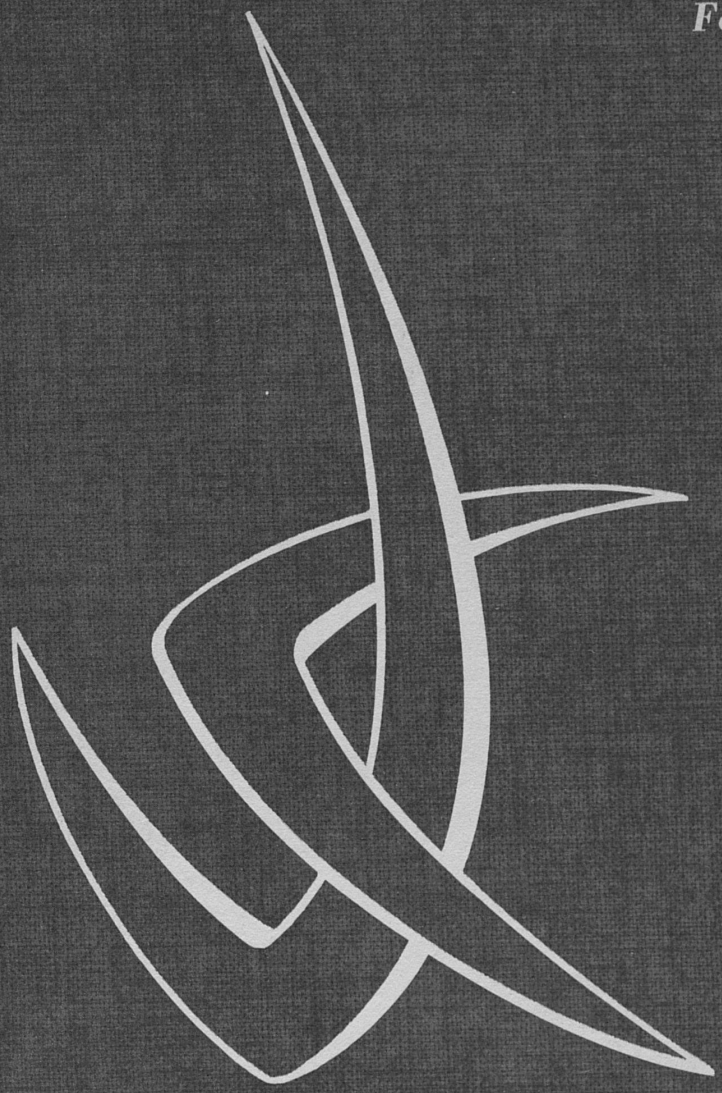
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February 1965



UNIVERSITY OF KENTUCKY BULLETIN

General Catalogue / 1965-66

COVER DESIGN—The University's Centennial device, designed by P. J. Conkwright, Class of 1928, is adapted from the Brioschi sculpture near the University of Kentucky Medical Center.

The upward sweep and downward curve of its elements indicate the University's Centennial theme—the aspiration for achievement in the future coupled with honor for the traditions of the past.

The Centennial motto from Virgil—"This is the pathway to the stars"—bears out the theme.

A bulletin published monthly January to October inclusive, by the University of Kentucky, Lexington 40506. Second Class postage paid at the Post Office, Lexington, Ky., under the Act of August 24, 1912. Edited by the Department of Public Relations and published under its direction.

VOL. 57 FEBRUARY, 1965 NO. 2

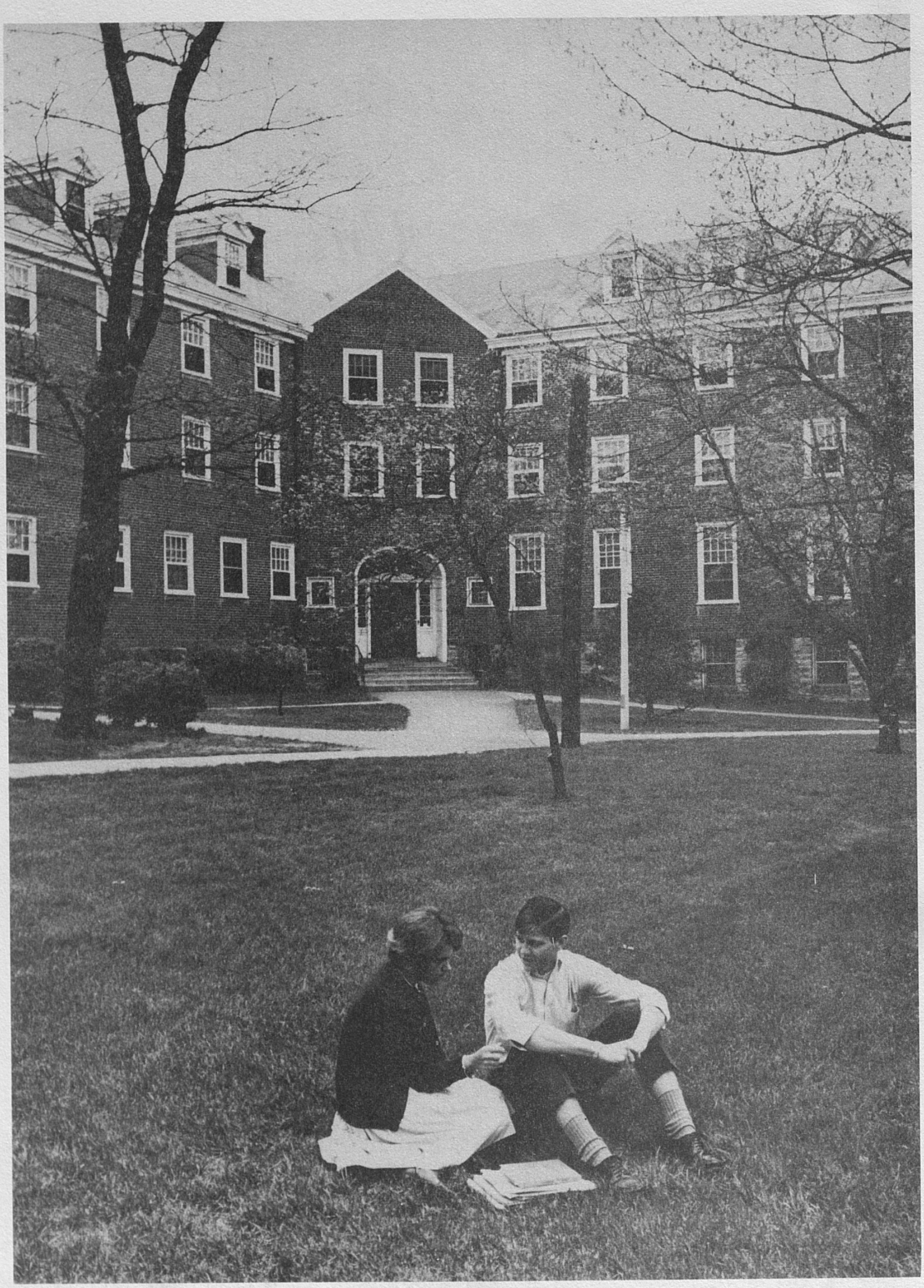
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University of Kentucky Catalogue

1965-66

This publication is a presentation for the 1965-1966 academic year and preceding summer term. It is expected that some changes will take place during the year and the student using this catalogue should keep this in mind. Fees are subject to change without notice.



CALENDAR

1965 Summer Session

June 11, 12—Friday and Saturday—Registration
June 14—Monday—Class work begins
June 17—Thursday—Last day to enter an organized class
June 25—Friday—Last day to drop a course without a grade
June 28, 29—Monday and Tuesday—Last days for filing application for an August degree in College Dean's Office
July 5—Monday—Independence Day Holiday
Aug. 6—Friday—End of Summer Session
Aug. 9—Monday—All grades due in Registrar's Office by 4:00 p.m.

1965 Fall Semester

Aug. 2—Monday—Last day to submit application and transcripts to Admissions Office for Fall Semester, 1965
Aug. 29—Sunday—Dormitories open for Fall Semester
Aug. 30, 31—Monday and Tuesday—Classification, registration, and orientation for students not preregistered
Sept. 1—Wednesday—Class work begins
Sept. 6—Monday—Labor Day Holiday
Sept. 9—Thursday—Last day to enter an organized class for the Fall Semester
Sept. 15—Wednesday—Last day to drop a course without a grade
Sept. 16, 17—Thursday and Friday—Last days for filing application for a December degree in College Dean's Office
Oct. 18—Monday—Undergraduate mid-term grades due in Registrar's Office by 4:00 p.m.
Nov. 25, 26, 27—Thursday, Friday, and Saturday—Thanksgiving Holidays
Dec. 1—Wednesday—Last day to drop a class before final examination
Dec. 6—Monday—Last day to submit application and transcripts to Admissions Office for Spring Semester, 1966
Dec. 14—Tuesday—Class work ends
Dec. 16-22—Thursday through Wednesday—Final Examinations
Dec. 22—Wednesday—End of Fall Semester
Dec. 27—Monday—All grades due in Registrar's Office by 4:00 p.m.

1966 Spring Semester

Jan. 8, 10, 11—Saturday, Monday, and Tuesday—Registration
Jan. 12—Wednesday—Class work begins
Jan. 19—Wednesday—Last day to enter an organized class for the Spring Semester
Jan. 25—Tuesday—Last day to drop a course without a grade
Jan. 26, 27—Wednesday and Thursday—Last days for filing application for a May degree in College Dean's Office
Mar. 3—Thursday—Undergraduate mid-term grades due in Registrar's Office by 4:00 p.m.
Mar. 12-20—Saturday noon through Sunday—Spring vacation. Class work resumes Monday, March 21, at 8:00 a.m.
Apr. 1—Friday—Last day for out-of-state freshmen to submit application to Registrar's Office for the Fall Semester, 1966
Apr. 15—Friday—Last day to drop a class before final examinations
Apr. 30—Saturday—End of class work
May 2-7—Monday through Saturday—Final Examinations
May 7—Saturday—End of Spring Semester
May 8—Sunday—Baccalaureate-Vesper Service for graduating seniors
May 9—Monday, 10:00 a.m.—Ninety-Ninth Annual Commencement
May 10—Tuesday—All grades due in Registrar's Office by 4:00 p.m.
May 13—Friday—Last day to submit application and transcript to Admissions Office for 1966 Summer Session

1965

JANUARY

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1966

JANUARY

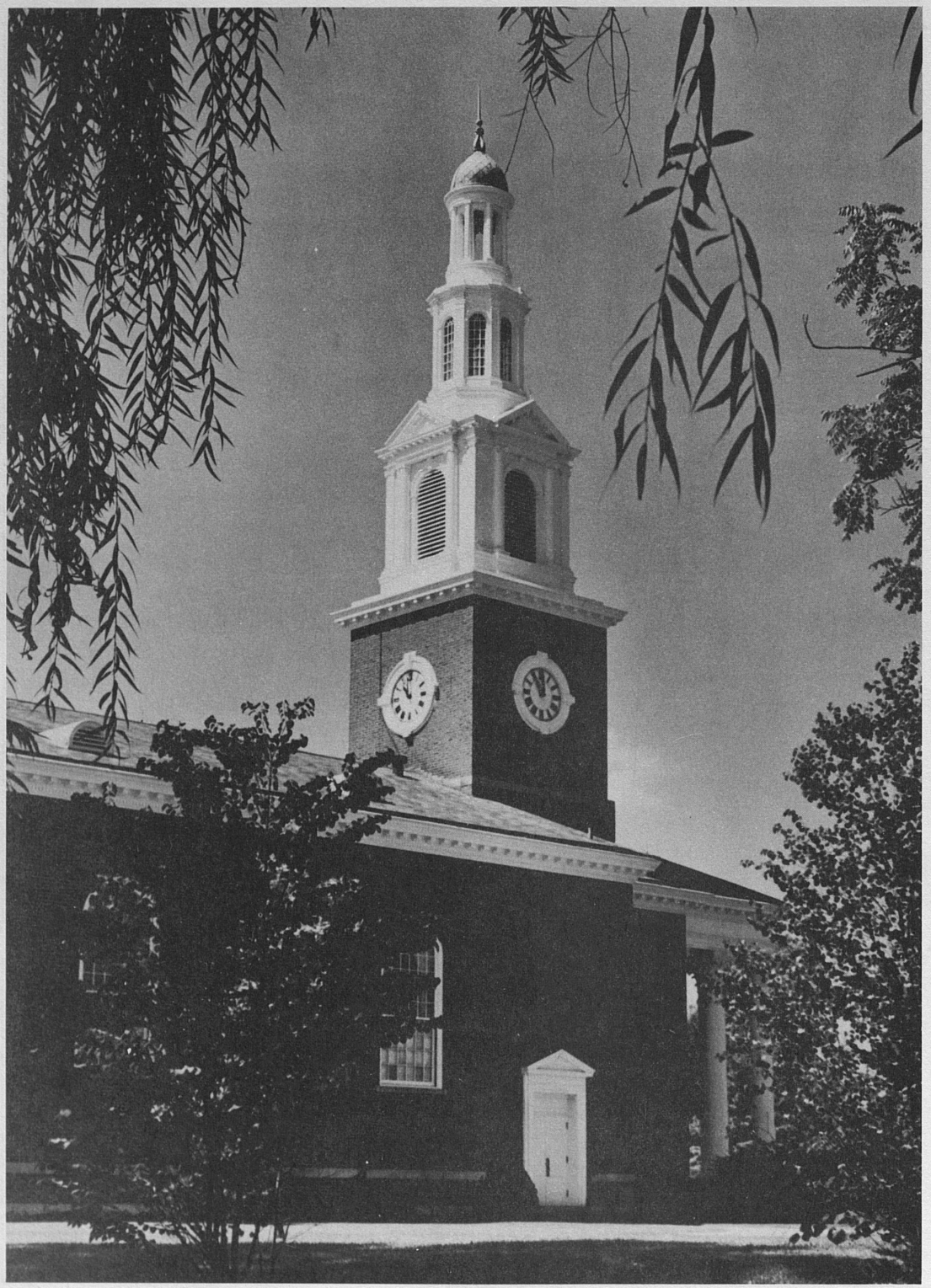
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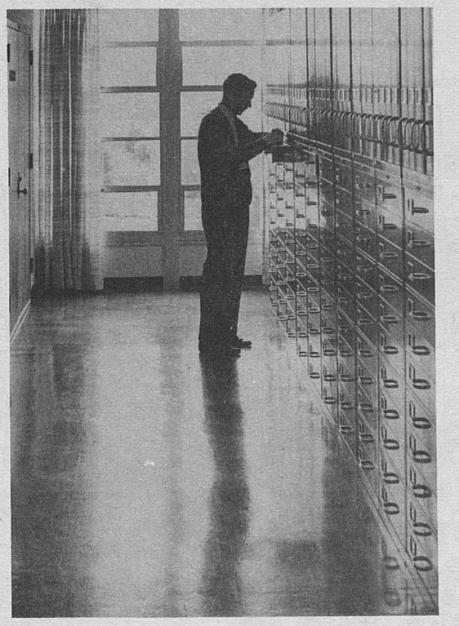
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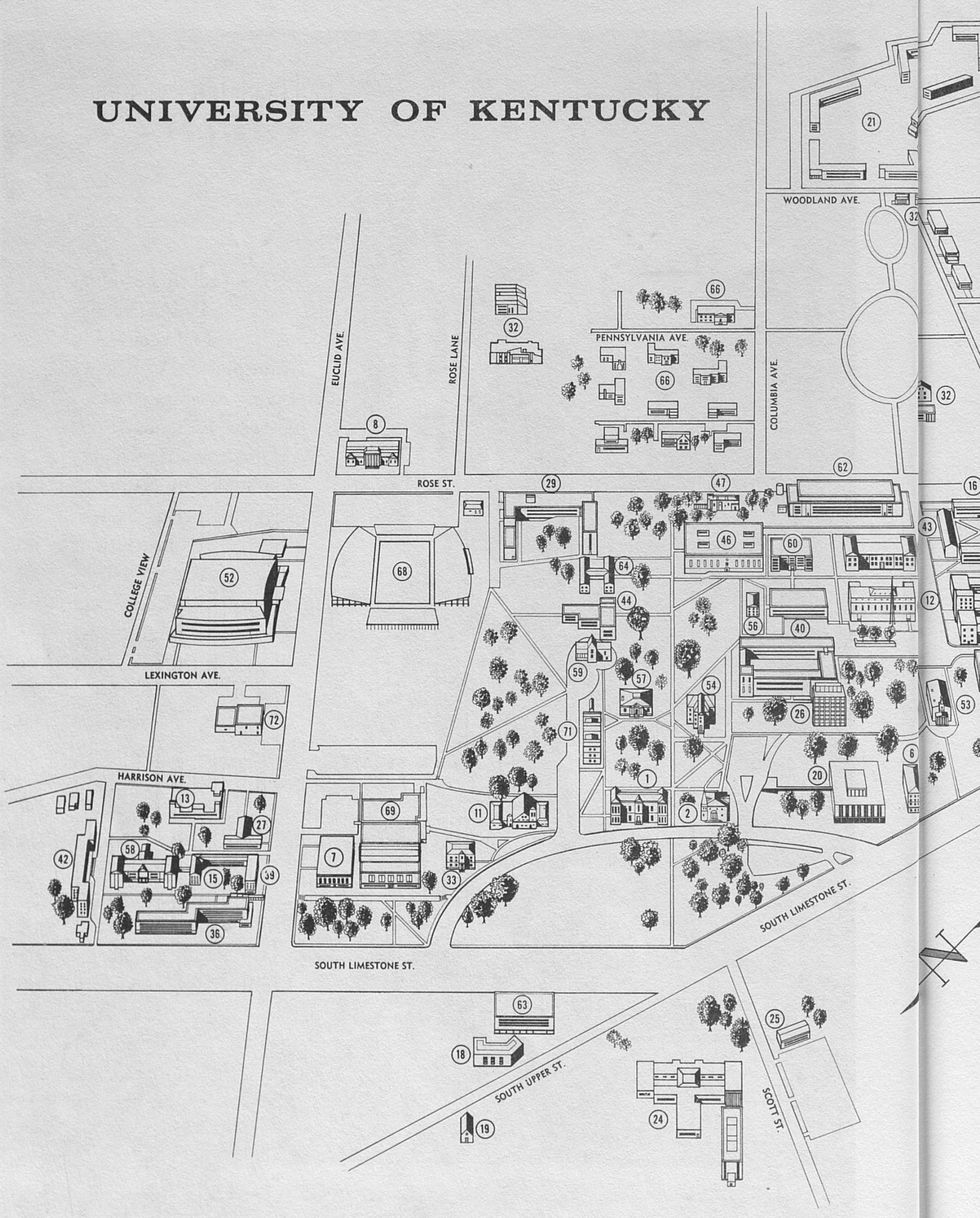


