hours of approved course work.
3. Success in a final examination.
4. Minimal average of grade B in all courses attempted for graduate credit.

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 660 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.

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 660, Advanced Microeconomic Theory
ECO 661, Advanced Macroeconomic Theory
ECO 760, Seminar in Microeconomic Theory
ECO 761, Seminar in Macroeconomic Theory
2. The Elective Requirement: All Ph.D. students must complete three fields in economics in addition to the above. 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 692 and 792, 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. 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.
7. The Dissertation: The dissertation will be based on original research on a significant topic. The dissertation will be defended in an oral examination.

461 <i>Market Structure and Anti-Trust Policy.</i>	(3)
462 <i>Seminar in Economic Theory.</i>	(3)
463 <i>Analysis of Business Conditions.</i>	(3)
465 <i>Comparative Economic Systems.</i>	(3)
466 <i>Seminar in Comparative Systems.</i>	(3)

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| 467 <i>The Economic Evolution of the North Atlantic Community.</i> | (3) | 779 <i>Seminar in Public Finance II.</i> | (3) |
| 468 <i>Seminar in Economic History.</i> | (3) | 783 <i>Seminar in Regional Economics.</i> | (3) |
| 469 <i>History of Economic Thought.</i> | (3) | 786 <i>Seminar in Monetary Theory and Policy.</i> | (3) |
| 471 <i>International Economics.</i> | (3) | 788 <i>Mathematical Economics-Macro Theory.</i> | (3) |
| 472 <i>Seminar in International Economics.</i> | (3) | 791 <i>Problems in Econometrics.</i> | (3) |
| 473 <i>Economic Development.</i> | (3) | 792 <i>Econometrics I</i> | (3) |
| 474 <i>Seminar in Economic Development.</i> | (3) | 793 <i>Econometrics II</i> | (3) |
| 477 <i>Labor Economics.</i> | (3) | 795 <i>Seminar in Comparative Economic Systems</i> | (3) |
| 478 <i>Seminar in Labor Economics.</i> | (3) | 796 <i>Seminar.</i> | (1-6) |
| 479 <i>Public Finance.</i> | (3) | 797 <i>Research Problems in Economics.</i> | (1-6) |
| 480 <i>Seminar in Public Finance.</i> | (3) | | |
| 481 <i>Collective Bargaining.</i> | (3) | | |
| 483 <i>Regional Economics.</i> | (3) | | |
| 484 <i>Seminar in Regional Economics.</i> | (3) | | |
| 485 <i>Monetary Economics.</i> | (3) | | |
| 486 <i>Seminar in Monetary Economics.</i> | (3) | | |
| 491 <i>Survey Sampling Design.</i> | (3) | | |
| 493 <i>Social and Cultural Determinants of Economic Growth and Development.</i> | (3) | | |
| 590 <i>Introduction to Quantitative Economics I.</i> | (3) | | |
| 592 <i>Introduction to Quantitative Economics II.</i> | (3) | | |
| 595 <i>Social Accounting.</i> | (3) | | |
| 660 <i>Advanced Microeconomic Theory.</i> | (3) | | |
| 661 <i>Advanced Macroeconomic Theory.</i> | (3) | | |
| 662 <i>Research Methods and Procedures in Economics.</i> | (3) | | |
| 665 <i>History of Economic Thought I.</i> | (3) | | |
| 666 <i>History of Economic Thought II.</i> | (3) | | |
| 667 <i>Seminar in Historical Studies in Economic Change.</i> | (3) | | |
| 668 <i>American Economic Change in Historical Perspective.</i> | (3) | | |
| 671 <i>International Economics Seminar I.</i> | (3) | | |
| 673 <i>Seminar in Economic Development I.</i> | (3) | | |
| 674 <i>Agriculture and Economic Development.</i> | (3) | | |
| 676 <i>Labor Markets and Wage Determination.</i> | (3) | | |
| 679 <i>Seminar in Public Finance I.</i> | (3) | | |
| 682 <i>The Economics of Spatial Relations.</i> | (3) | | |
| 683 <i>Economics of Growth and Development in Regions and Urban Areas.</i> | (3) | | |
| 686 <i>Monetary Economics: Theory</i> | (3) | | |
| 687 <i>Monetary Economic Policy</i> | (3) | | |
| 688 <i>Topics in Optimization.</i> | (3) | | |
| 692 <i>Econometric Methods</i> | (3) | | |
| 760 <i>Seminar in Microeconomic Theory.</i> | (3) | | |
| 761 <i>Seminar in Macroeconomic Theory.</i> | (3) | | |
| 762 <i>Welfare Economics</i> | (3) | | |
| 768 <i>Residence Credit for the Master's Degree.</i> | (1-6) | | |
| 769 <i>Residence Credit for the Doctor's Degree.</i> | (0-12) | | |
| 771 <i>International Economics Seminar II.</i> | (3) | | |
| 773 <i>Seminar in Economic Development II.</i> | (3) | | |
| 776 <i>Economics of Trade Unionism and Labor Law.</i> | (3) | | |

EDUCATIONAL PSYCHOLOGY AND COUNSELING

Graduate Faculty: Professors James Barclay (Director of Graduate Studies), Gordon Liddle (Chairman). Associate Professors Dwight Auvenshine (Coordinator of Rehabilitation Counseling), William Bramble, Henry Cole, Joseph Finney, David Larimore, Timothy Smith, William Stilwell, Judith Worell. Assistant Professor Robert Harman.

Associate Members: Associate Professor Raymond Wilkie. Assistant Professors Edward Kifer, Emanuel Mason, Louise Musser, 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 (Plan A and B available), the Specialist in Education (Ed.S.), the Doctor of Education (Ed.D.), and the Doctor of Philosophy (Ph.D.).

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 guid-

ance 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.

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 39 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. This internship is counted in the hours listed above.

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 522 Educational Tests and Measurements (or EDP 659 Advanced Educational Measurements, or PSY 535 Psychological Testing)
- 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
- 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.

Specialist in Education Degree

The Ed.S. degree program is designed for post-master's degree students who wish to complete a

planned course of enrichment studies leading to further competencies in a specific area or areas of educational psychology and counseling.

Usually, students completing the Ed.S. are not candidates for the Ed.D. or Ph.D. programs. The program is planned by a committee, and at least one-half of the program must be completed after formal admission to the program. (See Graduate School section of Bulletin.)

Doctor of Education Degree

The Doctor of Education degree is offered in the field of educational psychology and counseling. 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. It consists of a departmental major, supporting work in related areas outside the College of Education, and appropriate work in other departments of the College of Education. One foreign language is required and a full-time supervised one-year internship.

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)
- 602 *Human Cognitive Learning.* (3)
- 605 *Introduction to Counseling.* (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.* (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)
- 666 *Occupational and Educational Information in Guidance.* (3)
- 680 *Child Guidance and Parent Counseling.* (3)
- 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 Ed.P.* (4-9)
- 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 *Counseling and Psychology.* (3)
- 778 *Seminar in Educational Psychology.* (3)
- 782 *Independent Work in Educational Psychology.* (3)

ELECTRICAL ENGINEERING

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

Associate Members: Assistant Professors Jerry Collins, Ronald J. Kuhler, Clayton R. Paul.

The Department of Electrical Engineering offers programs leading to Master of Science in Electrical Engineering and Ph.D. degrees. Areas of current research interests 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	Electrical 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	Circuits III.	(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 Lab.	(2)
517	Electromechanics II.	(3)
520	Engineering Analysis II.	(3)
523	Electrical Engineering Projects.	(2)
528	Electro Magnetic Radiation and Wave.	(3)
529	Fields in Biological Media.	(3)
537	Electric Power Systems I.	(3)
538	Electric Power Systems II.	(3)
560	Semiconductor Device Design.	(3)
562	Electronic Circuits II.	(3)
563	Communications Circuits Design.	(3)
564	Electronic Circuits III.	(3)
567	Introduction to Lasers and Masers.	(3)
572	Non-Linear Feedback Controls System.	(3)
580	Logical Design.	(3)
581	Advanced Logical Design.	(3)
582	Digital Systems Laboratory.	(3)
584	Computer Aided Design.	(3)
585	Molecular Engineering.	(3)
595	Independent Problems.	(1-3)

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 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	Sampled-Data Control Systems.	(3)

615	Stability Theory of 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, Oscar W. Dillon, Jr., Donald C. Leigh (Chairman). Associate Professors Millard F. Beatty (Director of Graduate Studies), Frank J. Rizzo, T. Richard Robe, Stanley E. Jones, David J. Shippy, Theodore R. Tauchert.

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 as well as from mathematics and physics.

Fields of concentration for study are (1) continuum mechanics, (2) materials and (3) dynamics. 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, and particle dynamics. Investigations in these areas have included theoretical, experimental and numerical methods and wave propagation and stability analyses.

For further information contact the Director of Graduate Studies.

503 <i>Introduction to Continuum Mechanics.</i>	(3)
505 <i>Visco Elasticity.</i>	(3)
506 <i>Mechanics and Composite Materials.</i>	(3)
513 <i>Mechanical Vibrations.</i>	(3)
531 <i>Advanced Strength of Materials.</i>	(3)
532 <i>Experimental Stress Analysis.</i>	(3)
533 <i>Aircraft and Missile Structural Analysis.</i>	(3)
585 <i>Fourier Series and Boundary Value Problems.</i>	(3)
603 <i>Theoretical Plasticity I.</i>	(3)
604 <i>Theoretical Plasticity II.</i>	(3)
605 <i>Foundations of Inelasticity.</i>	(3)
606 <i>Theoretical Elasticity.</i>	(3)
607 <i>Advanced Inelasticity.</i>	(3)
613 <i>Nonlinear Oscillations.</i>	(3)
614 <i>Mechanics of Space Vehicles.</i>	(3)
632 <i>Theory of Elastic Stability.</i>	(3)
644 <i>Advanced Dynamics I.</i>	(3)
646 <i>Advanced Dynamics II.</i>	(3)
651 <i>Numerical Methods in Potential Theory.</i>	(3)
652 <i>Numerical Methods in Elasticity.</i>	(3)
653 <i>Methods of Applied Differential Equations.</i>	(3)
661 <i>Nonlinear Continuum Mechanics I.</i>	(3)
662 <i>Nonlinear Continuum Mechanics II.</i>	(3)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
780 <i>Special Problems in Engineering Mechanics.</i>	(3)

ENGLISH

Graduate Faculty: Professors Joseph Bryant (Chairman), Guy Davenport, Robert Evans, William Jansen, Stephen Manning, Donald Ringe. Associate Professors Thomas Blues, William Campbell, John Cutler, Lee Elioseff, Joseph Gardner (Co-director of Graduate Studies), William Gordon, Joan Hartwig, Robert Hemenway, Jerome Meckier (Co-director of Graduate Studies), Larry Swingle, and Arthur Wrobel.

Associate Members: Assistant Professors John L. Greenway, T. Walter Herbert, 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, their Graduate Record Examination scores, and their performance in a diagnostic preliminary examination. Students who have received their master's degrees elsewhere will be evaluated on their course grades after the equivalent of one semester's full-time graduate work at the University of Kentucky, instructor's recommendations, GRE scores, and performance in the preliminary examination.

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 is available on request.

- 414 *Introduction to Modern English Linguistics.* (3)
- 421 *Chaucer.* (3)
- 425 *Shakespeare Survey.* (3)
- 428 *Milton.* (3)
- 440 *Eighteenth Century English Novel.* (3)
- 441 *Nineteenth Century English Novel.* (3)
- 442 *Twentieth Century English Novel.* (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)
- 514 *Descriptive Linguistics: Phonetics.* (3)
- 515 *Descriptive Linguistics: Phonemics.* (3)
- 516 *Descriptive Linguistics: Morphemics.* (3)
- 518 *History of the English Language.* (3)
- 519 *Introduction to Old English.* (3)
- 520 *Middle English Literature.* (3)
- 522 *English Renaissance: 1500-1600.* (3)
- 523 *English Renaissance: 1600-1660.* (3)
- 526 *Shakespeare: Studies I.* (3)
- 527 *Shakespeare: Studies II.* (3)
- 530 *The Restoration and Early 18th Century: 1660-1730.* (3)
- 531 *The Later 18th Century: 1730-1780.* (3)
- 535 *The Romantic Movement: 1780-1815.* (3)
- 536 *The Romantic Movement: 1815-1830.* (3)
- 538 *Victorian Period: 1830-1860.* (3)
- 539 *Victorian Period: 1860-1900.* (3)
- 541 *Contemporary British Literature.* (3)
- 542 *Twentieth Century British Literature.* (3)
- 550 *American Literature before 1800.* (3)
- 551 *American Literature: 1800-1860.* (3)
- 552 *American Literature: 1860-1900.* (3)
- 553 *American Literature since 1900.* (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 English for High School Teachers.* (1-3)

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 Chaucer.* (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)
- 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)
- 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)
- 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 Nordin.

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.

402 <i>Forest Entomology.</i>	(3)
500 <i>Economic Entomology.</i>	(3)
530 <i>Insect Pest Management.</i>	(3)
532 <i>Medical Entomology.</i>	(4)
542 <i>Insect Taxonomy.</i>	(4)
545 <i>Parasitology.</i>	(4)
602 <i>Insect Morphology.</i>	(4)
606 <i>Insecticide Chemistry and Toxicology.</i>	(3)
610 <i>Insect Ecology and Behavior.</i>	(3)
612 <i>Principles of Animal Systematics.</i>	(3)
620 <i>General Acarology.</i>	(4)
626 <i>Insect Pathology.</i>	(3)
630 <i>Insect Physiology.</i>	(4)
650 <i>Advanced Applied Entomology.</i>	(3)
660 <i>Immature Insects</i>	(4)
670 <i>Experimental Methods in Entomology.</i>	(4)
680 <i>Biological Control of Insects.</i>	(3)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
770 <i>Entomological Seminar.</i>	(1)
780 <i>Special Problems in Entomology and Acarology.</i>	(2-3)
790 <i>Research in Entomology and Acarology.</i>	(1-6)

FORESTRY

Graduate Faculty: Professors Thomas Hansbrough, John C. Redmon, Boyd Richards. Associate Professor Ruen Chiu Tang.

Associate Members: Assistant Professors, Stanley Carpenter, Gerald Nordin, Louis Shain, Charles L. Shilling.

At present no graduate majors are offered in Forestry.

400 <i>Wood Identification and Properties.</i>	(3)
402 <i>Forest Entomology.</i>	(3)
405 <i>Mechanics and Physics of Wood.</i>	(3)
410 <i>Forest Pathology.</i>	(3)
412 <i>Forest Economics.</i>	(3)
415 <i>Wood Seasoning and Preservation.</i>	(3)
420 <i>Forest Products.</i>	(3)
425 <i>Forest Photogrammetry.</i>	(3)
430 <i>Forest Wildlife and Range Management.</i>	(3)
440 <i>Forest Resources for Recreation.</i>	(3)
445 <i>Forest Fire; Control and Use.</i>	(3)
450 <i>Senior Seminar in Forestry (Proseminar).</i>	(2)
460 <i>Forest Watershed Management.</i>	(3)
512 <i>Forest Tree Physiology.</i>	(3)
562 <i>Forest Soils.</i>	(3)
599 <i>Independent Work in Forestry.</i>	(1-3)
601 <i>Research Methods in Forestry.</i>	(3)
612 <i>Forest Ecosyst Analysis.</i>	(4)

FRENCH LANGUAGE AND LITERATURE

Graduate Faculty: Professors Jean Charron, Philip Duncan, Lawrence Forno, Theodore Mueller. Associate Professors Raymond La Charite, Virginia La Charite, and Rupert Pickens (Director of Graduate Studies).

Associate Member: Assistant Professor Mary Lynne Flowers.

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. Candidates must demonstrate a reading knowledge of another foreign language and pass a written, comprehensive examination in six of the following areas: medieval, 16th, 17th, 18th, 19th, 20th-Century French literature, and linguistics. The M.A. examination will be given every November, January, April, and July. Application for the examination should be made to the Director of Graduate Studies no later than 10 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	<i>Advanced French Grammar and Composition.</i>	(3)
407	<i>French Phonetics.</i>	(3)
412	<i>Advanced French Conversation.</i>	(3)
417	<i>Linguistic Survey of French.</i>	(3)
421	<i>Topics in French Literature Translation I.</i>	(3)
422	<i>Topics in French Literature Translation II.</i>	(3)
423	<i>French Literature in Translation: 20th Century.</i>	(3)
435	<i>A Survey of French Literature of the Middle Ages.</i>	(3)
436	<i>A Survey of French Literature of the Renaissance.</i>	(3)
437	<i>A Survey in French Literature of the 17th Century.</i>	(3)
438	<i>A Survey of French Literature of the 18th Century.</i>	(3)
439	<i>A Survey of French Literature of the 19th Century.</i>	(3)
440	<i>A Survey of French Literature of the 20th Century.</i>	(3)
450	<i>Contemporary French Culture.</i>	(3)
460	<i>Masterpieces of the French Novel.</i>	(3)
461	<i>Masterpieces of French Drama.</i>	(3)
462	<i>Masterpieces of French Poetry.</i>	(3)
507	<i>French Stylistics.</i>	(3)
516	<i>Introduction to Old French.</i>	(3)
517	<i>Introduction to the Phonological Structure of French.</i>	(3)

553	<i>The Teaching of Modern Foreign Languages.</i>	(3)
603	<i>The Development of the French Language.</i>	(3)
607	<i>Syntactic Structure of French.</i>	(3)
610	<i>Romance Philology.</i>	(3)
611	<i>Old Provençal.</i>	(3)
612	<i>The Old French Chanson de Geste.</i>	(3)
613	<i>Courtly Love and the Courtly Romance.</i>	(3)
614	<i>The Satirical Tradition.</i>	(3)
615	<i>The Medieval French Drama.</i>	(3)
616	<i>Didactic Literature of the Middle Ages.</i>	(3)
617	<i>Middle French Lyric.</i>	(3)
618	<i>Memorialists and Historians of the French Middle Ages.</i>	(3)
619	<i>The Early Lyric.</i>	(3)
621	<i>Rabelais.</i>	(3)
622	<i>Montaigne.</i>	(3)
623	<i>French Renaissance Poetry I.</i>	(3)
624	<i>French Renaissance Poetry II.</i>	(3)
625	<i>The Conteurs of the French Renaissance.</i>	(3)
626	<i>Non-Fictional Prose Writers of the French Renaissance.</i>	(3)
630	<i>Corneille.</i>	(3)
631	<i>Racine.</i>	(3)
632	<i>Molière.</i>	(3)
633	<i>Seventeenth-Century French Prose.</i>	(3)
634	<i>Pre-Classical French Drama.</i>	(3)
635	<i>History of Ideas in 17th Century French Literature.</i>	(3)
636	<i>Seventeenth-Century Non-Dramatic Poetry.</i>	(3)
640	<i>Voltaire.</i>	(3)
641	<i>Diderot.</i>	(3)
642	<i>Rousseau.</i>	(3)
643	<i>The Eighteenth-Century French Novel.</i>	(3)
644	<i>Eighteenth-Century French Theater.</i>	(3)
645	<i>History of Ideas in the Eighteenth Century.</i>	(3)
651	<i>French Romanticism I: Prose.</i>	(3)
652	<i>French Romanticism II: Poetry and Theater.</i>	(3)
653	<i>Baudelaire, Rimbaud, Mallarmé.</i>	(3)
654	<i>The French Realist Novel.</i>	(3)
655	<i>Flaubert.</i>	(3)
656	<i>The French Naturalist Novel.</i>	(3)
661	<i>Twentieth-Century Prose I: The Early Decades.</i>	(3)
662	<i>Twentieth-Century Prose II: The Literature of Commitment.</i>	(3)
663	<i>Malraux.</i>	(3)
664	<i>French Existentialist Literature.</i>	(3)
665	<i>Major Intellectual Currents in Modern French Literature.</i>	(3)
666	<i>The French Theater Since World War I.</i>	(3)
668	<i>Proust.</i>	(3)
669	<i>Surrealism.</i>	(3)

- 670 *Theater of the Absurd.* (3)
 671 *The New Novel.* (3)
 672 *Contemporary Poetry I.* (3)
 673 *Contemporary Poetry II.* (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: Professors Thomas Field, P. P. Karan (Chairman and Director of Graduate Studies), W. A. Withington. Associate Professor Karl Raitz.

Associate Member: Assistant Professors W. A. Bladen, Phillip D. Phillips.

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 a research-oriented professional training. The research training and skills of the individual graduate students are developed within the framework of research seminars and courses given by the faculty. This framework is based on the following specific research clusters of the discipline:

Theoretical Geography—The philosophy of social science; theory construction; study of contemporary geographic theory; regional theory.

Cultural Geography—Functional dynamics of urban systems; social and behavioral aspects of cities; urban and rural settlement patterns; migration and diffusion processes; population; ethnic geography; cultural resources; cultural regions.

Remote Sensing—Problems of acquiring and interpreting data from remote sensors, including air photo interpretation, in the analysis of the physical environment and patterns of human activity.

Transportation Geography—Spatial structure of transportation and circulation systems; commodity flow and linkage analysis; transportation and modernization processes.

Applied Cartography—Map transformation, mapping spatial perception and behavior.

Political Geography—Studies of regional and national power settings; boundary problems; territorial behavior and perception; quantitative methods for analysis of political processes and structures; spatial aspects of administrative systems and urban politics.

Applied Geography—The application of geographic theory to the location of public services; regional development problems in underdeveloped areas; regional problems in resource use and management; regional planning; spatial and ecological dimensions of development in regions undergoing "modernization."

The topical fields emphasizing dynamic spatial patterns, processes, behavior, and relationships receive particular attention in regional geographic specializations in North America, Appalachia, the Indian Subcontinent, Southeast Asia, Middle East. A student may elect to specialize in the geography of a specific region only if faculty members have research experience in that region.

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 602, 700, 702, 707 and 710) in the theory and methodology of geography, (2) seminars, independent study and directed research in one of the specific research clusters noted above, (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, maps a program designed to meet the professional academic goals.

Graduate students are expected to share with the faculty an enthusiasm for geographic learning and inquiry. The program emphasizes informality in student-faculty relationships, flexibility in designing training programs for individual students, and the importance of competent empirical application of research skills.

Applicants for the M.A. degree in geography follow a broadly based program which consists of (1) recommended courses (GEO 602, 707, and 710), (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. 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 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.

- 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 *Urban Geography.* (3)
- 542 *Political Geography.* (3)
- 544 *Population Geography.* (3)
- 550 *Geography of Natural Resources.* (3)
- 551 *Climatology.* (3)
- 560 *Independent Work in Geography.* (3)
- 565 *Topics in Geography.* (3)
- 601 *Field Methods in Geography.* (3)
- 602 *Seminar in Theoretical Geography.* (3)
- 605 *Computer Cartography.* (3)
- 625 *Regional Theory.* (3)
- 630 *Regional Study of Special Areas.* (3)
- 635 *Fundamentals of Remote Sensing of Environment.* (3)
- 640 *Transportation Geography.* (3)
- 643 *Urban Transportation Planning.* (3)
- 651 *Urban Climatology.* (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 *Spatial Models 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 Members: Associate Professor Irving Fisher. Assistant Professor G. R. Keller.

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 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, field equipment and geophysical instrumentation for gravity, magnetic, and seismic studies are available within the department. The 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, clay mineralogy, and rock mechanics. Additionally, such extra-departmental facilities as computing, neu-

tron activation, electron microscopy, and portable diamond drilling are readily available.

- 401 *Paleontology*. (3)
- 420 *Structural Geology*. (3)
- 423 *Field Work in Regional Geology*. (6)
- 424 *Field Work Report in Regional Geology*. (7)
- 450 *Stratigraphy and Sedimentation*. (3)
- 460 *Elementary Mineralogy*. (4)
- 461 *Elementary Petrology*. (3)
- 501 *Stratigraphic Paleontology*. (3)
- 510 *Ore Deposits*. (3)
- 511 *Petroleum Geology*. (2)
- 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 *Structure Mineralogy*. (3)
- 562 *X-Ray Mineralogy*. (3)
- 571 *Introductory Geophysics Gravity and Magnetism*. (3)
- 572 *Introductory Geophysics-Seismology*. (3)
- 612 *Mineral Deposits*. (3)
- 620 *Tectonics*. (3)
- 624 *Mesosopic Structures*. (3)
- 631 *Advanced Prospecting*. (3)
- 633 *Chemical Mineralogy*. (3)
- 650 *Sedimentology*. (3)
- 652 *Stratigraphy I*. (3)
- 653 *Stratigraphy II*. (3)
- 654 *Carbonate Petrology*. (3)
- 655 *Hydrogeology*. (3)
- 660 *Petrography*. (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)
- 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, Paul Stapf, John Thomas, Wayne Wonderley (Chairman and Director of Graduate Studies).