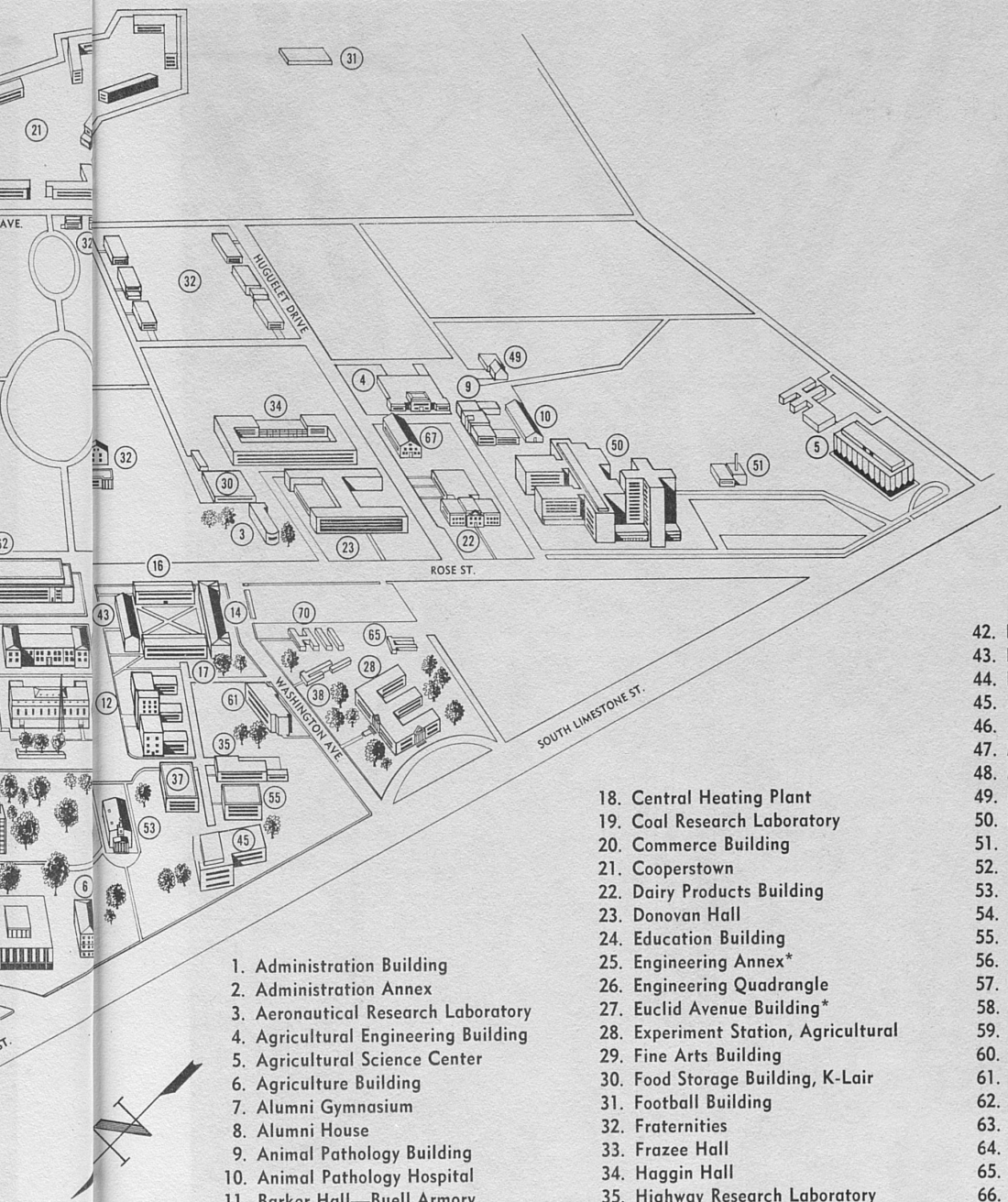
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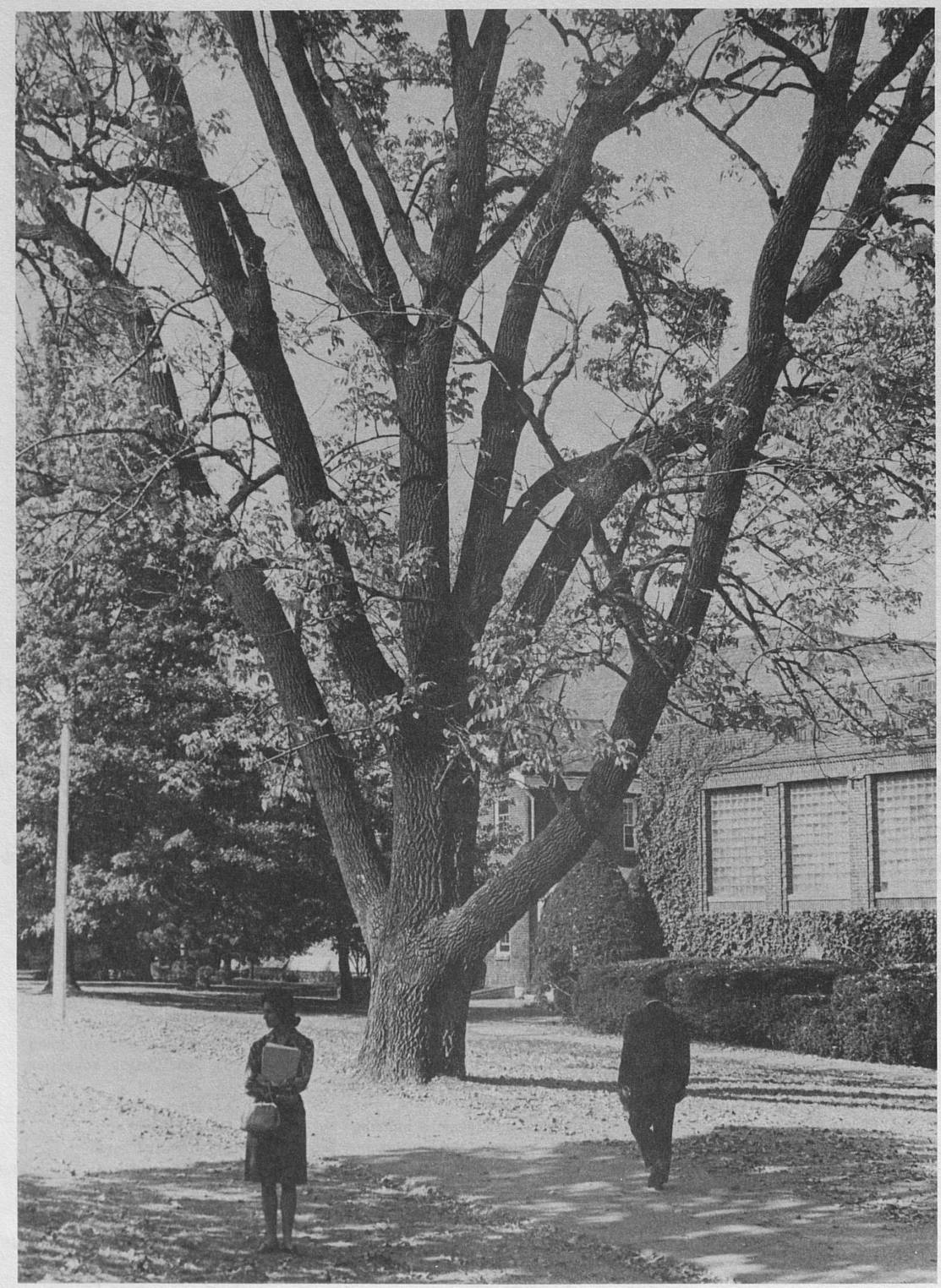
UNIVERSITY OF KENTUCKY





1. Administration Building
2. Administration Annex
3. Aeronautical Research Laboratory
4. Agricultural Engineering Building
5. Agricultural Science Center
6. Agriculture Building
7. Alumni Gymnasium
8. Alumni House
9. Animal Pathology Building
10. Animal Pathology Hospital
11. Barker Hall—Buell Armory
12. Biological Sciences Building
13. Blazer Hall
14. Bowman Hall
15. Boyd Hall
16. Bradley Hall
17. Breckinridge Hall
18. Central Heating Plant
19. Coal Research Laboratory
20. Commerce Building
21. Cooperstown
22. Dairy Products Building
23. Donovan Hall
24. Education Building
25. Engineering Annex*
26. Engineering Quadrangle
27. Euclid Avenue Building*
28. Experiment Station, Agricultural
29. Fine Arts Building
30. Food Storage Building, K-Lair
31. Football Building
32. Fraternities
33. Frazee Hall
34. Haggin Hall
35. Highway Research Laboratory
36. Holmes Hall
37. Home Economics Building
38. Insectary and Conservatory
39. Jewell Hall
40. Journalism Building
41. Kastle Hall
42. Keeneland Hall
43. Kinkead Hall
44. Lafferty Hall
45. Law Building (New)
46. Library
47. Maxwell Place (President's home)
48. McVey Hall
49. Meats Laboratory
50. Medical Center
51. Medical Center Heating Plant
52. Memorial Coliseum
53. Memorial Hall
54. Miller Hall
55. Mineral Industries Building
56. Mining Laboratory
57. Museum of Anthropology
58. Patterson Hall
59. Patterson House
60. Pence Hall
61. Pharmacy Building
62. Physics-Chemistry Building
63. Service Building
64. Social Sciences Building*
65. Small Animal Laboratory
66. Sororities
67. Stock Judging Pavilion
68. Stoll Field
69. Student Center
70. Tobacco Research Laboratory
71. White Hall
72. "Wildcat" (Bowling-Grill)

* Temporary—to be removed



The Entering Student

A UNIVERSITY BRINGS TOGETHER students with greatly varying geographic, economic, social, political and educational backgrounds. Partly as a result of this, these students have considerably different interests and aims. Some have already decided upon a field of study. Many others have not.

At the University of Kentucky each student is assigned a faculty member as an advisor. The student's advisor will help him decide upon a program of studies and will explore with him an over-all plan for his work at the University, the choice of a vocation, and graduation requirements. The advisor will be able to provide the student with accurate information concerning the University. He will help the student decide how many courses he should attempt to carry, arrange the hours the classes meet, and approve the schedule.

During the first two years of college, students generally are required to take courses which lead to the understanding of certain fundamental principles, as well as courses in their special areas of interest. Although requirements vary somewhat from college to college, the following statement of lower division requirements for the University's College of Arts and Sciences may be helpful to indicate the areas most generally covered.

ENGLISH COMPOSITION, 6 HOURS
PHYSICAL SCIENCES, 6 HOURS
BIOLOGICAL SCIENCES, 6 HOURS
SOCIAL SCIENCES, 6 HOURS
HUMANITIES, 6 HOURS
FOREIGN LANGUAGE, INTERMEDIATE YEAR, 6 HOURS
PHYSICAL EDUCATION, TWO SEMESTERS
HYGIENE, ONE HOUR

The student who is undecided upon an area of study usually is advised to enroll in classes meeting the lower division requirements of the College of Arts and Sciences, where he will explore several fields. During two years of work in which he comes into contact with a number of specialities he will gain a background that should help him to choose intelligently the field in which he will concentrate.

The student planning to do his college work at the University—whether he is an entering student or one seeking a master's degree or a doctorate—has a large number of areas from which to choose. These are outlined elsewhere in this publication.



The University

A UNIVERSITY IS A GATHERING-PLACE for those who wish to learn. It is a place where new ideas arise and old ones take on new shapes and colors. For a new student it may be different from anything he has ever known, because here he leaves the shelter of home and familiar ways of learning and moves toward a life where he will have the chance to be largely on his own.

It is a place of broad opportunity, where libraries, laboratories, and men of knowledge are gathered in one community to afford him the chance to learn the best that has been discovered and thought and to develop fully his abilities. It is also a place of quiet meditation and shaded walks, of cheering crowds and lively debate, of people of many interests, and, most important, a place where he can mature—mentally, physically, and emotionally.

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

On a university campus the student is still taught in the classroom but he is also made more familiar with the other places of learning, particularly the libraries and laboratories, or workshops. He may not have decided upon a field of study during his first years, but as his interests become stable and increase in depth he reaches out more and more on his own. In advanced courses, undergraduate as well as graduate, he may work with a considerable degree of independence from his professor.

Given the opportunities described above, the student at the University of Kentucky should accomplish these things:

He will widen his interests and will develop an inquiring attitude. He will be aware that "to become a man of learning is an enterprise of a lifetime."

He will gain broad knowledge and understanding as well as intensive familiarity with his main field of interest and will become well prepared for the work he has chosen. He will have an appreciation for the finer things of life and will possess a moral purpose.

He will learn to see the relationship between one idea and another and as a consequence will use logic to overcome bias and to exercise restraint.

He will recognize the importance of maintaining physical health and vigor.

He will have the desire to take a responsible part in the society in which he lives.

These are the marks of an educated man—or woman—and it is the aim of the University to assist the student in attaining them.

The Four Functions of the University

In the above statements, emphasis has been placed primarily on the student, because it is he and his parents who will make the greatest use of this book. However, this is only one facet of the University.

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

Thus, in accomplishing its social purpose, the University functions in four principal ways. Its major function is as a teaching institution, but it also serves as a center for research, as a service agency, and as a center for the preservation of knowledge. The University has stated its aims in each of these areas as follows:

1. THE TEACHING FUNCTION

Out of the undergraduate colleges and the graduate schools of America should come the greater portion of

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

2. THE RESEARCH FUNCTION

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

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

3. THE EXTENDED SERVICES FUNCTION

In the main, the University is characterized by a concern for the life about it and by a zeal for service to the people whom it represents and who lend it support. The state university has found that it cannot have the desired impact on society unless its teaching is extended beyond the campus classroom, unless its research is in some measure translated into economic and social improvements, and unless its leadership and example elevate the cultural and moral tone of the nearer and farther communities in which it has its setting.

4. THE LIBRARY FUNCTION

Without an adequate library collection, a university would find it impossible to perform properly its teaching and research functions. For this reason alone the maintenance of libraries would be proper university purpose. But over and above the requirements of teaching and research, the university has an obligation to join with other agencies in the preservation of the books and other material evidences of the achievements of civilization.

DIVISIONS AND BUREAUS

In contributing to the welfare of the state through research, experimentation, and public service, all departments make important contributions. In addition, certain divisions and bureaus have been established specifically for these purposes. Included in this group are the Experiment Station and the Extension Division of the College of Agriculture and Home Economics, the Bureau of Business Research, the Bureau of Government Research, the Bureau of School Service, the University and Educational Archives, the University Placement Service, the University of Kentucky Press, Radio, Television, and Films Studios, the Home Study Program, the Extension Class Program, the Evening Class Program, the Community Colleges, the Audio-Visual Services, the Department of Public Relations, the Engineering Experiment Station, the Kentucky Geological Survey, the Kentucky Research Foundation, the Child Guidance Service, the Social Research Consultation Service, the University Hospital and related services, the Bureau of Community Service (Sociology), the Computing Center, Conferences and Institutes, and the Office of School Relations.

History

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

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

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

The school was started as part of Kentucky University under a cooperative plan authorized by the legislature. In 1878, when the people of Kentucky decided to establish a state institution of higher learning, the Agricultural and Mechanical College was separated from Kentucky University and re-established on land given by Lexington and Fayette County. To provide

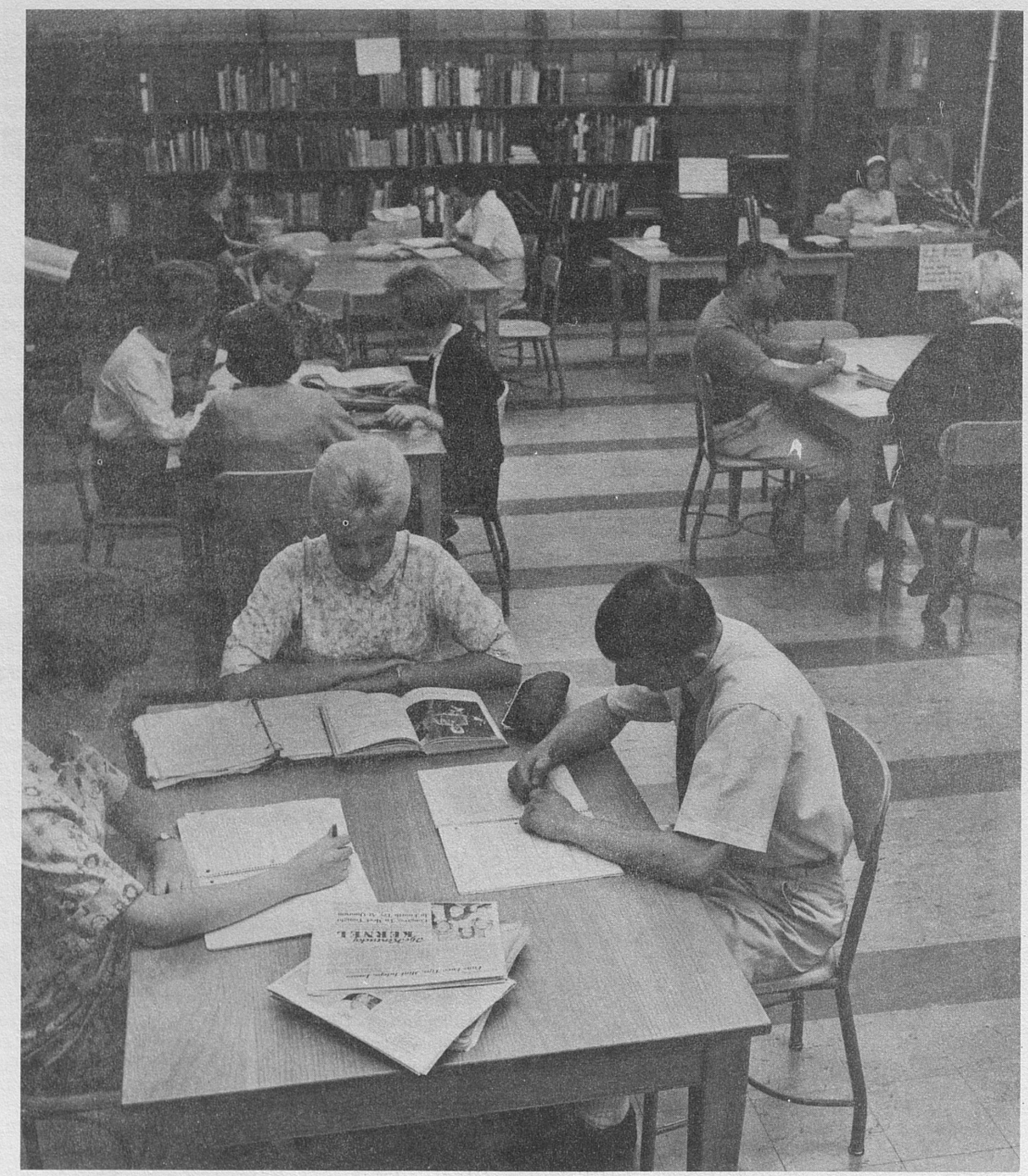
a separate campus for the new institution, the city of Lexington had donated its 50-acre fairground and park which, during the Civil War, had been utilized as a bivouac area for Union troops. Lexington and Fayette County contributed $60,000 for the construction of buildings, and President James K. Patterson, whose service to the institution began in 1869, used his personal savings to supplement the building fund. Thirty years later the legislature changed the name of the institution to State University, Lexington, Kentucky, and gave it additional financial support. In 1916 the name was changed to the University of Kentucky.

In the more than fourscore years that have passed since its establishment as a separate state institution, the University of Kentucky has had only six presidents. Their periods of service have been as follows:

JAMES K. PATTERSON, 1878-1910
HENRY S. BARKER, 1910-1917
FRANK L. McVEY, 1917-1940
HERMAN L. DONOVAN, 1941-1956
FRANK G. DICKEY, 1956-1963
JOHN W. OSWALD, 1963-

Before 1878, while it was a division of Kentucky University, the institution was presided over by John A. Williams, Joseph Desha Pickett, and James K. Patterson. During this time Bowman was regent of the parent institution.

During 1965 the University of Kentucky will celebrate its first Centennial. The celebration, beginning with a February 22 Founder's Day observance, will see the University host to five major academic conferences, numerous symposia, and gatherings of professional groups. Throughout the year, some of the world's outstanding scholars will be teaching and lecturing on the University's Lexington campus and at the Community Colleges. Numerous publications, including a pictorial history of the University, will be used to tell the story of the University growth and the observance marking its expansion.



Fields of Study

THE UNIVERSITY OFFERS WORK in many fields. The student has an opportunity for specialization and the pursuit of particular interests in 10 colleges, a School of Architecture, a Graduate School, and a Division of University Extension.

For instructional purposes, the University is organized into the College of Arts and Sciences, College of Agriculture and Home Economics, College of Engineering, College of Law, College of Education, College of Commerce, College of Pharmacy, College of Medicine, College of Nursing, College of Dentistry, School of Architecture, Graduate School, University Extension, and seven community colleges. Instruction is given in each college or school through two semesters of approximately eighteen weeks each except in the College of Medicine, which has somewhat longer terms. A summer session of about eight weeks is offered in most colleges. The colleges are:

Arts & Sciences

The College of Arts and Sciences embraces 27 departments and two schools: aerospace science; anthropology; art; botany; chemistry; classics; economics; English, speech and dramatic arts; geography; geology; history; hygiene and public health; library science; mathematics and astronomy; microbiology; military science modern foreign languages and literatures; music; philosophy; physical education; physics; political science; psychology; radio, television and films; social work; sociology; zoology; the School of Journalism; and the William Andrew Patterson School of Diplomacy and International Commerce. These have been grouped into four divisions: humanities; social studies; physical sciences; and biological sciences.

Agriculture & Home Economics

Students in agriculture may select any one of the following curricula: agricultural economics, agricultural engineering, agricultural extension, vocational agriculture, agronomy, animal science, dairy science, dairy manufacturing, poultry science, horticulture, and rural sociology. There are pre-professional programs for students who plan to study forestry, veterinary medicine, or theology. All students, other than those in the pre-professional programs, will follow a basic curriculum for the first two years. By the end of the sophomore year a student is expected to choose between the program in agricultural technology, agricultural science, and agricultural business.

Students in the School of Home Economics may select any one of the following curricula: general home economics, child development and family living, food and equipment demonstration, clothing, costume design, textiles and interior decoration, home economics extension, institution management, or vocational home economics.

College of Engineering

In the College of Engineering the student may pursue any one of the following curricula: a general curriculum in agricultural engineering, a general curriculum in chemical engineering, a general curriculum in civil engineering, a general curriculum in electrical engineering, a general curriculum in mechanical engineering, a curriculum in metallurgical engineering, and a curriculum in mining engineering.

College of Law

The student may complete a three-year program in the College of Law leading to the degree of Bachelor of Laws. Admission to this program and to the College of Law requires at least three years of prelaw study. A combined program of prelaw and law work leading to the A.B. degree and the LL.B. degree may be completed in six years in the College of Arts and Sciences and the College of Law.

College of Education

The College of Education grants the degree of Bachelor of Arts in Education to students who are enrolled in the College of Education, who have completed their majors and minors in approved teaching

professional education. Students who complete the fields, and who have completed their requirements in curriculum for elementary teachers also are eligible for this degree.

College of Commerce

The programs of study in the College of Commerce include a general-business curriculum, an economics curriculum, an industrial-administration curriculum, a marketing and advertising curriculum, a secretarial curriculum, accounting curriculum, banking and finance curriculum, and personnel management curriculum. The large amount of elective work allowed in some of the curricula makes it possible to combine a business program with other professional fields or with groups of liberal arts courses.

College of Pharmacy

In the College of Pharmacy a five-year curriculum is offered, leading to the degree of Bachelor of Science in Pharmacy.

College of Medicine

The College of Medicine offers a four year curriculum leading to the degree of Doctor of Medicine. Post doctoral training at the intern and residency level is also provided.

College of Nursing

The College of Nursing will grant the degree of Bachelor of Science in Nursing to students who successfully complete the prescribed program provided by this College. Registered professional nurses who are graduates of approved schools of nursing may qualify for this degree by successfully completing the requirements not fulfilled by previous education.

College of Dentistry

The College of Dentistry, opened in the fall of 1962, offers a four-year curriculum leading to the degree of Doctor of Dental Surgery (D.D.S.). Additional training through post-doctoral programs, which prepares students for clinical specialties within dentistry and provides opportunities for basic research, has also been developed.

School of Architecture

The School of Architecture offers a five-year curriculum in architecture, leading to the professional degree of Bachelor of Architecture.

Graduate School

Graduate courses are available in all colleges and departments. The degree of Doctor of Philosophy is offered with major work in the following departments: agricultural economics, animal science, biochemistry, biology, chemistry, dairy science, diplomacy and international commerce, education, economics, English, guidance and counseling, history, mathematics, microbiology, pharmacology, physics, physiology and biophysics, psychology, political science, and in the combined fields of sociology and rural sociology. Minor work may be carried in most departments offering graduate courses. The Doctor of Education and Doctor of Engineering degrees are also offered.

Degrees

The University offers the following degrees:

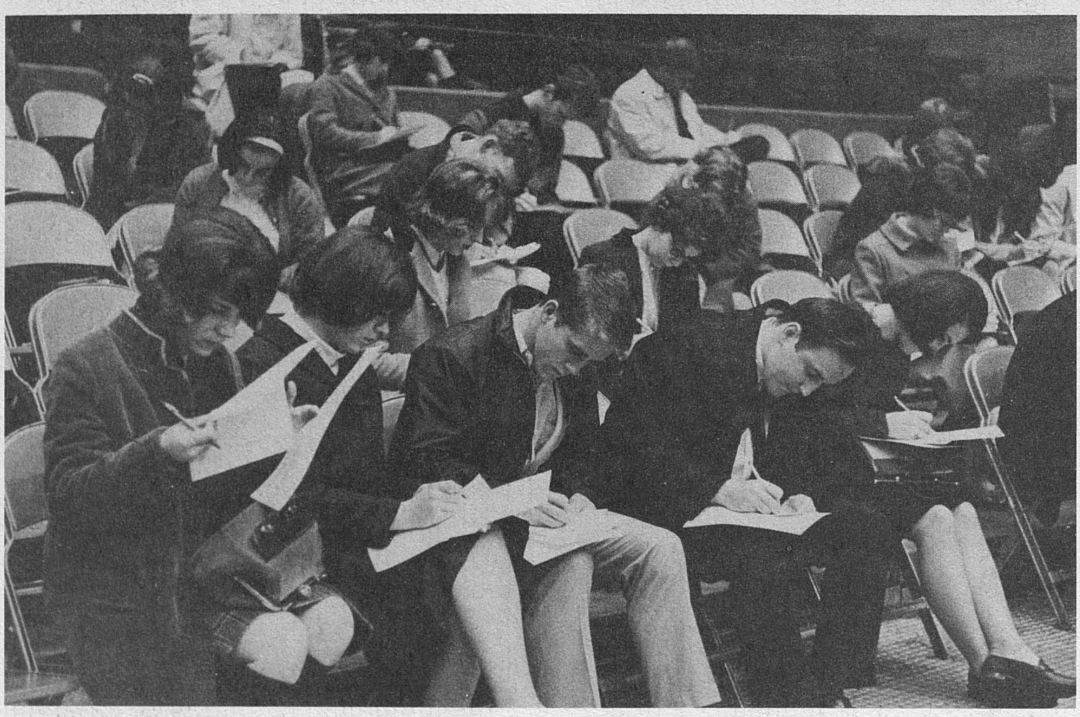
BACHELOR OF ARCHITECTURE
BACHELOR OF ARTS
BACHELOR OF ARTS IN EDUCATION
BACHELOR OF ARTS IN JOURNALISM
BACHELOR OF LAWS
BACHELOR OF MUSIC
BACHELOR OF SCIENCE
BACHELOR OF SCIENCE IN AGRICULTURE
BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING
BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING
BACHELOR OF SCIENCE IN CIVIL ENGINEERING
BACHELOR OF SCIENCE IN COMMERCE
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING
BACHELOR OF SCIENCE IN HOME ECONOMICS
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING
BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY
BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING
BACHELOR OF SCIENCE IN MINING ENGINEERING
BACHELOR OF SCIENCE IN NURSING
BACHELOR OF SCIENCE IN PHARMACY
MASTER OF ARTS
MASTER OF ARTS IN EDUCATION
MASTER OF BUSINESS ADMINISTRATION
MASTER OF MUSIC
MASTER OF SCIENCE
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN EDUCATION
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN HOME ECONOMICS
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN METALLURGICAL ENGINEERING
MASTER OF SCIENCE IN MINING ENGINEERING
MASTER OF SCIENCE IN NUCLEAR ENGINEERING
MASTER OF SCIENCE IN PUBLIC HEALTH
CHEMICAL ENGINEER
CIVIL ENGINEER
ELECTRICAL ENGINEER
MECHANICAL ENGINEER
METALLURGICAL ENGINEER
MINING ENGINEER
SPECIALIST IN EDUCATION
DOCTOR OF EDUCATION
DOCTOR OF DENTAL SURGERY
DOCTOR OF ENGINEERING
DOCTOR OF MEDICINE
DOCTOR OF PHILOSOPHY

University Extension

Through University Extension the University makes its instructional and research facilities available to the

citizens of the state. These programs include extension classes in many communities, adult evening classes, home study courses by correspondence, and workshops and conferences for business and professional groups. Graduate classes taught by University faculty members are offered at the Community Colleges by extension. University Extension also provides music services for schools and communities, and an annual program of high school drama, speech, and music festivals.









Entering the University

A STUDENT INTERESTED IN ATTENDING the University of Kentucky may wish to visit the campus before he begins college work. Such visits are encouraged, and each student is invited to bring his parents. Arrangements may be made for the student to talk with a faculty advisor, his college dean, an admissions officer, and a housing representative. Many times, student frustrations and academic discouragement are avoided by the more careful planning resulting from consultations with University officials. While a careful study of the University catalogue is beneficial, the spirit of the University may be more advantageously gathered from discussions with the faculty, students already in residence, and various administrative officials.

The Office of the Dean of Admissions is located in the Administration Annex, and the dean is available to meet personally with prospective students and their parents. In order to avoid unnecessary waiting it is suggested that the student write requesting an interview on a specific date. Arrangements will be made ahead of time for conferences with appropriate faculty members and college deans if requested. In his letter the student should indicate his broad areas of academic interest.

Upon arriving on the campus for a visit, the student may come to the Administration Annex for information and directions. High school groups may arrange for guided tours of the campus by contacting the University's Department of Public Relations, Room 205, Administration Building.

For many persons, a visit is not practical or possible. To help acquaint them with the University a number of printed materials have been prepared, including bulletins on each college. The bulletins describe the aims of each college and the fields of study it offers. A list of publications and sources of information appears in the back of this catalogue.

Requirements for Admission

All students should make application to the University at the earliest possible date. All undergraduate applications, including those for readmission, must be received in the Office of the Dean of Admissions 30 days prior to the opening of the term in which the student desires to enroll. All applications for the fall semester from out-of-state beginning freshmen should be received by April 1. There is no fee required for the submission of an application for admission. If the student decides not to enroll in the University after making application he is requested to notify the admissions office of the fact. Because the University does not require an application fee, applications submitted after the 30-day deadline cannot be considered until the following semester. In addition to the preceding requirement there are certain specific requirements.

All full-time students will be furnished with a Health Report Form for the pre-entrance medical report which is an essential part of the requirements for admission to the University. Those students who have been absent from the University one or more years or who have withdrawn for medical reasons must furnish a medical report before re-admission. Part-time students may apply for eligibility for health services by providing the same medical information.

FRESHMEN

Kentucky residents seeking to enter the University as freshmen must have graduated from an accredited high school and must have the recommendation of their high school principal. They must also submit the results of the American College Test (ACT). This test is given on four dates during the year at many test centers located throughout Kentucky and the United States. Your high school will probably be able to give you information about applying to take the ACT, testing dates, and location of test centers. If your high school does not have this information, write to: ACT Central Registration Unit, 519 West Sheridan Road, McHenry, Illinois.

Out-of-state residents seeking to enter the University as freshmen must meet the same requirements as Kentucky residents, including submitting the results of the American College Test. Admission of out-of-state freshmen will be based on the results of the American College Test and the high school record. The deadline for submitting out-of-state freshmen applications is April 1.

The University of Kentucky invites, and indeed

urges, all prospective freshmen to apply for admission as early as possible in the senior high school year, or even during the preceding summer.

ADVANCED STANDING

Students with previous college work must have a cumulative grade point average of 2.0 (C) or better, and be eligible to return to the last college attended. Previous college work cannot be ignored regardless of the circumstances.