Associate Member: Assistant Professor Ingeborg Solbrig.

A fundamental goal of language study is to broaden and deepen acquaintance with the world by revealing aspects of its cultures, old and new. Following the idea that this goal is primarily accessible through study of the pertinent languages and literatures, the department emphasizes German in the graduate program. Supporting work in Scandinavian is offered. The faculty is concerned with the development and encouragement of an understanding of linguistic, human, and critical concepts.

Graduate programs leading to the M.A. (Plan A or Plan B) and Ph.D. in German are offered. Competence in German plus French or another foreign language are required for graduate degrees.

Admission requirements include an acceptable undergraduate major in German and a satisfactory score on the Graduate Record Examination.

Individual programs of study are planned with consideration of the student's competencies and interests. Thus, desiderata for teacher preparation are flexible and accommodate particular emphases appropriate for secondary schools or for two-year or four-year colleges. Likewise, suitable credit for studies successfully completed abroad is recommended.

Areas of specialization of the graduate faculty of the department afford flexible coverage in breadth and depth, with particular strength in medieval linguistics and literature. The library has basic serial holdings in all areas of German language and literatures and 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.

The department serves as a publishing center for Germanic studies. Under the aegis of the University Press of Kentucky it sponsors a monograph series in the Germanic languages and literatures. Other publications are *Colloquia Germanica*, *Germanic Notes*, and *Lyrice Germanica*. Lectures and extracurricular activities are provided, including the annual Kentucky Foreign Language Conference. Electronic facilities in support of the instructional program include a departmental tape library focusing on German cultural materials.

Students holding appointments as supervised teaching assistants take about four semesters to complete requirements for the M.A. degree and teach two basic or intermediate sections per se-

mester. Those students devoting full time to graduate studies complete the M.A. degree in about three semesters. Appointments may be renewed. Summer offerings make it possible to obtain the M.A. degree through several semesters of summer study.

The Ph.D. degree in German normally requires a minimum of three years of graduate study (which may include work completed for the M.A. degree).

The department will be glad to answer questions or supply additional information. Address: Department of Germanic Languages and Literatures, Patterson Office Tower 1055, University of Kentucky, Lexington, Kentucky 40506; phone (606) 257-4641.

GERMAN

- 412 *Modern German Literature in Translation.* (3)
- 506 *Tutorial in Minor Germanic Language.* (3)
- 516 *History of German Literature.* (3)
- 520 *Germanic Proseminar.* (3)
- 522 *Germanic 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)
- 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)
- 643 *Longer Epic Verse of the German Medieval Period.* (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.* (4)

SCANDINAVIAN (Offered as required)

- 500 *Swedish.* (3)
- 501 *Swedish Literature from Bellman 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)
- 611 *Old Icelandic.* (3)

HEALTH, PHYSICAL EDUCATION AND RECREATION

Graduate Faculty: Professors Joseph Gruber, Alan Stull. Associate Professors Don Kirkendall (Acting Chairman and Director of Graduate Studies), Pentti Teralinna.

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

The Department of Health, Physical Education and Recreation offers graduate work toward the Master of Science Degree with an area of concentration in one of the following: health and safety education, physical education, or recreation and park administration. Candidates may select, subject to the approval of the Department, either a thesis (Plan A) or a non-thesis option (Plan B).

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.

Applicants are expected to have the equivalent of a 21-hour minor in their respective field. 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	10
Aquatics, Gymnastics and Dance 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 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 OR Principles of Outdoor Recreation	2
Supervised Field Study in Recreation	3
Laboratory courses in the areas of: Sports, music, art, theater, camping or dance	

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, or recreation and park administration, (certificate or non-certificate) all candidates are required to complete the following.

PLAN A

EDP 657 Educational Statistics	Hrs. 3-4
or	
STA 670 Basic Statistical Analysis	

HPR 644 Research Techniques Applied to Health, Physical Education and Recreation	3
Supporting Elective	6
HPR—Area of Concentration	12
Thesis Problem in Area of Concentration	6
	30-31

PLAN B

EDP 657 Educational Statistics	3-4
or	
STA 670 Basic Statistical Analysis	
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.

540 <i>Organization and Administration of Physical Education.</i>	(3)
546 <i>Physical Education Workshop.</i>	(2)
547 <i>Psychology of Sport and Physical Activity.</i>	(3)
560 <i>Motor Development in Infants and Young Children.</i>	(3)
575 <i>Interpretation of Leisure Recreation.</i>	(3)
576 <i>Practice in Recreation.</i>	(4-9)
579 <i>Adapted Physical Education.</i>	(3)
592 <i>Choreography for Groups.</i>	(2)
593 <i>Dance Production.</i>	(3)

GRADUATE COURSES FOR MEN AND WOMEN

610 <i>Implementation of Recreation Services for the Ill or Disabled.</i>	(3)
611 <i>Therapeutic Applications of Recreation.</i>	(3)
644 <i>Research Techniques Applied to Health, Physical Education and Recreation.</i>	(3)
645 <i>MSMT Theory in HPR.</i>	(3)
646 <i>Integrated Development.</i>	(3)
650 <i>Curriculum and Program Development.</i>	(3)
651 <i>Facilities, Construction, and Equipment.</i>	(2)
676 <i>Current Issues in Recreation.</i>	(3)
685 <i>Administrative Practices in Recreation.</i>	(3)
690 <i>Organization and Administration of the Dance in Education.</i>	(3)
720 <i>Sports Medicine.</i>	(3)
741 <i>Current Studies and Trends in Health and Physical Education.</i>	(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

- 570 *Landscape Design of Park and Recreational Areas.* (3)
 571 *Introduction to Therapeutic Recreation.* (3)
 573 *Administration and Organization of Recreation.* (3)

HEALTH AND SAFETY

- 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)

HEALTH RADIATION SCIENCES

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

* 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)

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)
-
- 19

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)
-
- 13-17

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. No credit hours.

Total 32 (minimum)

Master of Science in Medical Radiation Dosimetry

ADDITIONAL PROGRAM

- ANA 511 *Introduction to Anatomy.* (4)
 PGY 502 *Principles of 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 for six months 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 AND ADULT EDUCATION

Graduate Faculty: Professors Collins Burnett (Chairman), Morris Cierley, George Denemark, Charles Elton (Director of Graduate Studies).

Associate Member: Assistant Professor Edgar Sagan.

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 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 admission decision is made either in December or April and the policy of the faculty is to admit the most qualified students among those making application.

The Department offers the following two degrees.

1. Master of Science in Education (Plan A and B available).

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	15
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. At least three committee members must be from the University of Kentucky.

Another joint program in which this Department participates is with the University of Kentucky College of Allied Health Professions. Both the Master of Science in Education and the Ed.D. degrees are available to qualified applicants who

possess the baccalaureate in one of the Allied Health areas, e.g., dental hygiene, medical technology, or physical therapy. These graduate programs are essentially the same as those described earlier and are intended to prepare instructional and administrative personnel for the allied health professions. The major difference is that the allied health specialty serves as the support area for the student's program.

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

099 Orientation for Graduate Students.	(0)
500 Clinical and Laboratory Teaching.	(4)
501 Teaching Internship.	(3-12)
708 Intern 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 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, Holman Hamilton, Mary Wilma Hargreaves, Richard Lowitt, Charles Roland, Gerald Silberstein, Robert Warth. Associate Professors William Chambliss, Steven Channing, Randolph Daniel, Bruce Eastwood, George Herring (Chairman), Robert Ireland, Humbert Nelli, Donald Nugent, Robert Randall, John Scarborough, Joe Thompson (Director of Graduate Studies).

Associate Member: Assistant Professor 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 mid-10th Century.* (3)
- 513 *Medieval Institutions Since 1049.* (3)
- 519 *The Era of the Renaissance.* (3)
- 520 *The Era of the Reformation.* (3)
- 521 *The Age of Absolutism.* (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 Revolution.* (3)
- 530 *Social History of Europe in the 18th Century.* (3)
- 531 *The French and European Revolutions, 1760-1795.* (3)
- 532 *Napoleonic Europe, 1796-1815.* (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)
- 547 *The Byzantine Empire.* (3)
- 548 *The Ottoman Empire.* (3)
- 549 *History of the Middle East Since 1916.* (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, 1828-1865.* (3)
 564 *Emergence of Modern America, 1865 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.* (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)
 584 *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)

THE GRADUATE GROUP Seminars

These are content courses presented by the lecture and discussion method and as such are distinct from those numbered "700," which are concerned with the problems and the practice of research.

- 600 *European Historiography.* (3)
 603 *American Historiography.* (3)
 606 *Historical Criticism.* (3)
 611,612 *Readings in Ancient History.* (3 ea.)
 613,614 *Readings in Medieval History.* (3 ea.)
 621,622 *European History, 1500-1815.* (3 ea.)
 623,624 *European History Since 1815.* (3 ea.)

- 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)
 695 *Independent Work.* (1-3)

COURSES IN THE 700 GROUP

Seminars—basically research in character. These are not content courses. They provide special training in historical research (collection and critical analysis of bibliography, notetaking and organization of materials, and the presentation of a properly documented research paper). Topics will be chosen in keeping with the interests of the professors in charge. Two class hours and one conference hour.

- 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

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

tive student is advised to contact the appropriate Director of Graduate Studies, College of Home Economics, University of Kentucky.

HORTICULTURE

Graduate Faculty: Professors Raymond Lockard (Director of Graduate Studies), Hubert Mohr, Ronald Phillips (Acting Chairman), William Schneider. Associate Professors Dean Knavel, Aly Lasheen, Leonard Stoltz.

Associate Member: Assistant Professor Thomas Kemp.

The Department of Horticulture 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 design.

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.	(3)
440 Landscape Construction I.	(3)
441 Landscape Construction II.	(3)
502 Pomology: Deciduous Fruits II.	(3)
510 Vegetable Crops.	(3)
512 Greenhouse Vegetable Crops.	(3)
515 Turf Management.	(3)
522 Landscape Planting Design.	(3)
523 Landscape Planning and Design.	(4)
524 Floriculture II.	(3)
525 Plant Propagation.	(3)
570 Landscape Design of Park and Recreation Areas.	(3)
575 Advanced Landscape Design.	(5)
576 Seminar in Landscape Architecture.	(1-2)
582 Special Problems in Horticulture.	(1-4)
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).

530 Advanced Interior Design V.	(2)
536 Interior Design Components.	(3)
537 History of Furniture.	(4)
538 Materials and Components.	(3)
593 Special Problems in Shelter and Interior Design.	(1-3)
772 Seminar in Design.	(2)
783 Special Problems in Interior Design.	(1-3)

HUMAN DEVELOPMENT AND FAMILY RELATIONS

Graduate Faculty: Associate Professors David Payne and Lisa Barclay (Director of Graduate Studies).

Associate Members: Assistant Professors Kathy Thornburg, M. O'Neal Weeks.

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 Creative Experiences and Concept Development: Preschool Years.	(3)
557 Infant Development.	(2)
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 Practicing.	(4)
652 Readings in Family Relations.	(3)
653 Family Theory and Dynamics.	(3)
655 Theory Dynamics in 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: Professor Lawrence A. Allen (Dean and Director of Graduate Studies). Associate Professors Robert E. Cazden, Lois Chan, Michael H. Harris.

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, or Russian (one required). Another language may be substituted by petition. This requirement may be satisfied by one of three 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.

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

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

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 to the Dean, College of Library Science.