Graduate, Medical and Dental Applicants

Applicants for the Graduate School should write directly to the Graduate School Office. Applicants for the College of Medicine and the College of Dentistry should write directly to the Associate Dean of Admissions, Admissions and Student Services, Medical Center.

Admission from high school with advanced standing. A number of high schools give the College Entrance Board Advanced Placement Examinations. Students who take these should have them forwarded to the admissions office. Advanced credit is awarded on the basis of the student's performance on each examination he takes.

Foreign students. Students who are residents of other countries should apply for admission *at least 6 months* before the beginning of the semester in which they intend to enroll, and *at least 9 months* earlier if they plan to ask for a scholarship. Generally speaking, students from other countries should be prepared to meet all their financial needs, since there are far more applicants for scholarships than there are scholarships available.

Residents of other countries must meet the academic standards of the University of Kentucky. In addition they must demonstrate an adequate knowledge of English in order to be considered for admission. All applicants from non-English speaking countries will be expected to take the Test of English as a Foreign Language offered by the Educational Testing Service, Princeton, New Jersey 98540, U.S.A., given at various test centers in many countries. When you write to us for application material, you will be sent a bulletin giving you instructions about taking this test.

No student from another country can be considered for admission until all transcripts of his academic work have been received.

EXCEPTIONS

In some cases, persons may be admitted to the University without meeting all the general requirements. The cases are presented below:

Unusual ability. Students with unusual ability may be admitted before graduation from high school in certain instances. These students must pass a special examination and be recommended by their high school teachers as having ability to start carrying college work immediately. Persons seeking detailed information on the program should write to the Dean of Admissions.

Special student. A person may be admitted as a special student if he does not have a high school diploma, is at least 21 years old, and is fully prepared to do the work required.

Non-degree students.. Persons who desire University instruction without wishing to become degree candidates may be admitted as non-degree students.

Admission Procedure

The following steps are involved in undergraduate admission to the University:

1. The student should write to the Dean of Admissions for an application blank, stating whether he is entering from high school, another college, or applying for readmission. The proper admission forms will be sent to him.

2. The high school principal must complete the Secondary School Record form and return it to the admissions office. In the case of students entering with advanced standing two official transcripts from each college attended must be forwarded to the Admissions office. Courses in progress should be listed even though grades are not available.

3. After receiving the application blank and other forms, the admissions office will notify the student about his admission status. He will be sent an enrollment permit when his admission is approved.

4. All students entering the University in the Fall Semester are requested to visit the campus during the summer preceding it to register for their Fall classes. Students who have applied for admission will be notified when to report to the campus. Fees may be paid during the summer visit if convenient to the student.






Sanders



Living Accommodations

STUDENTS MAY LIVE in University residence halls, cooperative or semi-cooperative houses, fraternity or sorority houses, married student housing, or off-campus housing.

The Housing Office is responsible for the receipt of housing applications and deposits, the establishment of consideration lists, the assignment of rooms/apartments, the notification of students of room/apartment assignments, and the payment of refunds as applicable to married and single student housing. It is also responsible for maintaining listings of off-campus housing and student records of parental approval to live in off-campus housing.

Applications and Information

Enclosed with each application for admission is a housing information card. Students desiring additional housing information and/or appropriate application should complete the housing information card accordingly and return to the Housing Office, University of Kentucky.

Single Student Residence Halls

A residence hall contributes to a student's development in personal and social growth. Scholastic endeavor particularly is emphasized in the University's residence units.

The room and board rate for the residence halls is $380 per semester. The first installment of $95 is to be sent with the application for housing to the Housing Office. The balance must be paid as stated in the Residence Hall Plan.

All students living in residence halls will be served three meals a day (with the exception of Sunday evening meal) in a University dining room. Room and board are not provided during the stated recesses of the University.

Room assignments are made according to a system of priority including classification, home state, and the time and date the completed housing application and first installment are received in the Housing Office. Filing an application does not guarantee an assignment.

After the application has been received, the applicant will receive additional information concerning residence hall policies and will be notified of his/her assignment status.

A room application can be cancelled with the entire first installment refunded, if notification of the cancellation is received in the Housing Office one month prior to the opening of the residence halls. No refund will be made if notice of cancellation is received less than one month prior to the opening of residence halls, unless: admission is rejected, or in case of emergency or unusual circumstances as determined by the University administration.

Seven residence units are located on the north side of the campus and house women students. Three of these units, Patterson, Boyd and Jewell Halls, are adjoining, and accommodate approximately 140 students each. Keeneland and Holmes Halls each accommodate approximately 300 students, and Lydia Brown House, 20 students. Blazer Hall accommodates approximately 200 students and is the only air-conditioned unit for women students.

Six residence units are located on the south side of the campus. Haggin Hall and Donovan Hall accommodate approximately 575 and 355 men students, respectively. Haggin Hall is the only air-conditioned unit for men students. The four remaining buildings (Bradley, Bowman, Breckinridge and Kinkead) compose the Quadrangle. Three of these units accommodate approximately 150 students and the other approximately 80. The Quadrangle is coeducational, and the individual units may be assigned to either men or women, depending on the total number of students to be housed. Students residing in units on the north side of the campus will eat in the Blazer Hall dining room, and those residing on the south side of the campus will eat in the Donovan Hall dining room.

The University reserves the right to modify the assignment of the residence halls in terms of current requirements for men and women students.

Cooperative Houses: The University maintains two cooperative houses accommodating 34 women. These houses, in which students may reduce expenses by performing cooperative house duties, are assigned by special application. Application for these houses should

be made to the Housing Office. Student applications are selected by a Cooperative Housing Committee on the basis of scholastic records and recommendations. Each student assigned to cooperative housing will make an advance payment of $50 with the application. This is the room rate for the semester. Cost of board varies with the price of food, but the approximate cost to each student is $27 per month. The cooperative houses are managed, operated and maintained by the student occupants under University supervision.

Semi-Cooperative House: Dillard House is a semi-cooperative house in which occupants assume housekeeping responsibilities. It will accommodate approximately 25 students. The room and board rate is $320 per semester. The first installment of $95 must accompany the application. The balance of $225 is due and payable at the time of registration; however, a partial payment plan can be arranged. Students living in this unit will eat three meals each day (with the exception of Sunday night supper) in the Blazer Hall dining room.

Regulations for Housing of Single Students

(Approved by Board of Trustees on December 8, 1964)

I. Administration: The Housing Office will be responsible for receipt of applications and deposits, the establishment of consideration lists, the assignments of rooms, the notification of students of room assignments, and the payment of refunds.

II. Eligibility

A. An individual may apply for and be assigned to single (unmarried) student housing if he qualifies as an eligible student. An eligible student is defined as an individual who

1. is single (unmarried) and
2. has been accepted for enrollment or is continuing in enrollment in one of the following classifications: full-time undergraduate student, full-time advanced student, full-time graduate student, or full-time post-doctoral trainee.

B. For purposes of these eligibility rules the following definitions shall apply:

1. A "full-time undergraduate student" is defined as a student who has been accepted by the University in undergraduate status or who is enrolled in the University in undergraduate status and whose academic program contains at least twelve semester hours of course work for credit.
2. A "full-time advanced student" is defined as a student who has been accepted by or is enrolled in the University for academic effort in one of the disciplines indicated below and whose academic program contains at least the number of semester hours or credits as listed.

Law	10 Semester Hours
Pharmacy	12 Semester Hours
Dentistry	38 Credits Per Year
Medicine	40 Credits Per Year

3. A "full-time graduate student" is defined as a student (a) who has been accepted by the University for admission in graduate status or (b) who is enrolled at the University in graduate status and (c) whose full-time status has been certified by the Dean of the Graduate School which would be the equivalent of at least nine semester hours. Verification of this status must be obtained from the Graduate Dean or appropriate Department Chairman.
4. The term "post-doctoral trainee" is used to describe the several categories of individuals whose academic programs do not lend themselves to the more usual classifications. Examples would include post-doctoral fellows, clinical fellows, medical interns and medical residents.

III. Assignment to single student housing

A. Considerations to be applied in making assignment of available single student housing to eligible students will be as follows:

1. First consideration: First year undergraduate students who are residents of the Commonwealth of Kentucky.
2. Second and equal consideration shall be given: a) Students transferring from the campuses of the University of Kentucky Community College System and from other institutions of higher learning who are residents of the Commonwealth of Kentucky. b) Students who were enrolled at the Lexington Campus during the immediately preceding semester who are residents of the Commonwealth of Kentucky.
3. Third and equal consideration shall be given: a) Students who were enrolled at the Lexington Campus during the spring semester 1965 who are not residents of the Commonwealth of Kentucky. b) Students transferring from other institutions of higher learning who are not residents of the Commonwealth of Kentucky.
4. Fourth consideration: First year undergraduate students who are not residents of the Commonwealth of Kentucky.

B. The cut-off date for the above consideration is June 15. Rooms will be assigned according to date completed application and initial payment is received in the Housing Office. Students who

were not assigned rooms due to unavailability of space will remain on consideration lists for room assignment as cancellations occur. Students submitting applications after June 15 will be assigned available rooms according to date and time completed application and initial payment is received in the Housing Office.

* Residents of Fayette County will receive consideration for assignment to University Housing if unusual circumstances exist which would prevent the student from attending the University should the student not be assigned Housing. Each individual case will be reviewed by the Dean of Men or Dean of Women.

IV. Cancellations and Refunds

A. Before semester or summer session begins

1. Full refund of initial payment will be made
   a. If notice to cancel room reservation is given in writing to the Housing Office one month prior to the opening of the semester.
   b. If a student is not accepted for admission to the University.
2. No refund will be made if cancellation of room reservation is requested during month previous to the beginning of the semester except in case of emergency or an unusual circumstance as determined by the University administration.

B. After semester or summer session begins

1. Regular Semester (16 weeks). Students living in the residence halls who withdraw from the University of Kentucky will be assessed a charge for room and board computed at the rate of 8% of the total semester charge for each week in residence. There will be no refund after the 12th week in residence. Any fractional part of a week will be considered as a full week.

   Students withdrawing from the residence halls to enter other University housing units will be assessed a charge for room and board at the rate of 6.25% of the total semester charge for each week in residence. Any fractional part of a week will be considered as a full week.
2. Summer Term (8 weeks—room only): Students living in the residence halls who withdraw from the University of Kentucky will be assessed a charge for room computed at the rate of 16% of the total semester charge for each week in residence. There will be no refund after the 6th week in residence. Any fractional part of a week will be considered as a full week.

   Students withdrawing from the residence halls to enter other University housing units will be assessed a charge for room at the rate of 12.50% of the total semester charge for each week in residence. Any fractional part of a week will be considered as a full week.

Sorority and Fraternity Houses

Twelve national sororities and nineteen national fraternities, accommodating approximately 1,200 students, have chapter houses on or near the University campus. The average cost of room and board is comparable to that charged in the single student residence halls. A housemother manages the operation of each chapter house with the supervision of the respective alumni board and the Student Personnel Staff.

At this time, fraternities pledge freshmen at the beginning of the second term; sororities at the beginning of the first term. In general, sororities do not house freshman pledges.

Married Student Housing

The University operates two housing complexes for married students—Cooperstown, located approximately ¼ mile east, and Shawneetown, approximately 1½ miles south of the main campus. The complexes are composed of efficiency, 1 bedroom and 2 bedroom apartments, and include furnishings adequate to basic living. The efficiency apartments rent for $80 per month, the one-bedroom apartments for $95 per month, and 2 bedroom apartments for $105 per month. Rentals also include utilities and maintenance.

Additional information and an application blank may be obtained by writing to the Housing Office.

Regulations for Housing of Married Students

(Approved by Board of Trustees on December 8, 1964)

I. Administration: The Housing Office will be responsible for the receipt of housing applications and deposits, the establishment of consideration lists, the assignment of apartments, the notification of students of apartment assignments, and the payment of refunds.

II. Eligibility

A. Eligibility to apply for and be assigned to married student housing will be considered if the individual is:

1. A married, full-time graduate student.
2. A married, full-time advanced student.
3. A married, post-doctoral trainee.
4. A widowed, divorced, or legally separated full-time graduate student, full-time advanced student or post-doctoral trainee and who has one or more children.

5. A married, full-time undergraduate student.
6. A widowed or divorced, full-time undergraduate student and who has one or more children.

B. For purposes of these eligibility rules the following definitions shall apply:
1. A "married" applicant is one who is legally married and who desires accommodation for self and spouse or for self, spouse and children.
2. A "full-time graduate student" is defined as a student (a) who has been accepted by the University for admission in graduate status or (b) who is enrolled at the University in graduate status and (c) whose full-time status has been certified by the Dean of the Graduate School.
3. A "full-time advanced student" is defined as a student who has been accepted by or is enrolled in the University for academic effort in one of the disciplines indicated below and whose academic program contains at least the number of semester hours or credits listed below:

Law	10 semester hours
Pharmacy	12 semester hours
Dentistry	38 credits per year
Medicine	40 credits per year

Off-Campus Housing

Students desiring to live in off-campus housing for the first time during enrollment at the University of Kentucky should have on file in the Housing Office parental approval. It is expected that parents will discuss with their son or daughter the arrangements and standards acceptable to the family for off-campus housing and when possible approve personally the specific accommodations. The Housing Office should be notified immediately regarding any change in off-campus address.

Dining Facilities

The Student Center Cafeteria, Blazer Hall Cafeteria, Donovan Hall Cafeteria, University Hospital Cafeteria, Student Center Grill, Wildcat Lanes Grill, Dormitory Grill, and the K-Lair Grill are operated by the University as auxiliary enterprises to provide dining facilities for students, faculty, staff members and guests.

The Student Center Cafeteria is open seven days a week except during vacations and holidays, and serves three meals daily except Sunday, when only breakfast and noon meals are served. The cafeteria is equipped to provide special services for students, faculty and staff members, for teas, receptions, parties, luncheons, banquets and dinners.

Blazer Hall Cafeteria, on Harrison Avenue, serves approximately 1,450 residence hall students living in that campus area. The service is three meals daily except Sunday, when the breakfast and noon meals are served.

The Donovan Hall Cafeteria, on Rose Street at Huguelet Drive, provides meal service to approximately 1,500 residence hall students living in that campus area on the same weekly schedule as Blazer Hall Cafeteria.

The K-Lair Grill on Hilltop Avenue near Haggin Hall provides service daily to students, faculty, staff and their guests. Students living off-campus are especially invited to use this facility, as are faculty and staff members, particularly those who work in that campus area.

All sorority houses and a majority of the fraternity houses serve three meals a day, with the exception of the Saturday and Sunday evening meals. Certain fraternities provide only two meals a day.

Expenses & Financial Aid

Fees at the University vary according to the privileges granted and the place of home residence of the student—whether a resident of Kentucky or of another state or country. For the fees indicated the full-time student receives class instruction, health and hospital service, admission to athletics contests and to Central Kentucky Concert-Lecture programs, use of the Library and Student Center, a discount on admissions to the Guignol Theatre, and a subscription to *The Kentucky Kernel*, the student newspaper. Fees may change from time to time.

DEFINITION OF RESIDENT STUDENT FOR FEE ASSESSMENT

The following rules, adopted by the Board of Trustees, are applied to determine a student's eligibility for the fees assessed Kentucky residents. This determination is made at the time of initial enrollment at the University and shall not thereafter be changed except as provided below.

A student under twenty-one years of age is eligible to register at the University as a resident of Kentucky if his parent or legal guardian has maintained continuous residence in the Commonwealth for twelve months immediately preceding his original enrollment in the University. No person shall be considered to have gained residence in the Commonwealth while a student unless or until his parent or legal guardian moves into the Commonwealth and acquires residence. If a student is registered as a resident of the Commonwealth and his parent or legal guardian thereafter moves out of the Commonwealth, the student will become a non-resident at the beginning of his next enrollment. If the parents have different domiciles, the domicile of the parent who has legal custody of the student's person shall be considered the domicile of the student.

A student twenty-one years of age or older is eligible to register at the University as a resident if he has maintained continuous residence in the Commonwealth for twelve months immediately preceding the date of his original enrollment, exclusive of any time spent in attendance at any institution of higher learning. An adult student registered as a non-resident upon his original entrance to the University cannot generally thereafter acquire resident status.

An adult student from out of state who seeks residence status must assume the burden of proving conclusively that he has been a resident of the Commonwealth the requisite time with the present intention of making his permanent home in this state. In general, it is assumed that the intent to remain indefinitely in the Commonwealth is evidenced not only by what a person states but what a person has actually done. Normally, persons with intent to establish residence will be expected to have done all those things which a person customarily does when establishing a permanent residence, some of which are: obtaining full time employment, establishing a home, buying property, filing tax returns, transferring or establishing church membership, affiliating with local organizations, and the various other things which give evidence of intent to remain indefinitely within the Commonwealth.

The Fees Committee has been authorized by the Board of Trustees to consider changes in resident status based on the above criteria. Application for change of residence classification should be made to the Dean of Admissions, who, as Chairman of the Fees Committee, will present each case to the Committee.