PROFESSIONAL COURSES

500 <i>Library Administration.</i>	(3)
501 <i>Introduction to Cataloging and Classification.</i>	(3)
502 <i>Reference and Information Services.</i>	(3)
503 <i>Selection and Acquisition of Library Materials.</i>	(3)
504 <i>Social Foundations of Librarianship.</i>	(3)
509 <i>Administration of School Media Centers.</i>	(3)
510 <i>Children's Literature and Related Materials.</i>	(3)
511 <i>Literature and Related Materials for Young People.</i>	(3)
512 <i>School Library Practicum.</i>	(3)
525 <i>Professional Field Experience.</i>	(3)
586 <i>Utilization of Educational Media.</i>	(3)
600 <i>Administrative Behavior in Library Management.</i>	(3)
601 <i>Advanced Cataloging and Classification.</i>	(3)
602 <i>Bibliography of Social Sciences.</i>	(3)
603 <i>Bibliography of the Humanities.</i>	(3)
604 <i>Bibliography of Science.</i>	(3)
605 <i>Introduction to Information Sciences.</i>	(3)
606 <i>Automation and the Library.</i>	(3)
608 <i>Methods of Research in Librarianship.</i>	(3)
609 <i>Public Libraries.</i>	(3)
610 <i>Academic Libraries.</i>	(3)
611 <i>Scientific and Technical Libraries.</i>	(3)
613 <i>Library Systems Analysis.</i>	(3)
614 <i>Information Storage and Retrieval Systems.</i>	(3)
617 <i>History of Books and Printing to 1800.</i>	(3)
618 <i>Reading Interest of Adults.</i>	(3)
619 <i>Collection Development in Academic Libraries.</i>	(3)
620 <i>Rare Books Bibliography.</i>	(3)
621 <i>Special Collections.</i>	(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)
- 640 *Medical Librarianship.* (3)
- 641 *Law Librarianship.* (3)
- 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

Associate Members: Assistant Professors Marilyn Eigsti, Carolyn McKinney (Chairman and Director of Graduate Studies).

- 462 *Personal and Family Finance.* (3)
- 561 *Economic Disadvantaged Consumer.* (3)
- 562 *Family Management for Multiroles.* (3)
- 563 *Family Consumers and Law.* (3)
- 586 *Field Instruction in Management and Family Economics.* (6)
- 596 *Special Problems in Management and Family Economics.* (1-3)
- 602 *Consumer Economics.* (3)
- 662 *Social and Economic Decisions in the Family.* (3)
- 668 *Allocation of Family Resources.* (3)
- 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, Edgar Enochs, Henry Howard, Frank Keogh, Donald Leigh, Wimberly Royster, S. M. Shah, Clasine Van Winter, James Wells (Director of Graduate Studies), Roger Wets. Associate Professors James Beidleman, James Brennan, Donald Coleman, Rayomind Cox (Chairman), Paul Eakin, Carl Ebehart, Graeme Fairweather, Michael Freeman, Brauch Fugate, Ronald Garipey, Wayne Goodwyn, Lawrence Harris, Thomas Hayden, Dave Johnson, Kenneth Kubota, Anders Linquist, John Mack, Michael McCord, Raymond Rishel, James Simpson, Ted Suffridge, Barnet Weinstock, Mitsura Yasuhary.

Associate Members: Assistant Professors Richard Aron, Daniel Henry, Edward Kerlin, Frank Massey.

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's degree is offered under both Plans A and B. A graduate student who holds a teaching assistantship is expected to complete the M.A. or M.S. program within two years.

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

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 examinations 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, one and several complex variables, rational approximation, operator theory, differential equations, numerical analysis and optimization and control theory.

- 410 *Topics in Applied Mathematics.* (3)
- 415 *Graph Theory.* (3)
- 421 *Elementary Numerical Analysis.* (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)

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|--|---------|---|---------|
| 481 Differential Equations I. | (3) | 703 Advanced Probability II. | (3) |
| 482 Discrete Methods and Models in Applied Mathematics. | (3) | 715 Selected Topics in Optimizaton. | (3) |
| 483 Differential Equations. | (3) | 732 Selected Topics in Differential and Integral Equations. | (3) |
| 485 Fourier Series and Boundary Value Problems. | (3) | 751,752 Selected Topics in Topology. | (3 ea.) |
| 501-502 Seminar in Selected Topics. | (3 ea.) | 753,754 Selected Topics in Functional Analysis. | (3 ea.) |
| 515 Mathematical Programming and Extensions. | (3) | 755,756 Selected Topics in Topological Algebra. | (3 ea.) |
| 524 Discrete Probability. | (3) | 757 Seminar in Topology. | (3) |
| 525 Numerical Solution of Ordinary and Partial Differential Equations. | (3) | 761 Homological Algebra. | (3) |
| 531 Theory of Statistical Inference I. | (4) | 762 Theory of Rings. | (3) |
| 532 Ordinary Differential Equations. | (3) | 763 The Theory of Fields. | (3) |
| 533 Partial Differential Equations. | (3) | 764,765 Selected Topics in Algebra. | (3 ea.) |
| 535 Vector and Tensor Analysis. | (3) | 768 Residence Credit for the Master's Degree. | (1-6) |
| 536 Operational Calculus and Generalized Functions. | (3) | 769 Residence Credit for the Doctor's Degree. | (0-12) |
| 538 Elementary Numerical Analysis. | (3) | 771 Selected Topics in Complex Variables. | (3) |
| 551 Topology I. | (3) | 772 Topics Theory in Complex Variables. | (3) |
| 561 Modern Algebra I. | (3) | 773,774 Selected Topics in Analysis. | (3 ea.) |
| 565 Linear Algebra. | (3) | 777,778 Mathematical Seminar. | (3 ea.) |
| 566 Theory of Numbers. | (3) | | |
| 570 Multivariate Calculus. | (3) | | |
| 571 Analysis I. | (3) | | |
| 572 Analysis II. | (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) | | |
| 624 Advanced Probability I. | (3) | | |
| 632 Advanced Differential Equations. | (3) | | |
| 633 Theory of Partial Differential Equations. | (3) | | |
| 635 Theory of Tensors. | (3) | | |
| 637 Approximation Theory. | (3) | | |
| 638 Advanced Numerical Analysis. | (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) | | |
| 671 Functions of a Complex Variable I. | (3) | | |
| 672 Functions of a Complex Variable II. | (3) | | |
| 673 Several Complex Variables. | (3) | | |
| 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) | | |

MECHANICAL ENGINEERING

Graduate Faculty: Professors Richard Birkebak, Merle Carter, Clifford Cremers (Director of Graduate Studies), Roger Eichhorn (Chairman), James Funk, James Lafferty, John Lienhard. Associate Professors Ottfried Hahn, Charles Knapp, Shiva Singh.

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 excellent preparation for graduate study in mechanical engineering.

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.

Laboratories for research are located in Anderson Hall and the Wenner-Gren Aeronautical Research Laboratories. The latter is wholly devoted to research in biomedical engineering. The departmental laboratories are well-equipped with instrumentation and facilities for study in the areas of fluid mechanics, heat transfer, nuclear engineering, air pollution, and coal science.

- 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)
- 564 *Propulsion System Design.* (3)
- 565 *Energy Engineering.* (3)
- 566 *Direct Energy Conversions 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.* (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)

METALLURGICAL ENGINEERING AND MATERIALS SCIENCE

Graduate Faculty: Professors H. Conrad (Chairman and Director of Graduate Studies), R. Swift. Associate Professors R. DeAngelis, P. Gillis, J. Morris, P. Reucroft, 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	<i>Electronic Properties of Materials.</i>	(3)
413	<i>Materials Science II.</i>	(3)
421	<i>Solidification and Casting.</i>	(4)
425	<i>Ferrous Alloys Process.</i>	(3)
426	<i>Non-Ferrous Alloys Process.</i>	(3)
435	<i>Mechanical Metallurgy.</i>	(3)
436	<i>Structural Properties of the Alloys III.</i>	(3)
442	<i>Extractive Metallurgy.</i>	(3)
443	<i>Minerals Beneficiation.</i>	(3)
444	<i>Minerals Beneficiation Laboratory.</i>	(1)
451	<i>Metallurgical Thermodynamics II.</i>	(3)
505	<i>Visco Elasticity.</i>	(3)
506	<i>Mechanics of Composite Materials.</i>	(3)
531	<i>Powder Metallurgy.</i>	(3)
532	<i>Composite Materials.</i>	(3)
534	<i>Physical Structures of Polymers.</i>	(3)
536	<i>Ceramic Engineering.</i>	(3)
539	<i>Nuclear Metallurgy.</i>	(3)
541	<i>Advanced Extractive Metallurgy.</i>	(3)
550	<i>Corrosion.</i>	(3)
551	<i>Advanced Chemical Metallurgy I.</i>	(3)
552	<i>Polymeric Materials.</i>	(3)
553	<i>Thermo or Polymer Systems.</i>	(3)
566	<i>Crystallography and X-ray Metallography.</i>	(4)
599	<i>Topics in Metallurgical Engineering.</i>	(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 and a Doctor of Philosophy.

632	<i>Advanced Materials Science.</i>	(3)
633	<i>Special Purpose Alloy Steels.</i>	(3)
635	<i>Advanced Mechanical Metallurgy.</i>	(3)
637	<i>Materials Engineering.</i>	(3)
641	<i>Advanced Production Metallurgy.</i>	(3)
650	<i>Advanced Chemical Metallurgy II.</i>	(3)
659	<i>Advanced Phase Diagrams.</i>	(3)
661	<i>Advanced Physical Metallurgy I.</i>	(3)
662	<i>Advanced Physical Metallurgy II.</i>	(3)
663	<i>Theoretical Structural Metallurgy.</i>	(3)
666	<i>Diffraction Methods in Metallurgy.</i>	(4)
768	<i>Residence Credit for the Master's Degree.</i>	(1-6)
769	<i>Residence Credit for the Doctor's Degree.</i>	(0-12)
771	<i>Seminar.</i>	(0)
781	<i>Special Problems, Literature and Laboratory.</i>	(1-3)
782	<i>Special Problems, Literature and Laboratory.</i>	(3)

MICROBIOLOGY

Graduate Faculty: Professors M. I. H. Aleem, E. W. Chick, S. F. Conti (Director of Graduate Studies), D. Goldberg, E. O. Hill, J. C. Humphries, H. E. Swim and R. F. Wiseman. Associate Professors N. L. Goodman, and D. O. Harris.

Associate Members: Associate Professor T. C. Gray. Assistant Professors D. S. Bauman, B. H. Brownstein, A. D. Hitchins, T. Lillich, T. L. Roszman, 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), and Microbial Ultrastructure. A minimum of one foreign language is required for Ph.D. candidates.

Plan B is permitted with departmental approval. All graduate students including those under Plan B are required to engage in graduate-level research. A reading knowledge of one foreign language is required for the master's degree.

400	<i>General Bacteriology.</i>	(4)
410	<i>Applied Bacteriology.</i>	(2)
500	<i>Pathogenic Bacteriology.</i>	(4)
512	<i>Growth and Death of Bacteria.</i>	(4)
520	<i>Metabolism of Microorganisms.</i>	(4)
550	<i>Immunology and Serology.</i>	(5)
610	<i>Bacteriology of Foods.</i>	(4)
620	<i>Bacteriology of Water and Sewage.</i>	(4)
660	<i>Electron Microscopy.</i>	(3)

670 <i>Viruses and Rickettsiae.</i>	(4)
700 <i>History of Bacteriology.</i>	(2)
712 <i>Bacterial Anatomy, Taxonomy and Nomenclature.</i>	(3)
714 <i>Microbial Genetics.</i>	(4)
722 <i>Metabolism of Microorganisms.</i>	(4)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
770 <i>Seminar.</i>	(0-1)
790 <i>Research in Bacteriology.</i>	(3-6)
795 <i>Research in Bacteriology.</i>	(3-6)

SCHOOL OF MUSIC

Graduate Faculty: Professors Bernard Fitzgerald, Hubert Henderson, Donald Ivey, Rey Longyear, Wesley K. Morgan (Director of School), Nathaniel Patch, Kenneth Wright (Director of Graduate Studies). Associate Professors Joseph Baber, Frank Traficante.

Associate Member: Assistant Professor William Prizer.

Adjunct Professors: Carl-Werner Guempel (UL), Gerhard Herz (UL).

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 pedagogy; 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.

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.

Term Examination. Each master's degree candidate must display by examination, a working knowledge of musical terms in French, German, and Italian, appropriate to his/her field. This examination is given each spring and fall. The time and place will be announced on the Graduate Student Bulletin Board.

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.

Musicology Emphasis:	Crs.
Music History and Literature	9-12
Theory	5-8
Research methods (MUS 618)	3
Directed electives	2-8
Thesis	0
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	24
Theory Emphasis:	
Theory	9-12
Music History and Literature	6-8
Research methods	3

Directed electives	2-8
Thesis	0
	<hr/>
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MASTER OF MUSIC (THEORY)

Prerequisites: Ten hours of upper division theory, including form and analysis and counterpoint, or the equivalent.

Theory (including Music 578 or 671 and 672)	10
Research methods (Music 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 (Music 673)	4
Music History and Literature	6
Theory (including Music 578 and/or 671)	8
Directed electives	6
Thesis composition	0
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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 Music 578 or 671)	4
Directed electives	11
Recital	0
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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 orga-

nization 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 (Music 751)	3
Supervision and Administration of School Music (Music 750)	3
Music Education Electives	6
Applied Music (500 level)	6
Major	(3)
Performing electives	(3)
Research Methods (Music 617)	3
Music History and Theory (including Music 578 or 671)	6
Electives in Music or Education	3
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Plan II*

History and Philosophy of Music Education (Music 751)	3
Supervision and Administration of School Music (Music 750)	3
Music Education Electives	6
Applied Music (500 level)	3
Research Methods (Music 617)	3
Theory (including Music 578 or 671)	4
Music History and Literature	6
Electives	2
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Plan III*

History and Philosophy of Music Education (Music 751)	3
Supervision and Administration of School Music (Music 750)	3
Music Education Electives	3
Applied Music (500 level)	3
Research Methods (Music 617)	3
Music History and Theory (including Music 578 or 671)	6
Electives	3
Thesis	0
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* 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 students opportunities for fullest professional development as a specialist in the following fields: Music Education, Theory, and Performance Pedagogy. Performance Pedagogy includes applied areas such as piano, voice, conducting, strings, etc.

One foreign language, normally French or German, is required for the D.M.A. degree. The student must also demonstrate a working knowledge of music terms in French, German, and Italian prior to the qualifying examination. The applicant for this degree should have had at least two years of teaching experience. Prior to admission to candidacy, a master's thesis or two papers of approximately 1,000 words each must be submitted. If the D.M.A. is in Music Education, one of the papers must deal with the actual teaching of music.

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 Performance Pedagogy	
or Theory	3
D.M.A. in Music Education	6
Minor outside department	9
Courses in area of specialization	(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. The mechanics and preparation of the dissertation are those required of the Doctor of Philosophy degree.

The Doctor of Philosophy Degree in Musicology

Historical musicology 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.

Language requirements. Required for the Ph.D. in musicology are German and either French or Italian, plus any other languages (e.g., Latin, Spanish, Russian) necessary to 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.

Residence requirement: Together with other residence requirements of the University of Kentucky, a doctoral student in musicology must be in residence as a full-time student or the equivalent for a minimum of four semesters beyond the Master's degree. At least two of these semesters must be consecutive.

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, the qualifying examination has been passed, and the student approved by The Graduate School as a candidate for the Ph.D. in musicology.

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. (Normally no applied music is offered during the Summer Session).

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
MUC 570 <i>Advanced Chamber Music Ensemble.</i>	(1)
MUC 596 <i>Opera Workshop.</i>	(1)
MUS 500 <i>Music of the Middle Ages.</i>	(3)
MUS 501 <i>Music of the Renaissance.</i>	(3)
MUS 502 <i>Music of the Baroque Era.</i>	(3)
MUS 503 <i>Music of the Classic Period.</i>	(3)
MUS 504 <i>Music of the Nineteenth Century.</i>	(3)
MUS 505 <i>Music of the Twentieth Century.</i>	(3)
MUS 506 <i>History of American Music.</i>	(3)
MUS 507 <i>Venetian Music Renaissance.</i>	(3)
MUS 508 <i>Venetian Music Baroque.</i>	(3)
MUS 520 <i>Vocal Solo Literature.</i>	(3)
MUS 521 <i>Organ Literature.</i>	(3)
MUS 522 <i>Piano Literature.</i>	(3)
MUS 524 <i>String Literature.</i>	(3)

MUS 530 <i>Collegium Musicum.</i>	(3)
MUS 561 <i>Current Practices in Elementary and Secondary School Music.</i>	(2)
MUS 565 <i>Vocal Pedagogy.</i>	(2)
MUS 568 <i>General Music in the Secondary School.</i>	(2)
MUS 570 <i>Orchestration.</i>	(2)
MUS 571 <i>Orchestration.</i>	(2)
MUS 572 <i>Counterpoint.</i>	(2)
MUS 573 <i>Counterpoint.</i>	(2)
MUS 574 <i>Composition.</i>	(2)
MUS 575 <i>Composition.</i>	(2)
MUS 578 <i>Analytical Techniques.</i>	(2)
MUS 601 <i>History of Performance Practices.</i>	(3)
MUS 617 <i>Research Methods.</i>	(3)
MUS 618 <i>Research Methods.</i>	(3)
MUS 620 <i>Advanced German Vocal Literature.</i>	(3)
MUS 621 <i>Advanced Vocal Literature.</i>	(3)
MUS 622 <i>Symphonic Literature.</i>	(3)
MUS 623 <i>Opera Literature.</i>	(3)
MUS 624 <i>Chamber Music Literature.</i>	(3)
MUS 625 <i>Choral Literature.</i>	(3)
MUS 650 <i>Music Education Workshop.</i>	(1-4)
MUS 671 <i>Advanced Musical Analysis.</i>	(3)
MUS 672 <i>Advanced Musical Analysis.</i>	(3)
MUS 673 <i>Advanced Composition.</i>	(2)
MUS 674 <i>Pedagogy of Theory.</i>	(2)
MUS 675 <i>Pedagogy of Theory.</i>	(2)
MUS 677 <i>Contemporary Music Idioms.</i>	(3)
MUS 700 <i>Medieval Notation.</i>	(3)
MUS 701 <i>Renaissance Notation.</i>	(3)
MUS 702 <i>Seminar in Musicology.</i>	(3)
MUS 703 <i>Studies in Music History.</i>	(2)
MUS 718 <i>Doctoral Seminar.</i>	(3)
MUS 719 <i>Independent Work in Musicology.</i>	(1-3)
MUS 750 <i>Administration and Supervision of Public School Music.</i>	(3)
MUS 751 <i>History and Philosophy of Music Education.</i>	(3)
MUS 762 <i>Music in Higher Education.</i>	(3)
MUS 766 <i>Seminar in Music Education.</i>	(3)
MUS 767 <i>Independent Work in Music Education.</i>	(1-3)
MUS 768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
MUS 769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
MUS 770 <i>Psychology of Music.</i>	(3)
MUS 799 <i>Independent Work in Music Theory.</i>	(1-3)

Nursing

Graduate Faculty: Professors Loretta Denman, Juanita Fleming, Jean Hayter, Marion McKenna

(Dean, Director of Graduate Studies.) Associate Professors Elizabeth Bear, Frances Thomas.

Associate Members: Professors Virginia Lane, Betty Rudnick.

Under Plan B of the University of Kentucky Graduate School, the Master of Science in Nursing program will require a minimum of 30 credits. Independent work in nursing, for credit, may be arranged through individual student-teacher determination in some instances. A course in behavioral science is required of every student.

All students are required to take a minimum of 18 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.

Currently the clinical concentrations offered include Medical-Surgical Nursing, Midwifery, Pediatric Nursing and Psychiatric-Mental Health Nursing.

The general University requirements for admission to The Graduate School will apply. Applicants 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 is 800. 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)
- 560 *Nursing Management of Exceptional Children.* (3)
- 610 *Concepts and Theories in Nursing.** (2)
- 612 *Systematic Inquiry in Nursing.* (2)

- 620 *Problems in Clinical Nursing.* (2-6)
- 621 *Clinical Teaching and Supervision in Nursing.** (3)
- 623 *Practicum in Clinical Teaching and Supervision.* (1-4)
- 650 *Physical and Health Assessment.*** (6)
- 660 *Basic Midwifery I.*** (6)
- 670 *Basic Midwifery II.*** (6-9)
- 768 *Residence Credit for Master's Degree.* (1-6)
- 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, Leonard Packett (Chairman and Director of Graduate Studies). Associate Professor Linda H. Chen.

Associate Members: Assistant Professors Jose Concon and Joseph R. Fordham.

- 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)
- 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: Professor 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, George Digenis, Lewis Dittert, Harry Kostenbauder (Director of Graduate Studies), Charles Lesshafft, Harry Smith, Joseph Swintosky (Dean). Associate Professors Patrick DeLuca, Louis Diamond, Anwar Hussain, Milton Kornet, Mark Luckens.

Associate Members: Assistant Professors Joyce Garrett, Lawrence Hurley, William Lubawy, James Munson, Donald Perrier, Gerald Sherman.

The College of Pharmacy offers M.S. and Ph.D. programs in Pharmaceutical Sciences, with areas of concentration in either Pharmaceutics (Physical Pharmacy or Biopharmaceutics) or Pharmaceutical Chemistry (Medicinal Chemistry and Pharmaceutical Analysis).

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.

540 <i>Industrial Pharmaceutical Technology.</i>	(4)
545 <i>Sterile Parenterals and Devices.</i>	(2-3)
612 <i>Quantitative Pharmacodynamics. Pharmacokinetics.</i>	(2)
622 <i>Advanced Biopharmaceutics.</i>	(2)
630 <i>Pharmaceutical Rate Processes.</i>	(3)
631 <i>Equilibrium Phenomena in Pharmaceutical Systems.</i>	(3)
632 <i>Pharmaceutical Disperse Systems.</i>	(3)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)

400 <i>Biochemistry.</i>	(4)
404 <i>Chemistry of Medicinal Products.</i>	(3)
406 <i>Chemistry of Medicinal Products.</i>	(3)
510 <i>Modern Methods in Pharmaceutical Analysis.</i>	(5)
620 <i>Natural Products Chemistry.</i>	(3)
640 <i>Advanced Pharmaceutical Chemistry I.</i>	(3)
642 <i>Advanced Pharmaceutical Chemistry II.</i>	(3)
776 <i>Seminar in Pharmaceutical Sciences I.</i>	(1)
778 <i>Seminar in Pharmaceutical Sciences II.</i>	(1)
780 <i>Special Problems in Pharmaceutical Sciences.</i>	(1-6)
790 <i>Research in Pharmaceutical Sciences.</i>	(1-12)
450 <i>Pharmacology and Toxicology.</i>	(5)
462 <i>Pharmacology and Toxicology.</i>	(5)
474 <i>Independent Problems in Toxicology.</i>	(1-3)
475 <i>Independent Problems in Pharmacognosy.</i>	(1-3)
476 <i>Independent Problems in Pharmacology.</i>	(1-3)
486 <i>Poison Information and Control.</i>	(3)
624 <i>Biotoxicology.</i>	(3 or 5)
625 <i>Biotoxicology.</i>	(3 or 5)
626 <i>Toxicology and Occupational Hygiene.</i>	(3)
760 <i>Topics in Pharmaceutical Sciences (Topic and Credit to be Listed When Offered)</i>	(2-4)

PHARMACOLOGY

Graduate Faculty: Professors T. Z. Csaky (Chairman), Donald Diedrich, Leonard Gettes, H. A. Gordon, *K. C. Huang, William Martin, Douglas Rees, *T. G. Scharff, W. J. Waddell (Director of Graduate Studies), Abraham Wikler. Associate Professor James Flesher.