IDENTIFICATION CARDS

A personal identification card is issued to each student who has paid the full fee for a semester. It includes his photograph and personal description and certifies that he has enrolled and paid his fees. It entitles the student to admission to all athletic contests on the campus and to the concert-lecture series. It must be kept throughout the semester. A part-time student may pay an additional fee and obtain an ID card. If a card is lost through no fault of the student it may be replaced, but a fee will be charged.

Scholarships & Fellowships

To the greatest extent possible, financial assistance is rendered worthy students through scholarships. Scholarships at the University of Kentucky are supported by an annual appropriation of $60,000 made by the Board of

EXPENSES

Registration Fees

School Year 1965-66

Full-time Student:	*Resident*	*Non-resident*
All Colleges except Medicine and Dentistry—		
Semester Fee	$125.00	$310.00
Summer Term Fee	70.00	170.00
Colleges of Medicine and Dentistry—		
Annual Fee	560.00	1,080.00

Part-time Student:	*Resident*	*Non-resident*
All Undergraduate Colleges—		
Semester Credit Hour Fee	$11.00	$28.00
Summer Term Credit Hour Fee	12.00	29.00
Graduate School—		
Semester or Summer Term Credit Hour Fee	15.00	38.00

Additional Fees and Deposits

Additional fees and/or deposits may be assessed for certain courses or activities.

HOUSING COSTS

	Per Semester
Men's Residence Halls	$380*
Women's Residence Halls	380*

Married Students:	Per Month	
	Cooperstown	Shawneetown
Efficiency Apartments	$80***	$80***
One Bedroom Apartments	95***	95***
Two Bedroom Apartments	105***	105***

Men:	****Summer Term
Double Rooms	$70
Women:	
Single Rooms	$85-95**
Double Rooms	70-80**

* Includes room and three meals daily except Sunday evening meal.
** The higher figure is for air-conditioned accommodations.
*** Includes adequate basic furnishings, utilities, and maintenance.
**** Meals are not included in the housing costs for summer students.

Personal Expenses

(Not payable to the University)

Books and Supplies. Range from $40 up, depending on the student's schedule of classes for the semester.

Dry Cleaning. Both men and women students make their own arrangements for dry cleaning. The cost is comparable to that in any city.

Laundry. Laundry facilities for personal items are provided in the residence halls. Information concerning bed linen and towel service is provided upon request by the Housing Office. Subscription to this service is voluntary.

Personal Living Expenses other than the above vary according to the habits of the individual student.

ALL FEES AND HOUSING COSTS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Trustees at the request of President Oswald; by fund-raising activities of student organizations; and by gifts and endowments from alumni and friends of the University. These sources have enabled the University to expand greatly its scholarship program; however, additional funds are still needed in order to supply all the financial assistance needs of talented and deserving students who desire to profit from a University education.

Scholarships are assigned on the basis of academic ability and evidence of need for financial assistance. The University places emphasis on four-year or continuing, unrestricted awards. Some scholarships, however, are limited to students enrolled in a particular department or college of the University and are for less than a four-year period. All applicants for freshman scholarships are required to take the American College Test. All freshman scholarship applications must be filed with the University by February 1. Detailed information regarding these scholarships and the procedures involved may be obtained from high school counselors and principals or by writing to the Chairman, Committee on Scholarships and Student Loans, Room 4, Frazee Hall, University of Kentucky.

A number of upperclass scholarships are available to deserving students. Qualified students, who have completed at least one semester at the University, may secure applications from the Office of the Chairman, Committee on Scholarships and Student Loans, Room 4, Frazee Hall. All upperclass scholarship applications for the next academic year must be submitted no later than April 15.

Inquiries regarding fellowships should be directed to the Dean of the Graduate School, University of Kentucky.

The Herman L. Donovan Senior Citizens Fellowship Program

Any man or woman who has attained the age of 65 or more years may enroll for regular courses at the University without the payment of fees. This Fellowship is available at the Lexington campus and at each of the Community Colleges. Courses may be taken for credit toward degrees or audited for no credit. All prerequisites and entrance requirements are waived for auditors. This program is administered by the Council on Aging.

Graduate Assistantships

Graduate assistantships are available in most departments and involve participation in teaching, research, or administrative work. In most cases the student must carry a lighter than normal course load. Persons interested in assistantships should contact the head of the department in which they plan to work.

Loans

The University, through its own resources and gifts contributed by organizations and friends of the University, is able to (1) maintain a University General Loan Fund, (2) make reserve deposits as a participant in the United Student Aid Funds, Inc. guaranteed bank loan program, (3) maintain a short-term emergency loan fund, (4) provide matching funds to participate in the National Defense Student Loan and the Health Professions Student Loan Programs, and (5) maintain a limited number of other loan funds restricted to a specific college or major field of study.

As the National Defense Student Loan Program provides the largest single source of funds, a brief description of this program follows.

A student desiring a loan must demonstrate to the Committee on Scholarships and Student Loans the need for a loan and the ability to do acceptable work at the University. The amount of the loan is determined primarily by the needs and resources of the student. However, by the terms of the Act, the loan for one year must not exceed $1,000 and the aggregate over a number of years cannot exceed $5,000.

Interest does not accrue and payments are not required while a borrower is a full-time student and one year immediately following. The interest rate is 3 per cent per year, but does not begin to accrue until the beginning of the second year after a borrower ceases to be a full-time student. The first payment is ordinarily scheduled to become due at the end of the second year a borrower is out of school and the next nine are scheduled over the next nine years.

Students who enter public school teaching may have up to 50 per cent of their loans cancelled at the rate of 10 per cent for each year of full-time teaching.

Students who wish to pursue a college education but who are hesitant because of financial difficulties, are encouraged to inquire into the availability of a loan. No collateral or co-signers are required. It should be repeated that the student's need and ability are the primary considerations.

Further information regarding student loans is available from high school principals, counselors, and the Chairman, Committee on Scholarships and Student Loans, University of Kentucky.

Student Part-Time Employment

The third integral part of the University's program of financial aid to students is a Student Part-Time Employment Service. This service is designed to provide financial assistance for meeting in part the costs of

education; to encourage students who are strongly motivated toward self-help; to develop proper skills and attitudes toward work; and to provide work situations which supplement and enrich the student's academic efforts.

In order for the University to be of maximum service to a student who must supplement other resources in order to meet his cost of education, he must give first priority to maintaining a satisfactory academic standing, must set aside in his class schedule definite time blocks of from two to four hours for work, preferably must offer a skill(s) and previous work experience, and must at all times assume a mature attitude toward his part-time work responsibilities. There are sufficient work opportunities through the University for both on and off campus employment for all students who require and desire this type of assistance.

It is strongly recommended that a new student come prepared to meet his expenses without having to work during his first semester. After completing at least one semester of academic work at the University, the student, his faculty advisor, and the Student Part-Time Employment Service are able to determine together more realistically the amount of time that can be devoted to part-time employment. No student should attempt to support himself completely through part-time work.

The Student Part-Time Employment Service concentrates its efforts of service to students in five main areas:

(1) On Campus Assured Job Program—This program consists of permanent part-time jobs on the campus which have been committed by various University organizational units to be filled and performed by students.

(2) Off Campus Employment—These jobs result from student interest and the cooperative attitude displayed by local industrial and business employers. The demand for student help from such employers is increasing, and the University is exerting every effort to fill these demands.

(3) Casual Jobs—Generally, jobs of temporary duration requiring skilled and unskilled personnel fall in this category.

(4) Faculty Aides—The University is in the process of developing a program in which about fifty upperclassmen will be used in positions of direct assistance to faculty members in a variety of fields. Academic distinction and a lively interest in a particular field of study are prime requisites.

(5) Full-time and Part-time Summer Employment—The Student Part-Time Employment Service assists full-time University students in securing summer employment. Priority is given to students who must earn money to apply to educational expenses for the next academic year.

Veteran and War Orphan Benefits

The University Counseling Service coordinates veteran and war orphan affairs between the University and the Veterans Administration. The veteran or war orphan should report to the University Counseling Service, Room 201B, Administration Building, which has been designated as the receiving center for veterans and war orphans wishing to enter or re-enter the University of Kentucky. Here the applicant will be given information about enrolling for federal benefits.

WHAT TO BRING

1. The credentials necessary for admission to the University as described in the section on *Admission to the University* in this Bulletin.

2. A Certificate for Education and Training, Public Law 634, or a letter indicating eligibility under Public Laws 721, 815, or 894. (No payment for subsistence may be made until a certificate has been filed with the University.) The veteran or war orphan should obtain his certificate from the Veterans Administration as soon as possible after he decides to enter the University of Kentucky. Transfer students should request a change of place of training prior to registration.

3. Sufficient personal funds to provide subsistence for two months, since that time, or sometimes longer is required to establish eligibility and start subsistence payments.

PUBLIC LAW 550 (EXPIRED)

Public Law 550 (Korean GI Bill) which provided educational benefits for members of the Armed Forces who served a minimum of 90 days between 1950 and 1955 expired on January 31, 1965. Veterans who entered the Armed Forces after January 31, 1955 are not eligible for educational benefits unless a new law is enacted by Congress.

PUBLIC LAWS 721, 815, AND 894

Under Public Laws 721, 815, and 894 provision has been made for vocational education or training to overcome handicaps suffered as a result of service-connected disabilities. A veteran who is interested in applying for educational benefits under either of these laws should seek information from the nearest VA office prior to the date for enrollment at the University. For Kentucky residents, this office is located in Louisville.

PUBLIC LAW 634 (WAR ORPHANS)

Public Law 634 is a program of financial aid for the education of young men and women whose parents (World War I, World War II, or Korean Conflict) died of injuries or diseases resulting from their military service. The veteran must have died of a disease or injury incurred or aggravated in line of duty in active military service. If the death occurred after military service, the veteran must have been discharged under other-than-dishonorable conditions. Generally these veterans' children must be between the ages of 18 and 23.

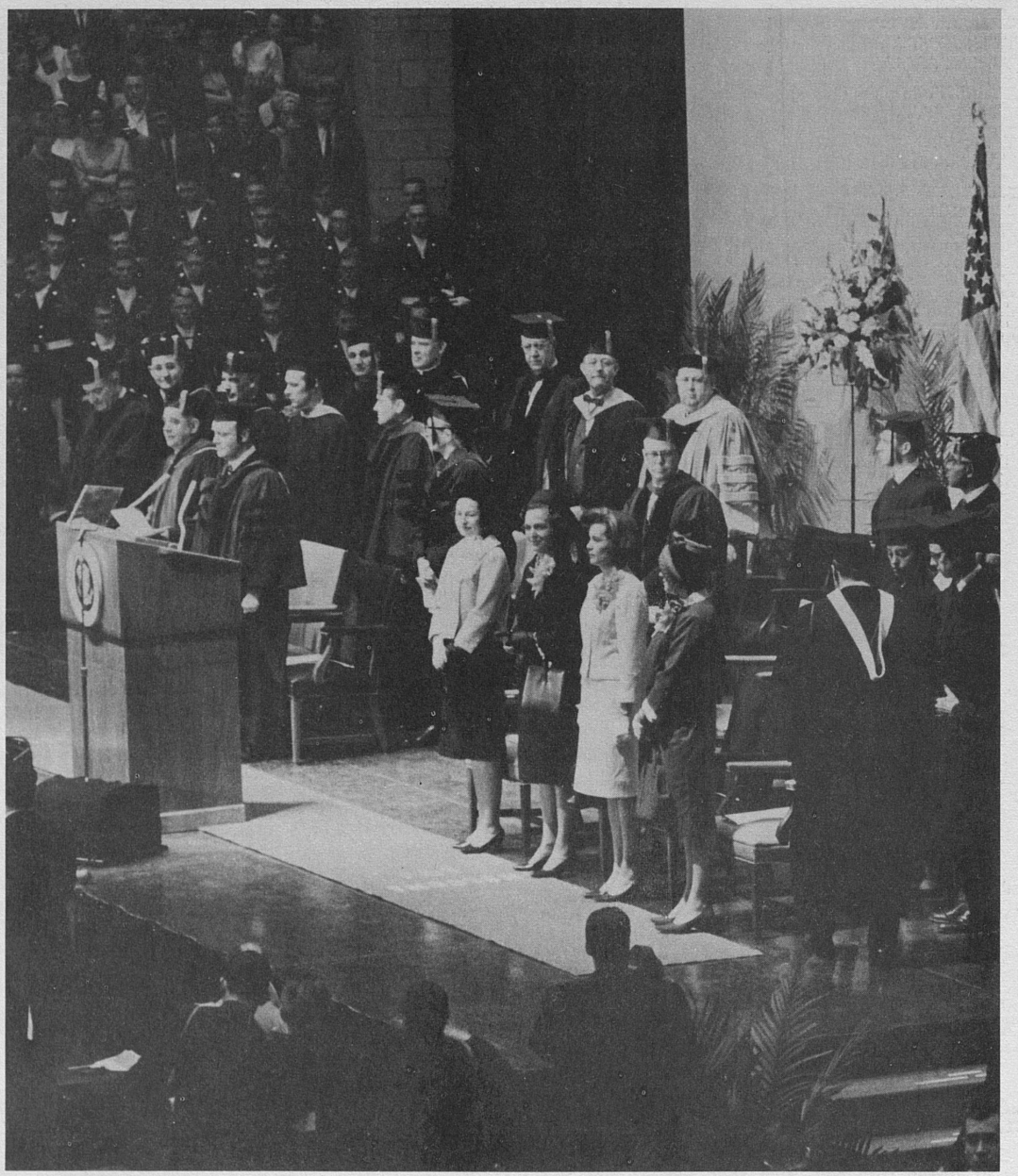
In order to determine eligibility, the guardian of the war orphan should file an application (VA Form 22-5490) which can be obtained from the nearest VA office or from the University Counseling Service. This

should be done prior to registration date at the University of Kentucky. After the application is approved, the war orphan will receive a Certificate of Education and Training. This should be presented to the Veterans Secretary in the University Counseling Service at the time of enrollment. Benefits will be paid directly to the guardian until the war orphan reaches the age of 21. The war orphan must arrange for payment of his own University fees just as any other student would do.

CHILDREN OF KENTUCKY WAR VETERANS EDUCATIONAL PROGRAM

Under the provisions of KRS 164.505 and 164.515 certain children of Kentucky war veterans are eligible for assistance from the Commonwealth of Kentucky. All persons eligible under this program must, in addition to meeting the requirements for admission, submit with the application for admission, or at least 30 days prior to the beginning of the term for which assistance is requested, the necessary documents establishing their eligibility under this program.

Generally, children of Kentuckians who were killed in military action or permanently and totally disabled in wartime military service are eligible for exemption from the payment of the registration fee. This exemption does not include activity fees, special fees or additional fees which are charged for certain courses.



Centennial Founders Day Convocation
Speaker: President Lyndon B. Johnson

Working Toward a Degree

The Student Pursuing a College Degree must fulfill a number of requirements specified by the University. These concern such things as the number of courses he will take and the pattern they should follow, the amount of time he must spend in full-time work, his grades, and his conduct. Explanations of these requirements are presented in the following paragraphs.

Student Load

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

The normal maximum load for the summer session is nine credit hours. Two short courses of four weeks or less in length, or one short course of four weeks or less in length and two full term courses (except when the two full term courses do not exceed a total of three credit hours) shall not be carried concurrently.

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

A student who has attained a grade point average of 3.0 on a load of at least 15 credit hours for the preceding semester, or a beginning freshman who ranks in the upper 25 per cent on the University classification tests, may be permitted by the dean of his college to carry as many as 22 credit hours (10 credit hours for the summer session).

A student on academic probation shall not take more than 14 credit hours in a semester or more than seven credit hours in the summer session.

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

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

Grading System

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

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

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

Grade C represents ordinary achievement, the minimum expected of a college student. It is valued at two grade points for each credit hour.

Grade D represents the minimum passing grade. It is valued at one grade point for each credit hour.

Grade E represents unsatisfactory performance and indicates failure in the course. It is valued at zero credit hours and zero grade point. A student receiving this grade can obtain credit in the course only by repeating the entire work of the course in class. In rare cases in which undue hardship is involved in repeating the work in class, the dean of the student's college may approve repeating the work by correspondence.

Grade I—incomplete—may be given when part of the work of the course remains undone at the time that grades are due. The grade I, for undergraduates, must be removed within one month after the student re-enters the University, unless the dean of his college grants an extension of time. A grade of I not removed within this period will be changed to a grade of E by the Registrar, who will notify the instructor concerned. The grade I, for graduate students, must be removed within one calendar year of the close of the term in which the grade was assigned, unless the Dean of the Graduate School grants an extension of time.

Grade S—satisfactory work in progress—may be recorded for students in courses consisting of research, independent work, or seminars, if at the end of a semester the student, because of the nature or size of the project, has been unable to complete the course.

Grade S may also be recorded as a permanent mark for graduate students in course carrying no academic credit.

Grade W—withdrew passing—may be given if the student was doing satisfactory work at the time of his official withdrawal. No grade will be recorded for a student who officially withdraws or is dropped from a class during the first ten class days of a semester or the summer session. Students who withdraw after these dates or who are dropped from class shall be given a grade of E if their work is unsatisfactory or if their withdrawal is not official.