Associate Members: Assistant Professors 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 medicine 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 <i>General Pharmacodynamics and Toxicodynamics.</i>	(2)
522 <i>System Pharmacology.</i>	(3)
541 <i>Biological Assay.</i>	(4)
555 <i>Gnotobiotic Methodology.</i>	(2)
558 <i>Neuropharmacology.</i>	(2)
560 <i>Whole Body Autoradiography.</i>	(2)
601 <i>Principles of Medical Pharmacology, Lecture.*</i>	(5)
610 <i>Seminar in Pharmacology.</i>	(1)
612 <i>Quantitative Pharmacodynamics. Pharmacokinetics.</i>	(2)
616 <i>Advanced Pharmacology.*</i>	(4)
621 <i>Advanced Pharmacodynamics.</i>	(3)
632 <i>Principles of Pharmacology, Laboratory.*</i>	(2)
634 <i>Pharmacology of Cardiovascular Drug Therapy.*</i>	(3)
641 <i>Bioassay with Human Subjects.</i>	(2)
645 <i>Biological Membranes and Transport.</i>	(1)
650 <i>Host-Contaminant Relationships.</i>	(2)
658 <i>Advanced Neuropharmacology.</i>	(4)
660 <i>Pharmacology of Steroids.</i>	(4)
663 <i>Physical and Chemical Disposition of Drugs.</i>	(2)
664 <i>Advanced Molecular Pharmacology.</i>	(2)
666 <i>Human Pharmacology.</i>	(3)
670 <i>Clinical Psychopharmacology.</i>	(2)
671 <i>Integrative Psychopharmacology.</i>	(2)
680 <i>Applied Toxicology.</i>	(5)
750 <i>Research in Pharmacology.</i>	(1-5)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
770 <i>Seminar in Toxicology.</i>	(1)
790 <i>Research in Toxicology.</i>	(1-5)

PHILOSOPHY

Graduate Faculty: Professors Michael Bayles, Jesse DeBoer, Dallas High (Chairman). Associate Professors Ronald Bruzina, Thomas Olszewsky, Alan Perreiah (Director of Graduate Studies).

Associate Members: Assistant Professors Daniel Breazeale, James Fetzer, 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 <i>Existentialism.</i>	(3)
440 <i>Great Religions.</i>	(3)
504 <i>Topics in History and Medieval Philosophy.</i>	(3)
509 <i>Topics in History and Modern Philosophy.</i>	(3)
520 <i>Intermediate Logic.</i>	(3)

GROUP A

513 <i>19th Century Philosophy.</i>	(3)
514 <i>American Philosophy.</i>	(3)
515 <i>Contemporary Analytic Philosophy.</i>	(3)
516 <i>Phenomenology.</i>	(3)

GROUP B

530 <i>Ethical Theory.</i>	(3)
535 <i>Social and Political Philosophy.</i>	(3)
537 <i>Philosophy of Law.</i>	(3)
545 <i>Philosophy of Religion.</i>	(3)
592 <i>Aesthetics.</i>	(3)

GROUP C

550 <i>Metaphysics.</i>	(3)
555 <i>Epistemology.</i>	(3)
560 <i>Philosophy of Science.</i>	(3)
562 <i>Philosophy of the Social Sciences.</i>	(3)
565 <i>Philosophy of Language.</i>	(3)
570 <i>Philosophy of History.</i>	(3)
575 <i>Philosophy of Mind.</i>	(3)

GRADUATE STUDIES

625 <i>Advanced Logic.</i>	(3)
680 <i>Special Topics in Philosophy.</i>	(3)
700 <i>Seminar in Ancient Philosophy.</i>	(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, (Adjunct), Richard Hanau, George Hurst (Adjunct), Bernard Kern, Robert Knight, Wasley Kroghdahl, Guy Lehman, Marcus McEllistrom, Clastine Van Winter, Jesse Weil. Associate Professors Jerry Brandenberger, Marcel Coz, Alan MacKellar, 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 astro-physics, 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 experimental 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 ex-

amination 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

- 401 *Special Topics in Physics and Astronomy for Elementary and High School Teachers.* (2-4)
 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 and Nuclear Physics.* (3)
 555 *Fundamental Atomic and Nuclear Physics.* (3)
 567 *Introduction to Laser's Beams.* (3)
 598 *Introduction to Quantum Mechanics.* (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)

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)
555 Gnotobiotic Methodology.	(2)
558 Neuropharmacology.	(2)
560 Whole Body Autoradiography.	(2)
601 Principles of Medical Pharmacology, Lecture.*	(5)
610 Seminar in Pharmacology.	(1)
612 Quantitative Pharmacodynamics. Pharmacokinetics.	(2)
616 Advanced Pharmacology.*	(4)
621 Advanced Pharmacodynamics.	(3)
632 Principles of Pharmacology, Laboratory.*	(2)
634 Pharmacology of Cardiovascular Drug Therapy.*	(3)
641 Bioassay with Human Subjects.	(2)
645 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)
680 Applied Toxicology.	(5)
750 Research in Pharmacology.	(1-5)
768 Residence Credit for the Master's Degree.	(1-6)
769 Residence Credit for the Doctor's Degree.	(0-12)
770 Seminar in Toxicology.	(1)
790 Research in Toxicology.	(1-5)

PHILOSOPHY

Graduate Faculty: Professors Michael Bayles, Jesse DeBoer, Dallas High (Chairman). Associate Professors Ronald Bruzina, Thomas Olszewsky, Alan Perreiah (Director of Graduate Studies).

Associate Members: Assistant Professors Daniel Breazeale, James Fetzer, 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)
504 Topics in History and Medieval Philosophy.	(3)
509 Topics in History and Modern Philosophy.	(3)
520 Intermediate Logic.	(3)

GROUP A

513 19th 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 STUDIES

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, (Adjunct), Richard Hanau, George Hurst (Adjunct), Bernard Kern, Robert Knight, Wasley Krogdahl, Guy Lehman, Marcus McEllistrom, Clastine Van Winter, Jesse Weil. Associate Professors Jerry Brandenberger, Marcel Coz, Alan MacKellar, Rudolph Schriels, Robert Stokes.

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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 ex-

amination 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

- 401 *Special Topics in Physics and Astronomy for Elementary and High School Teachers.* (2-4)
 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 and Nuclear Physics.* (3)
 555 *Fundamental Atomic and Nuclear Physics.* (3)
 567 *Introduction to Laser's Beams.* (3)
 598 *Introduction to Quantum Mechanics.* (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

- 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, Fred Zechman (Chairman). Associate Professors, Eugene Crawford, Henry Hirsch, Bertram Peretz, Daniel Richardson, Gerald I. Roth, Jesse Siskin, P. A. Thornton, David R. Wekstein (Director of Graduate Studies), Miroslava B. Winer, James Zolman.

Associate Member: Assistant Professor David Lally.

The graduate program 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.

The M.S. degree is offered only under Plan A.

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 M.D.-Ph.D. or D.M.D.-Ph.D. 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)
- 582 *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)
- 772 *Proseminar in Mammalian Physiology.* (2)
- 774 *Graduate Seminar in Physiology.* (1)
- 791 *Research in Physiology.* (1-5)
- 792 *Preseminar in Mammalian Physiology.* (2)

PLANT PATHOLOGY

Graduate Faculty: Professors R. A. Chapman, Stephen Diachun (Chairman and Director of Graduate Studies), J. W. Hendrix, Joseph Kuc, T. P. Pirone, M. R. Siegel, G. W. Stokes, H. Wheeler, A. S. Williams. Associate Professors I. G. Shaw, S. J. Sheen.

Associate Members: Assistant Professors Said Ghabrial, Louis Shain.

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)
- 541 *Plant Pathology.* (3)
- 543 *Diseases of Plants.* (3)
- 545 *Epidemiology and Control of Plant Diseases.* (3)
- 558 *Nematode Diseases of Plants.* (3)
- 652 *Plant Pathogenic Fungi.* (3)
- 656 *Virus Diseases of Plants.* (4)
- 660 *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 Science)* (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 W. G. Duncan, A. J. Hiatt, M. J. Kasperbauer, J. E. Leggett (Director of Graduate Studies), R. G. Lockhard, M. R. Siegel, H. E. Wheeler. Associate Professors L. P. Bush, D. L. Davis, R. H. Lowe, Gerald Rosenthal, L. P. Stolz.

The University-wide, interdepartmental graduate program in Plant Physiology offers a plan of study leading to the 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 steriods, photoperiodic responses, mineral nutrition, membrane ultra-

structure, antitranspirants, 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, N106N, 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, Sheldon Simon, Sidney Ullmer. Associate Professors Michael L. Baer, Bradley Cannon (Chairman), Maurice East, George Gadbois, William Lyons, Herbert Reid, Kenneth Vanlandingham.

Associate Members: Assistant Professors Kenneth Coleman, Lawrence Grant, John Wanat, Ernest J. Yanarella.

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 members of the faculty of the applicant's undergraduate college. 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 chairman of the department.

- 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)
- 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 Twentieth Century.* (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 Worrell. Associate Professors Richard Bednar, Edward Engel, Donald McCoy, John Sensenig, James Spivey.

Associate Members: Assistant Professors Kenneth Jacobus, Joseph Melnick, Michael Nietzel, Arthur Nonneman, Paul Stratton, Richard Winett.

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 personal-

ity. Clinical experience is available at such facilities as the University of Kentucky Medical Center, the U.S. Veterans Administration Hospital, and various nearby state institutions. The 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.

- 501 *Personality.* (3)
 505 *Human Senses and Perception.* (4)
 507 *Psychology of Learning.* (4)

509	<i>Animal Behavior.</i>	(4)	700	<i>Seminar in Behavior Modification.</i>	(3)
511	<i>Experimental Child Study.</i>	(3)	701	<i>Seminar in Clinical Child Psychology.</i>	(3)
512	<i>Physiological Psychology.</i>	(3)	702	<i>Seminar in Community Mental Health.</i>	(3)
518	<i>Mental Hygiene.</i>	(3)	703	<i>Seminar in Group Therapy.</i>	(3)
521	<i>Abnormal Psychology.</i>	(3)	704	<i>Seminar in Hypnosis.</i>	(3)
522	<i>Counseling Psychology.</i>	(3)	705	<i>Research in Psychotherapy and Behavior Change.</i>	(3)
530	<i>Biology of Motivation.</i>	(2)	710	<i>Seminar in Clinical Psychology.</i>	(3)
531	<i>Genetic Psychology.</i>	(3)	713	<i>Practicum in Group Therapy.</i>	(3)
535	<i>Psychological Testing.</i>	(3)	761	<i>Interpersonal Processes in Critical Situations.</i>	(3)
540	<i>Introduction to Industrial Psychology.</i>	(3)	767	<i>Seminar in Physiological Psychology.</i>	(3)
541	<i>Psychology of Industrial Personnel Procedure.</i>	(3)	768	<i>Residence Credit for the Master's Degree.</i>	(1-6)
543	<i>Interpersonal Dynamics.</i>	(3)	769	<i>Residence Credit for the Doctor's Degree.</i>	(0-12)
544	<i>Social Psychology.</i>	(3)	770	<i>Seminar in Psychology I.</i>	(0)
545	<i>Small Group Behavior.</i>	(3)	771	<i>Seminar in Psychology II.</i>	(0)
546	<i>Applied Social Psychology.</i>	(3)	772	<i>Seminar in Learning.</i>	(3)
570	<i>Human Learning and Problem Solving.</i>	(3)	775	<i>Advanced Seminar in Perception.</i>	(3)
575	<i>Psycho Linguistics.</i>	(3)	774	<i>Seminar in Verbal Behavior.</i>	(3)
579	<i>Stuttering.</i>	(3)	776	<i>Seminar in Animal Motivation.</i>	(3)
601	<i>Theories of Learning.</i>	(3)	777	<i>Seminar in Mathematical Psychology.</i>	(3)
602	<i>Theories of Personality.</i>	(3)	778	<i>Seminar in Child Psychology.</i>	(3)
603	<i>Psychopathology.</i>	(3)	779	<i>Seminar in Social Psychology.</i>	(3)
610	<i>Psychometrics.</i>	(3)	780	<i>Problems in Psychology.</i>	(2)
611	<i>Psychological Research.</i>	(3)	781	<i>Research Participation.</i>	(1)
616	<i>Research Design in Clinical Psychology.</i>	(3)	790	<i>Research in Psychology.</i>	(3)
617	<i>Experimental Approaches to Personality.</i>	(3)			
618	<i>Experimental Approaches to Psychopathology.</i>	(3)			
620	<i>Proseminar in Systematic Psychology.</i>	(2)			
621	<i>Proseminar in Learning.</i>	(2)			
622	<i>Proseminar in Personality.</i>	(2)			
623	<i>Proseminar in Sensation and Perception.</i>	(2)			
624	<i>Proseminar in Social Psychology.</i>	(2)			
625	<i>Proseminar in Developmental Psychology.</i>	(2)			
627	<i>Proseminar in Physiological Psychology.</i>	(2)			
628	<i>Proseminar in Human Learning and Thinking.</i>	(2)			
629	<i>Introduction to Clinical Psychology.</i>	(1)			
630	<i>Clinical Methodology I.</i>	(2)			
631	<i>Practicum in Clinical Methodology I.</i>	(2)			
632	<i>Clinical Methodology II.</i>	(2)			
633	<i>Practicum in Clinical Methodology II.</i>	(2)			
634	<i>Practicum in Clinical Psychology III.</i>	(3)			
635	<i>Practicum in Clinical Psychology IV.</i>	(3)			
636	<i>Systems of Psychotherapy.</i>	(3)			
637	<i>Practicum in Psychotherapy and Behavior Change.</i>	(1-3)			
638	<i>Clinical Child Psychology.</i>	(3)			
640	<i>Practice in Testing: Intelligence Tests.</i>	(4)			
641	<i>Psychological Measuring Instruments.</i>	(3)			
647	<i>Disorders of Language.</i>	(3)			
650	<i>Diagnosis and Counseling in Counseling Psychology.</i>	(3)			
663	<i>Practicum in Industrial Psychology.</i>	(3)			

RADIATION MEDICINE

Graduate Faculty: Professor Yosh Maruyama. Associate Professors John Calkins, Joseph Sayeg (Director of Graduate Studies).

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)
 HRS 710 *Seminar in Bioradiation Sciences.* (1)
 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 Russian).* (3)

HEBREW

- 401 *Hebrew Grammar and Syntax I.* (3)
 402 *Hebrew Grammar and Syntax II.* (3)
 458 *Modern Hebrew Literature.* (3)

ARABIC

- 440 *Arabic Grammar and Syntax I.* (3)
 441 *Arabic Grammar and Syntax II.* (3)
 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)
 456 *Arabic and Persian Masterpieces.* (3)
 457 *Modern Islamic Literature.* (3)

SOCIAL AND PHILOSOPHICAL STUDIES IN EDUCATION

Graduate Faculty: Professor David Denton. Associate Professors Clinton Collins, Willis Griffin, Richard Warren (Chairman and Director of Graduate Studies).

Associate Members: Associate Professor Richard LaBrecque. Assistant Professors John Abrahamson, Suzanne Howard.

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, directed to:

1. The development of teachers and researchers with special competencies in social and philosophical studies.
2. Assistance in the preparation of education personnel.
3. Contributions of research based on special competence of this faculty.
4. Change and improvement in 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 competence 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 interdisciplinary perspective and/or to gain greater depth and scholarship. The Department represents a link between the humanities and social and behavioral sciences and the preparation of professional educators. It seeks the broadest perspective on education as an important area of human endeavor.

The Department offers degree programs leading to the Master of Arts in Education (Plan A and B available) and Doctor of Education Degrees. It also provides a minor for candidates pursuing doctoral programs in other colleges at the University. While departmental course offerings reflect a range of special interests the student may find it useful to consider them as falling into two major areas: (1) philosophical-historical; and (2) sociological-anthropological-international.

- 532 *Race and Ethnic Relations.* (3)
 533 *Introduction to the Philosophic Study of Education.* (3)
 599 *International Studies in American Education.* (3)
 640 *Philosophy of Education.* (3)
 645 *Foundations in Education.* (3)
 646 *Analysis of Thinking.* (3)
 650 *History of Western Education.* (3)

651 <i>History of Education in the United States.</i>	(3)
652 <i>History of Educational Thought.</i>	(3)
655 <i>Education in Other Nations.</i>	(3)
656 <i>International Development Education.</i>	(3)
661 <i>Educational Sociology.</i>	(3)
662 <i>Analysis of Educational Change.</i>	(3)
663 <i>Field Research in Educational Change.</i>	(3)
665 <i>Comparative Education.</i>	(3)
724 <i>Epistemological Problems in Education.</i>	(3)
725 <i>Analysis of Value Questions in Education.</i>	(3)
750 <i>Problems in Educational Sociology.</i>	(3)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
773 <i>Seminar in Foundations of Education.</i>	(3)
778 <i>Seminar in History of Education in Kentucky.</i>	(3)
785 <i>Independent Study in Social and Philosophical Problems in Education.</i>	(3)

Social Professions

Graduate Faculty: Professors Ronda S. Connaway (Dean and Director of Graduate Studies), Zafir Hasan, James Munro. Associate Professors Stuart Kirk, Kennard Wellons, Constance Wilson, Roy Yarbrough.

Associate Members: Associate Professor Richard Brautigam. Assistant Professors Elizabeth Crowell, Paul Kim, Roger Nooe, Mary Jane Nowak, Jack Sturgess.

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 cur-

riculum 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. Approval of the application of the College for admission to candidacy was received from the Accreditation Commission of the Council on Social Work Education in January 1970, and the MSW program was accredited in June 1972 following its on-campus review by representatives of the Commission.

Full-time students are admitted to the MSW degree program only 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. An application for admission to the

Graduate School must be filed before a student can be considered for the MSW program.

- 444 *Field Instruction.* (6-8)
- 445 *Field Instruction.* (8)
- 477 *Field Instruction 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 Social Professions.* (3)
- 516 *Social Work Research.* (3)
- 520 *Interventive Methods in Social Work.* (4)
- 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 Seminars 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 Practice in Correctional Services.* (2)
- 607 *Social Work Practice with Families.* (2)
- 608 *Social Work Practice for Social Reform.* (2)
- 609 *Clinical Social Work Practice.* (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)
- 623 *Ethnicity in Social Work Practice and Education.* (2-3)
- 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 *Educational Practicum I.* (10)
- 650 *Problem-Solving Seminar.* (2)
- 680 *Special Problems in Social Work Practice.* (2-4)
- 690 *Research in Social Work.* (2)
- 701 *Advanced Practice Theory.* (2)
- 706 *Issues Processes and Programs in Corrections.* (2)
- 708 *Seminar in Correctional Change Technology.* (2)
- 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 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 *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 (Director of Graduate Studies), Eugene Gallagher, James Gladden, William Kenkel (Chairman), John O'Donnell, Robert Straus, Willis Sutton, Harwin Voss, George Wilber, Grant Youmans. Associate Professors Rabel Burge, Richard Clayton, Philip Moody, Jon Shepard, Gerald Slatin, John Stephenson.

Associate Members: Assistant Professors Walter Abbott, Thomas Garrity, Jon Hendricks.

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. 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 and social organization; deviant behavior; family; medical sociology; population; social change and development; and social institutions, which includes study of two or more sub-areas such as sociology of religion, political sociology, and economic and industrial sociology. While core seminars in these specialties are of-

ferred, 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, fellowships and other stipends are available to qualified students.

Sociologists at the University of Kentucky carry on a substantial variety of research projects, consultative activities, extension education programs and community services. Through affiliations with nearby institutions, specialized experience and training is available to graduate students.

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 fields.

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 Studies in Sociology.

409 <i>The Family.</i>	(3)
413 <i>Community Analysis.</i>	(3)
418 <i>Social Change.</i>	(3)
436 <i>Sociology of Deviant Behavior.</i>	(3)
437 <i>Criminology.</i>	(3)
441 <i>Group Organization and Leadership.</i>	(3)
493 <i>Social Determinants of Economic Behavior.</i>	(3)
501 <i>Population Analysis.</i>	(3)
502 <i>Methods of Demographic Analysis.</i>	(3)
503 <i>Social Classes.</i>	(3)
510 <i>Socialization in the Family.</i>	(3)
515 <i>Diffusion of Technology in Modern Society.</i>	(3)
517 <i>Rural Sociology.</i>	(3)
519 <i>Sociology of Urban Life.</i>	(3)
521 <i>Industrial Sociology.</i>	(3)

522 <i>Sociology of Complex Organizations.</i>	(3)
525 <i>Religion and Culture.</i>	(3)
526 <i>Culture and Personality.</i>	(3)
527 <i>Society and Health.</i>	(3)
529 <i>Political Sociology.</i>	(3)
531 <i>Sociological Analysis of American Society.</i>	(3)
532 <i>Race and Ethnic Relations.</i>	(3)
533 <i>Social Anthropology.</i>	(3)
534 <i>The Southern Appalachians: A Sociological Interpretation.</i>	(3)
538 <i>Juvenile Delinquency.</i>	(3)
540 <i>Collective Behavior and Social Movements.</i>	(3)
542 <i>Human Relations in Administration.</i>	(3)
544 <i>Social Psychology.</i>	(3)
546 <i>Social Factors in Mental Health.</i>	(3)
547 <i>The Sociology of Aging.</i>	(3)
549 <i>Sociological Aspects of Mass Communication.</i>	(3)
551 <i>Principles of Sociology.</i>	(3)
561 <i>Comparative Sociology.</i>	(3)
565 <i>Special Problems in Sociology.</i>	(1-3)
571 <i>Contemporary Sociology.</i>	(3)
581 <i>Techniques of Social Investigation.</i>	(3)
615 <i>Analysis of Community Research.</i>	(3)
618 <i>Theories of Social Change.</i>	(3)
625 <i>Sociology of Religion.</i>	(3)
632 <i>Seminar in Race and Ethnic Relations.</i>	(3)
632 <i>Minority Groups.</i>	(3)
636 <i>Theory and Research in Deviant Behavior.</i>	(3)
651 <i>Systematic Sociology.</i>	(3)
653 <i>Family Theory and Dynamics.</i>	(3)
661 <i>Educational Sociology.</i>	(3)
670 <i>Seminar on Role Theory.</i>	(3)
671 <i>Seminar in Contemporary Sociology.</i>	(0)
681 <i>Research Design and Analysis.</i>	(3)
685 <i>Integration of Theory and Research.</i>	(3)
690 <i>Community Action Analysis.</i>	(3)
695 <i>Social Ecology.</i>	(3)
702 <i>Seminar in Social Demography.</i>	(3)
720 <i>Seminar in Community Theories.</i>	(3)
727 <i>Seminar on Socio-Cultural Change.</i>	(3)
731 <i>Seminar in Comparative Social Organization.</i>	(2)
738 <i>Seminar: Drug Use as Deviant Behavior.</i>	(3)
766 <i>Concepts in Medical Sociology.</i>	(3)
768 <i>Residence Credit for the Master's Degree.</i>	(1-6)
769 <i>Residence Credit for the Doctor's Degree.</i>	(0-12)
770 <i>Seminar in Sociological Theory.</i>	(3)
772 <i>Topical Seminar in Sociology.</i>	(3)
773 <i>Topical Seminar.</i>	(3)
775 <i>Seminar in the Family.</i>	(3)
776 <i>Seminar in Dependency Behavior.</i>	(3)
777 <i>Seminar in Mental Illness Concepts, Research and Policy.</i>	(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)

SPANISH AND ITALIAN LANGUAGES AND LITERATURES

Graduate Faculty: Professors Joseph Jones, John Keller (Chairman), John Lihani, William McCrary, Daniel Reedy (Director of Graduate Studies). Associate Professors Brian Dendle, Margaret Jones, Gerardo Saenz.

Associate Members: Assistant Professors Michael Impey, Edward Stanton.