GRADE POINT AVERAGE

The grade point average is the ratio of the number of points gained to the number of credit hours attempted. As stated above, an A counts four points for each credit hour carried, a B counts three points, a C two, and a D one. Thus, a student would earn 12 quality points for an A in a three-hour course and four quality points for a C in a two-hour course. To figure his overall standing, he would add all his quality points and divide this by the number of hours carried. The over all grade point average for the two courses cited above would be 16/5 or 3.2. Courses in which grades of W, S, and I have been given are ignored, but a grade of E is included even though it counts as zero credit hours in fulfilling the requirements for a degree.

Other Regulations

Entrance Examination. All new students, other than those entering the Graduate School, are required to take the University classification tests and such physical examinations as the University may require.

Acceptable Standards in English. Instructors in all courses are expected to call attention to and to penalize for errors in English usage on the part of a student, and to require rewriting of papers which do not meet acceptable standards of English.

Financial Delinquency. A student who is delinquent in his financial obligations to the University, to any department or division of it, or to any University organization, shall not be allowed to register for the next term, to transfer his credits to another school, or to graduate from the University, provided that such obligation shall not include fines and penalties assessed against the student by other than University officers.

Special Examinations. A student regularly enrolled in the University may be given a special examination for credit for material mastered outside of formal instruction, provided the request for the examination is approved by the Registrar, the dean of his college, and the head of the department concerned. Application must be made in writing to the Registrar.

A student who has failed a course may not take a special examination to remove the failure, nor may a student take an examination for credit in an audited course.

Academic Probation, Dropping for Low Scholarship, Re-admission

UNDERGRADUATE COLLEGES

The following students shall be placed on academic probation:

1. The student who, during either of his first two semesters, fails to attain a grade point average of 2.0;
2. The student who, at the end of his third semester or any subsequent semester or term, fails to have a cumulative grade point average of 2.0;
3. The student who is re-admitted after being dropped from the University for academic reasons.

A student on academic probation shall be removed from probation at the end of a semester or term if he has achieved a grade point average of 2.0 and has a cumulative grade point average of 2.0.

A student, who, during his first semester, demonstrates that he cannot or will not do satisfactory work may be dropped upon recommendation of the dean of the college in which he has been registered.

The following students shall be dropped from the University:

1. The student who, after his first two semesters, has failed to achieve a grade point average of 2.0 for at least one of the semesters;
2. The student who, after his first three semesters, has failed to achieve a grade point average of 2.0 for at least two of the semesters;
3. The student on academic probation because of a low cumulative grade point average who fails to attain a cumulative grade point average of 2.0 after one semester on probation.

A student who has been dropped shall normally be re-admitted only after two semesters have passed and after he has presented evidence to indicate that he can and will do satisfactory work if readmitted. He must apply for readmission at least 30 days before the beginning of the semester in which he plans to enroll. He shall, however, have the right to appeal for waiving the two semester requirement on the grounds of exceptional hardship.

If a student is readmitted, he shall be required to achieve a grade point average of 2.0 for the first semester after readmission, and he shall further be required to

bring his cumulative grade point average up to 2.0 by the end of the second semester after readmission, or be dropped from the University.

PROFESSIONAL COLLEGES

Pharmacy. Definition: Pharmacy Standing is the overall grade point average for all professional and non-professional work accomplished subsequent to admission to the Professional Curriculum.

1. Any student who fails to achieve a pharmacy standing of 2.0 at the end of any semester shall be dropped from the University or placed on academic probation.
2. Any student who fails to achieve a pharmacy standing of 1.5 at the end of any semester shall have his record reviewed by the College of Pharmacy faculty and may be dropped from the University without a preliminary probationary semester.
3. Any student who, at the end of his first probationary semester, fails to have achieved a semester standing of 2.0 at the end of this semester shall be dropped from the University.
4. Any student who, at the end of his first probationary semester, achieves a 2.0 standing for that semester but fails to bring his pharmacy standing up to 2.0 will be continued on probation or be dropped from the University.
5. Any student who, at the end of his second consecutive probationary semester, fails to have achieved a 2.0 pharmacy standing shall be dropped from the University.
6. A student who has been dropped for academic deficiency may be readmitted on probation according to University regulations except that his academic requirements will be those outlined in items 3, 4, and 5 above.
7. Any student who, regardless of pharmacy standing, fails to have achieved a 2.0 standing for 2 consecutive semesters may be placed on probation.

Law. Any student who fails to make a numerical average of 60 during a semester will have his academic record evaluated by the law faculty and may be dropped from the University or placed on probation as the facts warrant. A student on probation who fails to make a numerical average of 60 in the probationary semester will be dropped from the University unless there are extenuating circumstances acceptable to the law faculty. A student who fails to make the following designated cumulative numerical average shall be dropped from the University unless he has made a grade point average of 60 for the semester just completed.

55 at the end of the one semester of Law
58 at the end of two semesters of Law
59 at the end of three semesters of Law
60 at the end of four semesters of Law

A student who has been dropped from the college will not be recommended by the Dean for re-admission to the college of Law until he has remained out of the college for a semester and a Summer Session and has received favorable consideration by the law faculty of a written petition stating good reasons why he can do satisfactory academic work.

ALL UNDERGRADUATE AND PROFESSIONAL COLLEGES

The dean of each college shall submit to the Office of the Registrar a complete list of students placed upon academic probation or dropped from the University within two weeks after the dean has received the grade reports from the registrar at the close of the semester or term.

A student who is on academic probation may not be employed by any department or college of the University. This shall not prevent any department or college from establishing higher standards for student employment.

A student who is on academic probation shall not be allowed:

1. To serve as an officer or committee member in any campus organization;
2. To participate in any University extra-curricular activity or in the activity of any University organization if the participation involves the expenditure of an appreciable amount of time.

At any time the dean of a college in which a student is enrolled may declare the student ineligible because of failure in current class work; at any time the dean of women or the dean of men may declare a student ineligible whose participation in an activity is judged to be detrimental to the student, the organization, or the University.

Students shall be removed from probation only on the basis of residence work at the University of Kentucky. Usually part-time work shall not be considered unless the student has been placed on probation because of unsatisfactory performance as a part-time student.

Re-admission of a student who has been dropped from the University shall be upon recommendation of the dean of the college in which the student is to be registered. However, the student shall have the right to appeal for a review of his case by the Scholarship and Attendance Committee of the University.

A student who has been dropped a second time shall not be re-admitted to the University.

Each student shall be presented with a copy of the rules that deal with probation, dropping for low scholarship and re-admission. He shall be responsible for being familiar with these rules and with their relationship to his situation.

Graduation

To be eligible for any degree, a student must have completed the requirements as approved by the University faculty. The student must file an application

for a degree with the dean of his college within two weeks after the beginning of the semester or summer session in which he expects to complete his work.

RESIDENCE REQUIREMENT

Residence—a requirement for a degree which specifies the minimum period during which a student must be registered on the main campus—is intended to provide an adequate contact with the University and its faculty for each student who is awarded a degree.

For an undergraduate degree, regardless of the length of time the student has attended the University, a minimum of 30 of the last 36 credits presented for the degree must be completed in residence. This rule may be waived for veterans, provided they present at least 30 credits of residence work.

Not more than 32 credits required for an undergraduate degree and not more than one-half of the requirements for a major may be gained by extension or correspondence. Under certain conditions, up to six credit hours and nine weeks of residence required for a master's degree may be satisfied by extension work taught by University instructors. No credit will be given in the Graduate School or in the professional colleges for correspondence courses.

Credit for work while registered at a University Community College shall be limited to freshman and sophomore courses. The maximum credit acceptable from University Community Colleges toward an undergraduate degree is 67 credit hours. This maximum is to be reduced by any credit hours earned while registered as a freshman or sophomore on the Lexington campus or elsewhere.

COMMENCEMENT HONORS

The bachelor's degree with honors in the student's major subject will be conferred upon the student who, in addition to having completed the requirements for the degree, shall have high standing in his major subject, passed with distinction a thorough comprehensive examination in his major subject, and been recommended by the faculty of the department in which his major work was done and by the dean of his college.

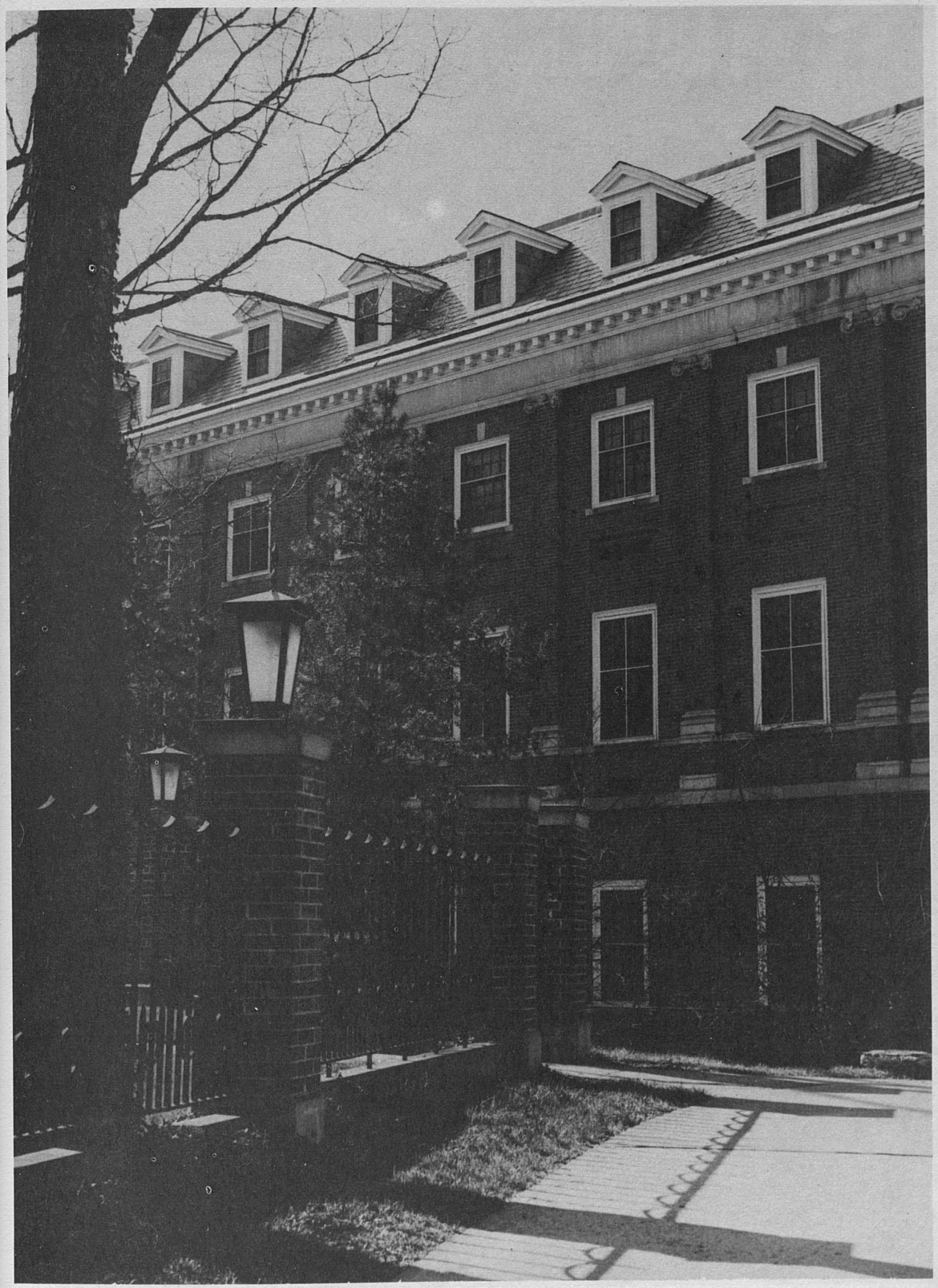
A student who attains a grade point average of 3.6 or higher for at least three years of work at the University (excepting extension and correspondence study) shall be graduated "With High Distinction." A student who attains a grade point average of 3.4 to 3.6 shall be graduated "With Distinction."

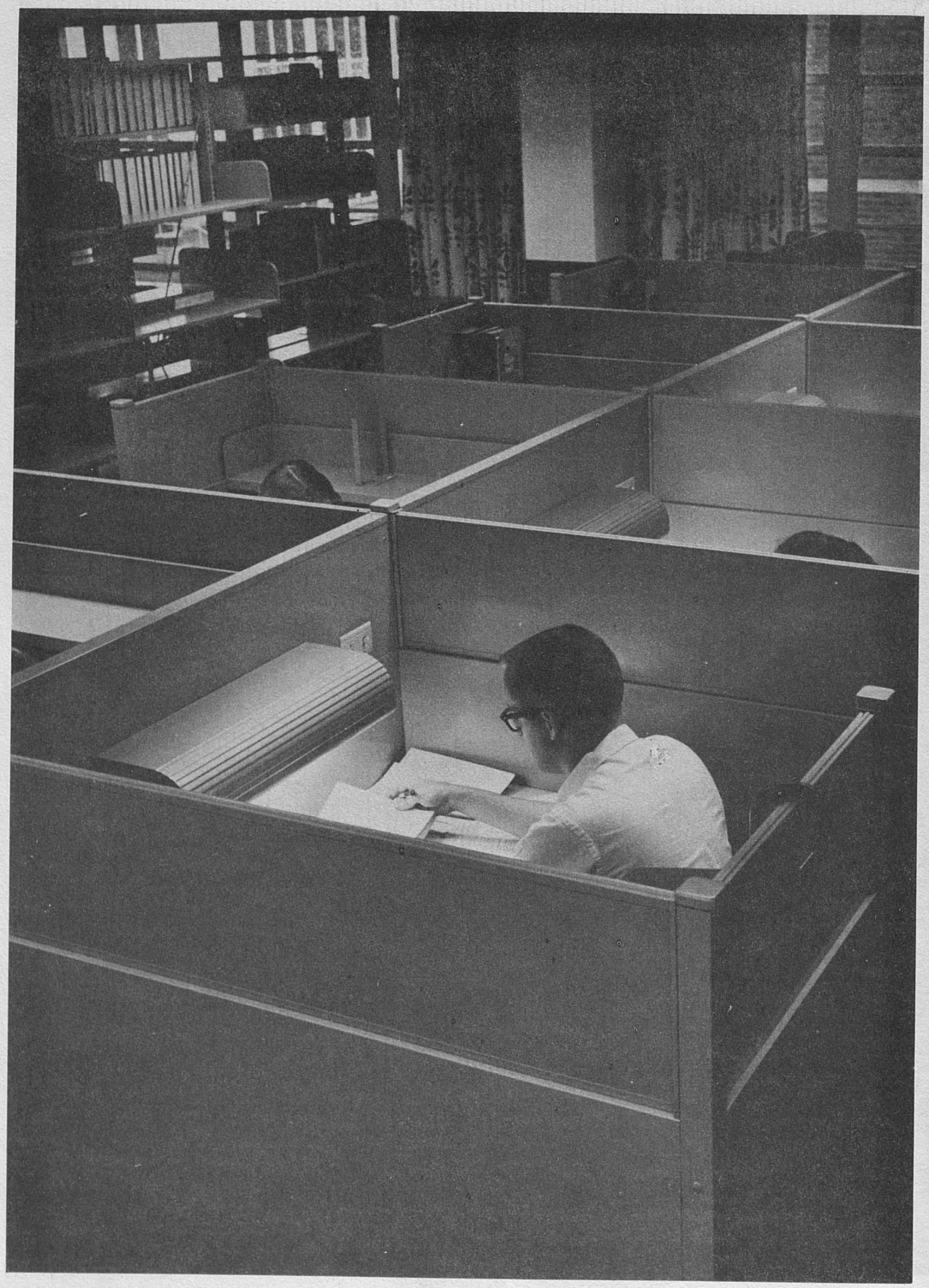
A student with a minimum of two but less than three years of residence work shall receive the appropriate Commencement honors if he attains a grade point average of 0.2 greater than those specified for three years of residence work.

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

Student Discipline and Control

The University expects all students to hold to the strictest standards of honesty and to conduct themselves in a seemly manner, bearing in mind that their conduct determines in a large measure their reputation and that of the institution.





Special Academic Opportunities

THE STUDENT ATTENDING the University of Kentucky is expected to develop through his work in the classroom, through daily contact with other persons of many interests, and through frequent reading in the University libraries. Some of the opportunities open to the student are described in this section.

Libraries

The University of Kentucky libraries house over a million volumes, ranking them among the largest in the South and Midwest. The libraries contain extensive collections of source materials—both printed and manuscript—in many fields, including complete runs of most major scientific journals and many others. Among the collections are a broad range of materials on Kentucky and Ohio Valley history, the works of numerous modern authors, tobacco literature, and the papers of such public figures as Alben W. Barkley, A. O. Stanley, and Jouett Shouse, which provide a detailed picture of twentieth century American political life.

A new addition to the main library doubles the size of the building and permits greater use of the facilities.

The general collections in the King Library and departmental libraries are on open shelves and are available to all students.

The University libraries regularly receive approximately 8,000 periodicals and are a depository for all U. S. Government publications.

Most of the books and research materials are housed in these areas of the Margaret I. King Library on the Lexington campus:

Periodical and Newspaper Reading Room—Current periodicals and newspapers, including Kentucky newspapers and some of the major indexes.

Reserved Book Reading Room—Books of required or recommended reading in the University courses.

Reference Room—Indexes and other reference works, such as encyclopedias, atlases, and bibliographies, to assist students in using library materials.

General Card Catalogue—List of all books, and other materials in University libraries, filed by author, title, and subject matter in one alphabet.

Circulation Department—In charge of books and bound periodicals available for general circulation or reference.

Special Collections—Manuscripts and other items of research value, especially in the field of Southern and Midwestern history, and microfilms, microcards, rare books, typographical materials, Kentucky music.

University and Educational Archives—Manuscript and printed material of various offices, colleges, departments and organizations of the University of Kentucky. Material on other educational institutions and Kentucky Dead of World War II and Korean War.

In addition to the Margaret I. King Library, the facilities of the University include small, highly selective collections for use of undergraduates at University centers and the following collegiate, divisional, and departmental libraries: Agricultural Experiment Station, Architecture, Art and Music, Biological Sciences, Chemistry and Physics, Education, Engineering, Geology, Home Economics, Horticulture, Law, Library Science, Mathematics, Medical Center, and Pharmacy.

The University of Kentucky is a member of the Midwest Interlibrary Center in Chicago, and the four million volumes of this institution are available to graduate students and faculty members.

The collection of books, periodicals, films, maps, and manuscripts in the University Libraries has been selected for the purpose of aiding the educational program of the University in teaching, in research, and in the promotion of general culture. In addition to serving the University faculty, students and staff, the libraries are available to residents of Fayette county and members of the University of Kentucky Library Associates. Other readers may request the use of books through interlibrary loans. A complete photographic laboratory makes it possible for scholars who live at a distance and graduate students not in residence to take full advantage of unique source materials in the University Libraries. Orders for microfilm, photoprints, and photostats should be addressed to the Photographic Service, University of Kentucky Libraries, Lexington, Kentucky.

Guidance in the use of the Library is provided by means of a Library Guide, available at the Circulation and Reference Desks, and through individual instruction

by a staff of trained librarians. Citizens who need the assistance of the Library staff in any problem may write to the Reference Librarian, University of Kentucky, Lexington.

The Honors Program

Purpose of the Honors Program. The University of Kentucky feels an obligation to provide teaching and facilities for study for students of different abilities. The University accepts as part of that obligation the nurture of gifted students, because such students stimulate other students and members of the faculty and in the long run will contribute to the intellectual leadership in the state and in the nation.

The purpose of the Honors Program is to attract students of unusual ability and achievement to the University and to provide them with suitable opportunities for intellectual development.

Opportunities for Able Students. The Honors Program is conceived to be essentially a challenge to outstanding students and an opportunity for them to find and to assume responsibilities equal to their abilities. Honors students are selected not only because of their demonstrated records as superior students but also because of their desire to continue to do superior scholarly work in the University. Through its Honors Program, the University tries to help able students by encouraging or inducing or provoking them to reach for high academic standards and achievement.

The heart of the Honors Program may be the opportunity for each student to develop and progress individually according to his own talents and interests, with inspiration and encouragement from other Honors students and concerned faculty members with whom he can associate.

In the Honors Program some students discover an opportunity to read, write, think, and study beyond or apart from curricular requirements. Some students find encouragement and stimulation to work hard in an environment of friendly competition. Some students find opportunity for companionship and friendship with teachers and fellow students devoted to scholarship.

Selection of Honors Students. Honors students for the freshman year are selected on the basis of their high school grades and their scores on the American College Test. A relatively small group of students is selected. These students must excel in scholarship. They must like to study. They must want to work hard with other good students in a difficult and competitive program of studies. They should have, or should want to develop, a wide range of intellectual interests. The Honors Program is intended for those good students who want educational opportunities to match their talents, a chance to stretch their minds, and an opportunity to study with other good students.

Second semester freshmen, first and second semester sophomores, and first semester juniors in the University may enter the Honors Program if they rank in the top 10% of their class in their College.

Study in the Honors Program. Every student in the University Honors Program enrolls in the college of his choice in the University. Every student participates in the Honors Program on a voluntary basis, subject to continuing approval of the Honors Program Committee.

A faculty Honors advisor for each student in the Honors Program is designated by the Dean of the College in which the student is enrolled, upon recommendation of the Honors Program Committee. The Honors advisor works closely with the student to develop a program of studies suitable to the abilities, needs, and interests of the student.

Honors students study together in Honors sections of some courses and in discussion groups or colloquia. In the rest of their courses they are in regular classes. Thus, they have opportunity to meet together and become well acquainted one with another and still mix with many other students in the University.

Honors students are encouraged to proceed to individual study and creative work as soon as they are ready in the judgment of their Honors advisors.

To remain in the Honors Program students are expected to maintain high academic standings, to enroll in Honors sections of courses, and to participate in independent work in their major area of study in their junior and senior years.

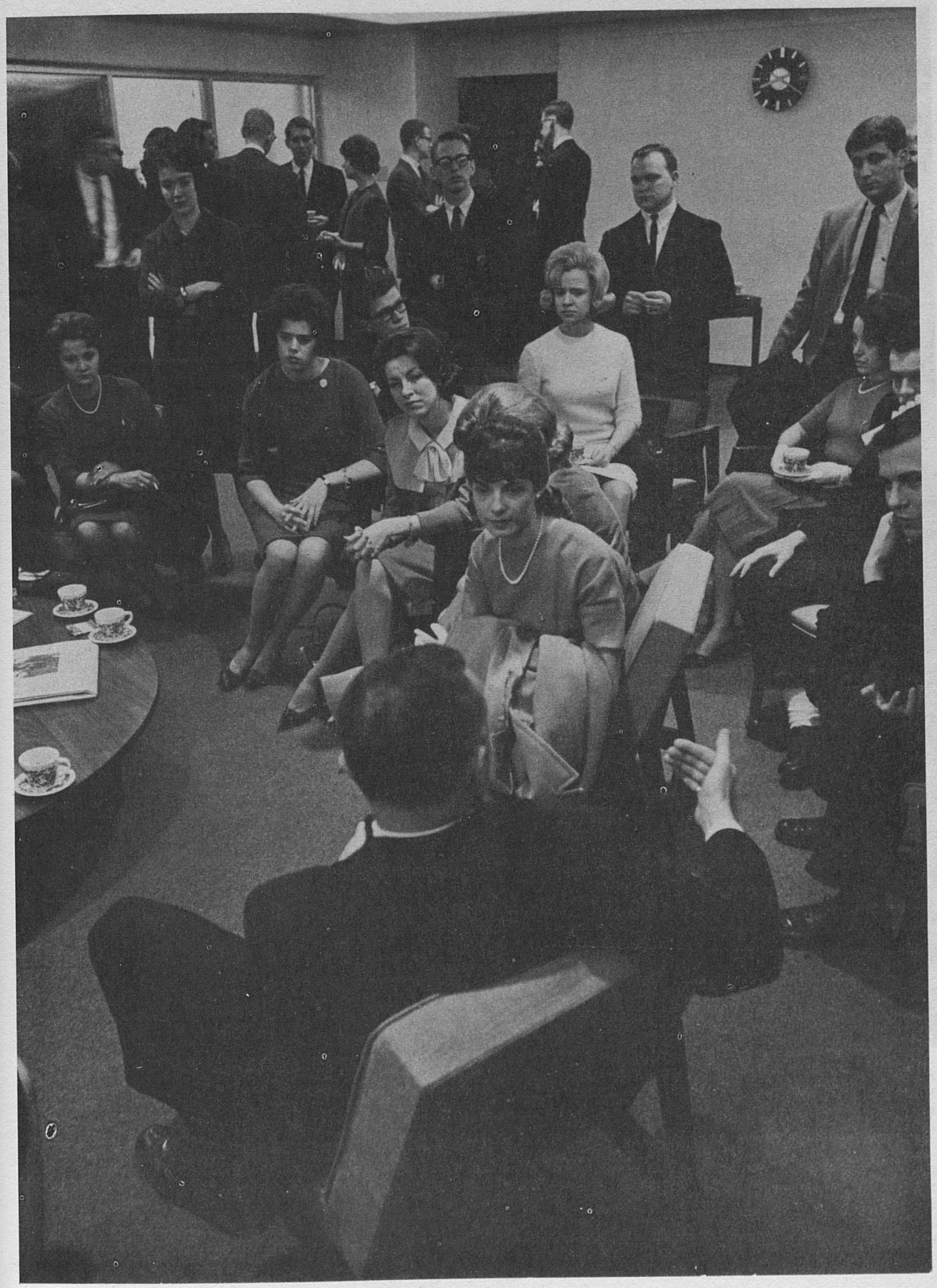
To graduate with Honors, students must have a high academic average, satisfy the requirements of their College and the Honors Program Committee, write an acceptable thesis or essay, take the Graduate Record Examination, and in some departments pass with distinction a comprehensive examination. Students who fulfill these requirements will have stated on their diplomas and official transcripts that they graduated in the University Honors Program.

Rewards. Rewards will inevitably come to those who earn them by their achievements; a sense of satisfaction, knowledge, friendships, prestige, graduate scholarships and fellowships, and good positions after graduation are among the rewards.

The Rotary Club Scholarship Fund has established several competitive scholarship awards and grants-in-aid for students in the Honors Program.

Also, freshmen in the Honors Program may qualify, with other students who are not in the Honors Program, for scholarships awarded by the University of Kentucky Scholarships Committee.

Information. The University Faculty Honors Program Committee welcomes and invites inquiry about the Honors Program from interested high school and college students. For further information write to Dr. James G. Morris, Honors Program Director, University of Kentucky, Lexington, Kentucky.







Student Services & Activities

Student Services

THE DEANS OF MEN AND WOMEN

The Dean of Men and the Dean of Women assist students with their problems and aid them in their adjustment to college life. They exercise general supervision over the non-academic welfare of all students.

STUDENT DISCIPLINE AND CONTROL

The University expects all students to hold to high standards of honesty and decorum, bearing in mind that their conduct determines in a large measure their reputation and that of the institution.

STUDENT MOTOR VEHICLES

All students registered as freshmen and sophomores at the University, regardless of the number of years they have attended college, and all students on academic or disciplinary probation are forbidden to possess and operate motor vehicles while attending the University unless given special permission by the Dean of Men or Dean of Women. This regulation applies to the University environment including the campus, the city of Lexington, and the greater Fayette County area. Students in the above categories must not bring motor vehicles to the University at any time without permission. All upperclass students who bring motor vehicles to this area must register them each term.

COUNSELING AND TESTING SERVICES

The services of the University Counseling and Testing Center are available to all students enrolled in the University. In addition, high school students seeking help in planning a college program may utilize these services. Counseling services are also available to staff and faculty. All interviews are confidential. There are no fees for testing or counseling.

The University Counseling Service has a staff of trained counselors for the purpose of helping students. Some typical student concerns are: ineffective study skills and habits, need for improved reading skills, difficulty in adjusting to the college environment, lack of a specific field of interest, vocational planning, inadequate interpersonal relations, feelings of depression, emotional insecurity, and more specific problems of a personal nature.

Testing facilities are available upon referral from the Counseling Service. Tests of intelligence, aptitude, achievement, personality, interest, study skills, and many others may be used, if the student wishes, to aid him in understanding himself and increasing his efficiency.

The University Counseling Service is located in Room 201 Administration Building. Appointments may be made by calling Extension 3394 or 3395.

The University Testing Service, Room 303, Administration Building, acts as a testing center for the administration of various standardized tests, e.g., Graduate Record Examination, Medical College Admissions Test, National Teachers Examination, and the like. All placement and classification tests administered to new and transfer students are given under the supervision of this office. The registration of entering students is not complete until the student has taken the required entrance test battery.

UNIVERSITY HEALTH SERVICE

Through the facilities of the Medical Center, the University provides physicians, nurses and other key personnel for students to consult for advice, counseling, or treatment in order to function more effectively. The University Health Service utilizes the following means to aid in counseling and caring for students:

1) A Health Report Form is mailed to the student who applies for admission to the University for recording of the student's health history and medical examination. This complete and confidential medical record helps the Health Service to be informed of the student's current health state, which may include problems for which he will need attention while here on campus. This record will enable the physicians more efficiently to render medical care and communicate with the student's personal physician.

2) Health surveys are conducted which include screening programs for tuberculosis and other disorders. Their purposes are two-fold: One for the student's health protection, and second for the protection of the University community.

3) Appointments may be scheduled for health questions or less urgent illnesses, and students with more urgent illnesses may be seen on a walk-in basis. Students with urgent illnesses who need attention outside of the usual clinic hours may consult the emergency room of the University Hospital in the Medical Center.

The aim of the University Health Service is to provide the student with the same personal and confidential health care to which he is accustomed with the many specialty and service functions which are usually only found in a Medical Center.

Further details may be found in the booklet describing Health Service benefits for students.

Cultural Opportunities

CENTRAL KENTUCKY CONCERT AND LECTURE SERIES

Programs in the Central Kentucky Concert and Lecture Series are arranged through the cooperation of the University with the Central Kentucky Concert Association and the Lexington Public Forum and are open to all students who have paid the full-time fee.

SPECIAL LECTURES

The University presents a number of other lectures throughout the school year. Among these are the presentations in the Blazer Lecture Series, sponsored by Mr. and Mrs. Paul G. Blazer of Ashland. A number of departments, such as English and Zoology, sponsor departmental series of lectures and films. Some of the presentations by the several organizations are highly specialized and appeal to a limited audience. Others are of general interest and attract members of the student body, faculty, and the general public.

MUSICALES

Sunday afternoon musical programs are arranged for the enjoyment of the students, faculty, and friends of the University. There is no admission charge.

UNIVERSITY ART GALLERY

A series of changing exhibitions is presented each year in the University Art Gallery under the direction of the Department of Art. These exhibitions include paintings, drawings, prints, photography, and sculpture by major masters of the past and present, work by contemporary artists of the region, and an Annual Student Exhibition.

DRAMATICS

Each year the Guignol Theatre presents a series of plays in which students, faculty, and others interested in dramatics may participate.

Student Activities

The University supports and encourages students to participate in extracurricular activities. The 184 campus organizations provide social, political, religious, cultural, and recreational opportunities and experiences. For students having special abilities and interests, there are departmental clubs, national and local organizations, and intercollegiate teams. Most of these groups are open to membership year round and welcome any interested student. Extracurricular activities contribute to the growth and development of the student and provide opportunities to be creative beyond his academic pursuits.

STUDENT CENTER

The Student Center might be called the focal point of the University campus. It is the one place where students, faculty, alumni and friends can merge in an informal environment. The Center's primary source of income comes from a portion of the student activity fee. It is, therefore, fitting that the policies of the building are made by the Student Center Board, composed of twelve students and two faculty advisors. With the recent addition, the floor area of the building grew to over 133,000 sq. ft. The new facilities include a theater, the Faculty Club, the University Book Store, and ane nlarged cafeteria, Grille, Browsing Room, and Music Room. The many conference rooms and the Grand Ballroom are used year round for all types of meetings and activities.

RELIGIOUS LIFE

Through the existence of student groups representing most major branches of Jewish and Christian faiths, spiritual growth may be nourished. The activities of these groups are coordinated through the Office of Religious Affairs and the Interfaith Council. Most student religious groups furnish trained personnel who may act as counselors and who are actively interested in the students' lives.

YMCA AND YWCA

The YMCA and YWCA sponsor student-centered programs such as discussions, forums, off-campus seminars and conferences, and significant service projects. These programs are held in the Student Center, in campus housing units, and at various locations throughout the nation and the world.

INTERNATIONAL STUDENTS

The University provides an International Student program which is beneficial in educational and cross-cultural experiences. Each year over two hundred International Students are enrolled from some forty countries. In the fall semester the International Student receives a special orientation program in which he is made aware of the academic and social opportunities on the campus and in the community. He is also aided in the adjustment to the American culture and introduced to many of the leading citizens of the Lexington area. The University maintains an International Student Office which helps the student with his special needs, such as immigration regulations, housing, academic, financial and personnel counseling. A limited number of scholarships is available for those who qualify.

STUDENT PUBLICATIONS

The Kentucky Kernel is the student newspaper, which is published four times weekly. The *Kentuckian*

is the University yearbook. Any interested student may work on these publications.

RADIO STATION

The University has its own FM station (91,300 megacycles), carrying the call letters WBKY. Students taking courses in Radio, Television and Films, and others of demonstrated talents, are permitted to gain actual broadcasting experience by filling positions on this station. From the WBKY studios, programs are also broadcast to WHAS, Louisville, the Lexington commercial stations, and other outlets.

FRATERNITIES

Nineteen (19) National Fraternities maintain chapter houses at the University of Kentucky. They include: Alpha Gamma Rho, Alpha Tau Omega, Delta Tau Delta, Farm House, Kappa Alpha, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Phi Sigma Kappa, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Tau Kappa Epsilon, Triangle, and Zeta Beta Tau.

Transfer students and freshmen who have completed twelve (12) hours and a 2.1 standing are eligible to pledge. Further information regarding the fraternity system may be obtained by writing the Dean of Men's Office.

SORORITIES

Twelve (12) National Sororities maintain chapters at the University of Kentucky. They are Alpha Delta Pi, Alpha Gamma Delta, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Kappa Alpha Theta, Kappa Delta, Kappa Kappa Gamma, Pi Beta Phi, and Zeta Tau Alpha.

All entering freshmen and all transfer women who are admitted to the University in good standing are eligible for sorority rush.