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 se-

mesters 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 *Advanced Spanish Grammar Composition.* (3)
 505 *Advanced Spanish Grammar Composition.* (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 Spanish Comedia I.* (3)
- 523 *Survey of the Spanish Comedia II.* (3)
- 531 *Studies in Modern Spanish Civilization.* (3)
- 532 *Generation of 1898.* (3)
- 541 *The Spanish American Drama.* (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 *The Spanish Epic and Long Narrative Poetry.* (3)
- 614 *The Spanish and Spanish American Ballad.* (3)
- 615 *Spanish Poetry of the 13th, 14th, and 15th Centuries.* (3)
- 616 *Early Brief Narratives of the 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 *The Mystic and Ascetic Writers of the 16th and 17th Centuries.* (3)
- 626 *Lope de Vega.* (3)
- 627 *Tirso de Molina.* (3)
- 628 *The Theatre of Calderon de la Barca.* (3)
- 629 *Spanish Poetry of the 16th and 17th Centuries.* (3)
- 631 *Romantic Movement in Spain.* (3)
- 632 *Spanish Drama from the Generation of 1898 to the Present.* (3)
- 633 *The Spanish Novel—19th Century.* (3)
- 634 *Prose Fiction 1898 to Present.* (3)
- 635 *The Spanish Essay from the 18th Century to the Present.* (3)
- 636 *Spanish Poetry Generation 1898.* (3)
- 637 *Spanish Poetry: Generation 1927 to the Present.* (3)
- 641 *Spanish American Drama.* (3)
- 642 *Spanish American Poetry: from the Colonial Period to The Independence.* (3)
- 643 *Spanish American Poetry: from 1800 to 1910.* (3)
- 644 *Spanish American Poetry: from 1910 to the Present.* (3)
- 645 *The Spanish American Novel: from 1800 to 1910.* (3)
- 646 *The Spanish American Novel: from 1910 to 1940.* (3)

- 647 *The Spanish American Novel: from 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 Spanish.* (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 M. C. Martinson, C. M. Nelson (Director of Graduate Studies).

Associate Members: Assistant Professors William Berdine, Patricia Cegelka, Joseph Helmick.

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 Retarded
 - Trainable Mentally Retarded
 - Orthopedically Handicapped

Neurologically Impaired (Learning Disabilities)

Emotionally Disturbed

2. Certification in Speech Pathology and Audiology
3. Certification in Administration and Supervision of Special Education

The Degree programs that are offered lead to the Master of Arts 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 his previous background and career aspirations. It should be noted, however, that graduate degree programs emphasize a non-categorical approach to Special Education. That is, although students may pursue one of the above mentioned teaching certification areas (number 1 above) 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

(At least 15 semester hours must be earned in courses at the 600 or 700 level.)

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 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 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. An Ed.S. program that is unique to the University of Kentucky is a program to train administrators of Special Educational Materials Centers. 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.
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. Applica-

tions for financial assistance may be obtained from the Departmental Director of Graduate Studies.

- 500 *Speech Analysis and Perception.* (3)
- 501 *Speech and Language Development.* (3)
- 502 *Development and Evaluation of Instructional Materials in Special Education.* (3)
- 505 *Education of the Trainable Mentally Retarded.* (3)
- 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)
- 530 *Characteristics of the Mentally Retarded.* (3)
- 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)
- 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 and Director of Graduate Studies), Vasant Bhapkar, Saul Blumenthal, Zakkula Govindarajulu, Harlley McKean. Associate Professor David Allen.

Associate Members: Assistant Professors David Culver, Dennis Haack, Peter Purdue, Furman Smith.

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 advanced 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, which sponsors annually a Regional Graduate Summer Session.

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 602 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 and 702. In addition, he/she takes at least eight other University 600-700 level courses, of which at least four 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 703	STA 644
STA 721	

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.

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)
511 Statistical Analysis.	(3)
515 Mathematical Programming and Extensions.	(3)
524 Discrete Probability.	(3)
531 Theory of Statistical Inference I.	(4)
601 Theory of Statistical Inference II.	(3)
602 Theory of the General Linear Model.	(3)
603 Design and Analysis of Experiments.	(3)
612 Selected Areas in Statistics.	(3)
616 Design and Analysis of Sample Surveys.	(3)
624 Advanced Probability I.	(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 Theory of Statistical Estimation.	(3)
702 Advanced Theory of Hypothesis Testing.	(3)
703 Advanced Probability II.	(3)
721 Nonparametric Inference.	(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:

Associate Member: Associate Professor Patricia Horridge (Chairman and Director of Graduate Studies).

420 Tailoring.	(3)
422 Promotional Aspects of Textile Retailing.	(3)
424 Textile Retail Organization and Buying Procedures.	(3)
520 Textiles II.	(3)
523 Socio-Psychological and Economic Aspects of Apparel.	(3)
524 History of Costume.	(3)
529 The Child and His Clothing.	(3)
532 Retail Job Analysis.	(5)
534 Decorative Textiles.	(2)
535 Textiles and Design Study Tour.	(1-3)
592 Special Problems in Clothing and Costume Design.	(1-3)
597 Special Problems in Textiles.	(1-3)
660 Experimental Apparel Construction.	(3)
772 Seminar in Textiles and Clothing.	(2)
782 Special Problems in Clothing and Costume Design.	(1-3)
787 Special Problems in Textiles.	(1-3)

GENERAL HOME ECONOMICS

575 Community Analysis.	(3)
768 Residence Credit for the Master's Degree.	(1-6)

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)
794 Special Topics in Theatre Arts.	(3)
798 Directing.	(3)

TOXICOLOGY

Director of Graduate Studies—Tihamer Z. Csaky.

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.

VETERINARY SCIENCE

Graduate Faculty: Professors John Bryans (Chairman and Director of Graduate Studies), R. W. Darlington, J. H. Drudge, W. H. McCollum. Associate Professors E. T. Lyons. Assistant Professors O. P. Sharma, T. W. Swerczek.

The Department of Veterinary Science offers a program of study and research leading to the Doctor of Philosophy degree with majors in comparative pathology, virology, immunology, and parasitology. The program is designed primarily for students who possess the Doctor of Veterinary Medicine degree. Individuals electing pathology as a major area must be graduate veterinarians. Candidates without a D.V.M. degree may be admitted to study in the other areas of concentration with faculty approval. 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.

- 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: Professor Leonard McDowell. Associate Professors Charles Byers, Bernard Fagan, Curtis Phipps. Assistant Professors Maynard Iverson, Mosetta Soskis, 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 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 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 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 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 one 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 634 Administration of Educational Personnel (Required in this area)	3
EDA 633 Administration and Supervision of Instructional Programs	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

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

- 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)

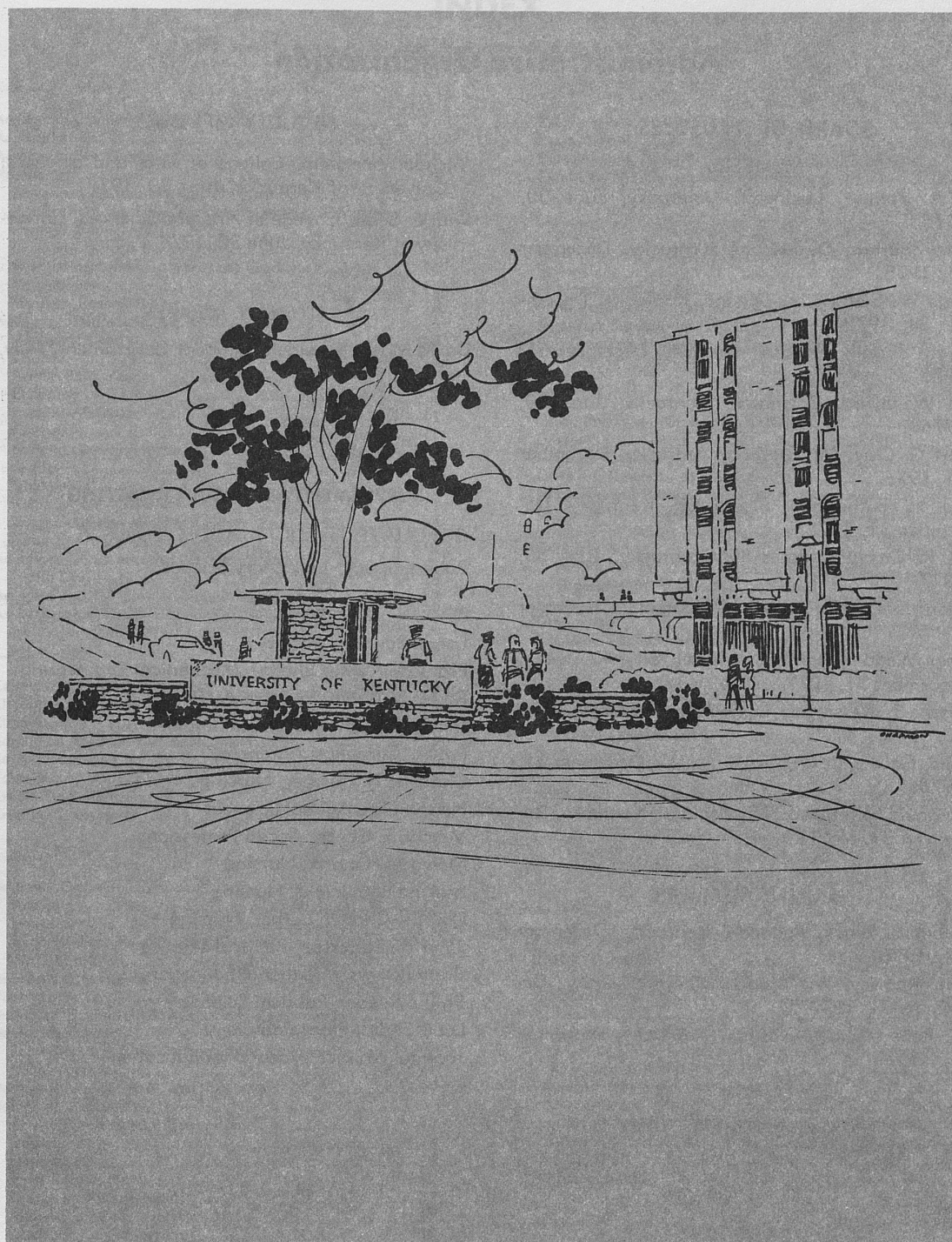
ZOOLOGY

Graduate Faculty: Professors R. W. Barbour, T. C. Barr, W. J. Birge, J. M. Carpenter, S. F. Conti and W. H. Davis. Associate Professors J. C. Calkins, E. C. Crawford (Director of Graduate Studies), J. J. Just, and R. A. Kuehne.

Associate Members: Assistant Professors M. A. Hafeez, R. S. Hakim, and D. J. Prior.

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.

400	Fundamentals of Biology.	(4)	551	Mammalogy.	(4)
402	Advanced Topics in Biology for Secondary School Teachers.	(4)	560	Embryology and Morphology of Vertebrates.	(3)
502	Principles of Physiology Lectures.	(4)	561	Laboratory Studies of the Embryology and Morphology of Vertebrates.	(2)
503	Experimental Methods.	(2)	562	Embryology and Morphology of Vertebrates.	(3)
504	Heredity.	(4)	563	Laboratory Studies of the Embryology and Morphology of Vertebrates.	(2)
506	Embryology.	(5)	570	Invertebrate Zoology.	(4)
508	Evolution.	(3)	582	Comparative Endocrinology.	(3)
509	Zoology Seminar.	(1)	602	Insect Morphology.	(4)
510	Independent Work.	(3)	604	Advanced Animal Ecology.	(3)
512	Physiology of Development.	(3)	610	Insect Ecology and Behavior.	(3)
513	General Histology.	(4)	611	Speciation.	(3)
521	Limnology.	(4)	612	Principles of Animal Systematics.	(3)
528	General Entomology.	(4)	615	Seminar in Animal Navigation.	(2)
530	Vertebrate Zoology.	(4)	617	Advanced Microtechnique.	(3)
532	Medical Entomology.	(4)	620	General Acarology.	(4)
540	General Radiation Biology.	(4)	630	Insect Physiology.	(4)
542	Insect Taxonomy.	(4)	640	Biological Effects of Radiation.	(3)
544	Protozoology.	(4)	642	Vertebrate Natural History.	(4)
545	Parasitology.	(4)	660	Special Topics in Endocrinology.	(2)
546	Helminthology.	(4)	709	Graduate Seminar in Zoology.	(1)
547	Ichthyology.	(4)	768	Residence Credit for the Master's Degree.	(1-6)
548	Herpetology.	(4)	769	Residence Credit for the Doctor's Degree.	(0-12)
549	Ornithology.	(4)	790	Research in Zoology.	(1-6)
550	Comparative Physiology.	(5)			



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Nelson Gay, Animal Sciences
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Phillip Roeder, Political Science
Louis Shain, Plant Pathology
Juanita Wallace, Vocational Education

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