Sorority rushing activities are planned so that the major rush program takes place early in the fall. To participate in this rushing period, students must register prior to August 1st. Registration forms may be secured from the Dean of Women's Office on request.

COURSE NUMBERING SYSTEM

01 to 99—Non-credit and/or non-degree courses
100 to 199—Open to freshmen; undergraduate credit only
200 to 299—Sophomore classification required; undergraduate credit only
300 to 399—Junior classification required; undergraduate credit only
400 to 499—Junior classification required; undergraduate credit; graduate credit for non-majors only
500 to 599—Junior classification required; undergraduate and graduate credit
600 to 799—Graduate classification required

Courses may be approved for variable credits, e.g. (1-3), (2-6), etc. In no case, however, may the total credits exceed the maximum number authorized for the course.

Repeated registration in a course may be allowed if the course description carries the statement: "May be repeated to a maximum of ..... credits."

Number in parenthesis indicates the number of credit hours allowed for the course. "I, II, and S" indicate the fall semester, spring semester, and summer session, respectively.

ABBREVIATIONS

The University of Kentucky has established the following set of standardized abbreviations for its academic departments. These abbreviations should be used in making out class schedule cards and at other times when referring to specific course offerings.

Standardized Departmental Abbreviations
(alphabetical by abbreviation)

AEC—Agricultural Economics
AEN—Agricultural Engineering
AEX—Agricultural Extension
AGE—Agricultural Entomology
AGR—Agronomy
ANA—Anatomy
ANS—Anesthesiology
ANT—Anthropology
ARC—Architecture
ART—Art
AS—Aerospace Science
ASC—Animal Science
BA—Business Administration
BIL—Biology (Centers only)
BOT—Botany
BCH—Biochemistry
BSC—Behavioral Science
CBI—Cell Biology
CD—Community Dentistry
CDS—Conjoint Dental Science
CE—Civil Engineering
CHE—Chemistry
CL—Classics
CM—Community Medicine
CME—Chemical Engineering
COM—Commerce
CON—Conjoint
DIP—Diplomacy
DS—Dairy Science
ECO—Economics
EDU—Education
EE—Electrical Engineering
EM—Engineering Mechanics
ENG—English
FOR—Forestry
FPR—Fixed Prosthodontics
FPS—Fire Protection and Safety Engineering
GEN—General Agriculture
GEO—Geography
GLY—Geology
HE—Home Economics
HIS—History
HON—Honors
HOR—Horticulture
HUM—Humanities
HYG—Hygiene
JOU—Journalism
LAW—Law
LS—Library Science
MA—Mathematics and Astronomy
MB—Microbiology
ME—Mechanical Engineering
MED—Medicine
MET—Metallurgical Engineering
MFL—Modern Foreign Languages
MIN—Mining Engineering
MM—Materia Medica
MS—Military Science
MUS—Music
NUR—Nursing
OBG—Obstetrics and Gynecology
OD—Operative Dentistry
ODM—Oral Diagnosis and Oral Medicine
OP—Oral Pathology
ORT—Orthodontics
OS—Oral Surgery
PAT—Pathology
PCH—Pharmaceutical Chemistry
PDO—Pedodontics
PE—Physical Education
PED—Pediatrics
PEN—Periodontics and Endodontics
PGY—Physiology and Biophysics
PHA—Pharmacology
PHI—Philosophy
PHR—Pharmacy
PHY—Physics
PPA—Plant Pathology
PR—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PTY—Poultry Science
RAD—Radiology
RTF—Radio, TV, & Films
RS—Rural Sociology
SOC—Sociology
SUR—Surgery
SW—Social Work
VS—Veterinary Science
ZOO—Zoology

THE COLLEGES




CHEMISTRY



Arts & Sciences

THE AIM OF THE COLLEGE OF ARTS AND SCIENCES is to train the individual student as thoroughly as possible in the four years in the direction of his interests and powers, in order that he may lead a happy and useful life and contribute his share of leadership to social intellectual, economic, and political advancement.

The College strives to attain its purpose by imparting knowledge and by training the student in the proper methods of acquiring and using knowledge, to the end that he may be broadly informed and skilled in the solution of problems, and that he may develop habits of self-reliance, initiative, judgment, and those inner resources that lead to self-mastery and happiness.

The distinctive character of the College is that it insists on an acquaintanceship with the main fields of intellectual interest and, in addition, as deep a knowledge as possible in the time allotted in some one special field. While all students are trained along lines useful in various vocations, the College emphasizes preparation *for* vocations rather than *in* them by the building of a life, rich in interest, resourceful, capable of continuous growth and of adaptation to times and circumstances.

The College of Arts and Sciences embraces 27 departments and two schools: Aerospace Science; Anthropology; Art; Botany; Chemistry; Classics; Economics; English, Speech and Dramatic Arts; Geography; Geology; History; Hygiene and Public Health; Library Science; Mathematics and Astronomy; Microbiology; Military Science; Modern Foreign Languages and Literatures; Music; Philosophy; Physical Education; Physics; Political Science; Psychology; Radio, Television and Films; Social Work; Sociology; Zoology; the School of Journalism; and the William Andrew Patterson School of Diplomacy and International Commerce. These have been grouped into four divisions: Humanities; Social Studies; Physical Sciences; and Biological Sciences.

Admission. Requirements for admission to the College of Arts and Sciences, as a freshman, or with advanced standing, or as a special student, are the same as those outlined on preceding pages for the University. The College, however, recommends strongly that the student present for admission two units of mathematics.

Martin Marshall White, M.A., Ph.D., is Dean of the College of Arts and Sciences.

Freshman Advisors. Every student entering the college is assigned an academic advisor. The assignment is made on the basis of the student's interests and achievement. To minimize the possibility of the academic advisor's considering the new freshman as a major, heads of departments are not appointed as freshman advisors except where absolutely necessary. The dean of the college appoints the academic advisors annually.

The advisor makes out the student's course of study on the basis of information supplied by the Dean's office and by the advisee. He must be consulted before any changes are made in the schedule of classes the student is taking. The advisor in general holds personal conferences with each advisee, and makes recommendations to the proper university official with reference to living conditions, class schedules, etc. A freshman may upon the recommendation of the advisor be permitted to carry above a normal academic load.

Sophomore and Upper Division Advisors. The Dean of the college appoints, upon recommendation of the department, a professor in the department in which the student is doing his major work to act as the student's advisor. The advisor must approve the student's schedule of classes prior to the placement of the student in the various courses.

Probation Students. Students placed on academic probation by the Dean of the college are urged to utilize the services of the University Counseling Office. The parent is notified at the beginning of the probation period. During the semester the student is interviewed and every attempt is made to determine his difficulty. The attitude of the college toward probation students is that they need assistance and with the co-operation of the parents the college attempts to fulfill this need.

Courses. The College offers courses designed to meet the needs of various classes of students. They may be listed under the following heads:

1. General cultural courses with majors and concentration fields, leading to the degree of A.B. or B.S.

2. Professional courses leading to special degrees in journalism, in music, and in medical technology.

3. Professional courses in which the general requirements for the A.B. and B.S. degrees are fulfilled.

4. Preprofessional courses meeting the requirements for admission to professional schools.

5. Combined courses, by means of which students may save a year or more in gaining both the A.B. or B.S. and a degree in law, medicine, dentistry, forestry, or engineering.

6. Graduate courses leading to the master's and the doctor's degrees in the graduate school.

Degrees. The College offers courses leading to the following degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Journalism, Bachelor of Music, and Bachelor of Science in Medical Technology. In all cases the student is responsible for the meeting of the requirements for graduation.

THE DEGREE OF BACHELOR OF ARTS

For the degree of Bachelor of Arts the student is required to gain a total of 128 credits (exclusive of the required physical education) and 256 points; that is, a standing of 2.0. With the required physical education, a student is required to complete 130 credits and 260 points. The normal load per semester is 16 credits except while the student is completing the physical education requirement. In the departments of Classics, Anthropology, Art, Botany, Economics, Geology, Journalism, Modern Foreign Languages, Music, Philosophy, Physical Education, Psychology, Radio, Television and Films, Social Work, and Zoology, he must pass a final comprehensive examination on his major subject. The Political Science department requires a senior thesis. A Topical Major is required to write a comprehensive paper in the senior year.

THE DEGREE OF BACHELOR OF SCIENCE

The degree of Bachelor of Science will, if preferred, be granted under the same conditions as govern the degree of Bachelor of Arts, provided that the student has gained at least 60 credits in science (biological and physical).

The detailed conditions are as follows:

The Lower Division

GENERAL REQUIREMENTS

English, first and second semesters, freshman year, 6 credits.

General Hygiene, 1 credit.

Physical Education, 2 credits.

Foreign Languages—Twelve semester hours in one language, the first nine of which may be waived. The final semester of the intermediate year of the languages must be taken in residence. (Arabic, French, German, Greek, Hebrew, Italian, Latin, Japanese, Russian, Spanish.)

GROUP REQUIREMENTS

Humanities, sophomore year, 6 credits.

Social Studies, freshman or sophomore year, 6 credits. (Anthropology, Economics, Geography, History, Political Science, Sociology.)

Physical Sciences, freshman or sophomore year, 6 credits. (Astronomy, Chemistry, Geology, Mathematics, Physics.)

Biological Sciences, freshman or sophomore year, 6 credits. (Anthropology, Botany, Microbiology, Psychology, Zoology.)

WAYS IN WHICH THE GROUP REQUIREMENTS MAY BE SATISFIED

1. *The Humanities.* All lower division students will be required to complete a series of three introductory courses in the Humanities (for a total of six credits) to be chosen in any combination of three from the following courses, except that one, and only one, shall be either Humanities 203 or 204. (Each of these courses will carry two credits.)

   Humanities 200, Classicism: Graeco-Roman; Modern European.
   Humanities 201, The Renaissance; Romanticism.
   Humanities 202, Realism and Naturalism; the Contemporary.
   Humanities 203, Art; The Renaissance to the Present.
   Humanities 204, Music; The Renaissance to the Present.

2. *The Social Studies.* The student is permitted to choose any two of the following courses, to satisfy the group requirement in the social studies:

   History 108, 109, History of the U.S.; 104, 105, Modern Europe; Political Science 151, American Government; Anthropology 153, Sociology 153, 154, or Geography 153, 154, Societies Around the World; Anthropology 121, Introduction to Cultural Anthropology; Sociology 151, Introductory Sociology; Economics 251, 252, Principles of Economics.

3. *The Biological Sciences.** Any two of the following courses will satisfy the biological science requirement: Anthropology 100; Botany 101 or 125, 103; Microbiology 100, 102, 200; Psychology 100; Zoology 100.

4. *The Physical Sciences.** Students will be permitted to take work in either one or two departments in order to satisfy the physical science group requirement. The student may choose six or more credits from the following courses: Astronomy 191, 192; Chemistry 102, 104, 110, 112; Geology 104, 105, 110 with 104 or 105, 100, 112, 113 with 100, 214; Mathematics 101, 111, 112, 113; Physics 211, 213, 231, 232, 241, 242, 151, 152.

RULES AND PROCEDURES

1. Superior Students: Entering freshmen, in the upper twenty-five per cent of the classification scale, as determined by University of Kentucky classification tests, may substitute other courses in the groups for those courses which are set up especially to satisfy group requirements. Other students, with a standing of 3.0, may be granted the same privilege.

2. The requirements in whole or in part for English, for General Hygiene, and for any of the courses under Group Requirements, may be satisfied without credit by passing a departmental proficiency examination.

* 6 of the 12 credits in the biological and physical sciences requirement must be in laboratory courses.

The Upper Division

JUNIOR AND SENIOR YEARS

The student is required to gain at least 40 credits in a Field of Concentration. These 40 credits are to be elected subject to the approval of his advisor and the dean of the college, and must be in courses not open to freshmen. Courses outside of the formal field of concentration may be included in the required 40 credits on approval of the advisor and the dean. If the student elects to major in a particular department (for example, English), he is required to gain at least 15 of his required 40 credits in the subject in courses not open to freshmen. At least 14 credits in the field of concentration must be outside the major department. The college recognizes two types of Fields of Concentration:

1. Fields consisting of departmentally or generically related courses.
2. Fields consisting of topically related courses.

GENERICALLY RELATED FIELDS

The college recognizes four general fields of generically related subject matter:

1. LITERATURE, PHILOSOPHY, AND THE ARTS

This field includes Classics; Art; English, Speech, and Dramatics; Journalism; Linguistics; Modern Foreign Languages and Literatures; Music, Non-Western Studies; Philosophy; and Radio, Television and Films.

2. SOCIAL STUDIES

This field includes Anthropology, Commerce, Economics, Education, Geography, History, Law, Philosophy, Political Science, Psychology (social phases), Russian Area Studies, Social Work, Sociology, and Speech Pathology.

3. PHYSICAL SCIENCES

This field includes Aerospace Science, Chemistry, Engineering, Geology, Mathematics, Astronomy, Military Science, and Physics.

4. BIOLOGICAL SCIENCES

This field includes Anatomy, Physiology, Agriculture (biological phases), Anthropology (biological phases), Botany, Chemistry (biological phases), Hygiene, Public Health, Microbiology, Physical Education, Psychology (biological phases), and Zoology.

The dean and head of the major department will appoint an advisor for each student of the Upper Division. This advisor is to have general oversight of the student's work and especially of the content of the field of concentration.

During the last semester of the sophomore year, the student's program of concentration is to be worked out for the entire two years by the student and his advisor, and when approved by advisor and dean is filed in the dean's office and constitutes a part of the student's requirements for graduation. Alterations in this plan may be made if they are approved by the advisor and the dean.

A minimum of 6 credits is required as a prerequisite for a major in any department. As a general rule the prerequisites are to be acquired while the student is registered in the Lower Division.

In order to avoid working a hardship upon students who wish to secure teachers' certificates, it is provided that, if necessary, 6 credits in Education may be included in the 40 credits of the concentration field, in fields other than Social Studies.

A student electing a combination course in Arts and Medicine, Dentistry, Law, Forestry, or Engineering, is required to complete twenty credits in his concentration field, before transferring to the professional school.

TOPICALLY RELATED FIELDS

If a student has an interest which does not fall into one of the four regular fields of concentration, he may select a topic for concentration instead of a departmental major and choose his 40 hours of course work from any of the fields. Examples of such topics are: "Scientific Secretaryship," "Contemporary American Culture," and "Costume Design and Merchandising." The 40 hours of courses in the field must contribute to the topic and cannot be chosen from courses open to freshmen.

Students interested in a topical major will be referred by the Dean to the chairman of the committee in charge and this committee will aid the student in making out his upper division plan sheet.

To pursue a topical major the student must have earned a minimum academic standing of 2.5 during the freshman and sophomore years and must have the approval of the committee on topical majors which will require, as a rule, completion of the lower division group requirements as a prerequisite. The writing of a comprehensive paper is required in the senior year.

TUTORIAL WORK AND COMPREHENSIVE EXAMINATIONS

Students majoring in the departments of Anatomy and Physiology, Classics, Anthropology, Art, Botany, Economics, Geology, Journalism, Modern Foreign Languages, Music, Philosophy, Physical Education, Psychology, Radio, Social Work, and Zoology will be required to schedule tutorial or seminar courses as specified by their major departments and to take final comprehensive examinations covering their major work. Passing the comprehensive examinations is a prerequisite for graduation for major students in these departments. If a student fails to graduate because of failure in this examination, he may be given another examination when his major department is satisfied that he has made sufficient additional preparation.

A.B. OR B.S. WITH DEPARTMENT HONORS

The degree of A.B. or B.S. with Honors in the student's major subject will be conferred upon the student who, in addition to having completed the requirements for the degree, shall have (1) attained high standing in his major subject (2) passed with distinction a thorough, comprehensive examination in his major subject (3) been recommended for the said degree by the faculty of the department in which his major work was done. Students majoring in those departments that require the final comprehensive examination are automatically candidates for department honors.

INDEPENDENT WORK COURSES

A junior or senior, if his particular excellence in the department warrants it, may, with the approval of his major professor and dean, register for an independent work course in his major subject. A standing of 3.0 in the major is also required. Such a course is characterized by special assignments for study, weekly or bi-weekly conferences, reports, and

* 6 of the 12 credits in the biological and physical sciences requirement must be in laboratory courses.

semester papers of some sustained effort. Credit for such courses may be granted to undergraduates to an amount of not more than 12 credits. At the end of the semester a written report of the work in such a course, or a paper representing part of the work must be read before the staff of the department. A copy of this paper must be filed in the office of the head of the department concerned.

Independent work courses are defined by their larger scope, wider content, advanced point of view, and by a more rigorous demand of reading, writing, and thinking.

CLASSIFICATION IN FOREIGN LANGUAGES

a. The student who offers two high school units of a foreign language should register for the first semester of the intermediate course. Students who have had more than 2½ high school units should register for the second semester of the intermediate course.

b. No student whose native language is other than English, and who has had formal instruction in schools of his own country, may be permitted to take elementary, intermediate, or conversation courses in that language.

ELECTIVES IN OTHER COLLEGES

The student is permitted to elect and count toward graduation courses in the other colleges of the University, not to exceed 30 credits. Credits in the other colleges gained during the junior and senior years may, if not open to freshmen, be counted on major and field requirements. However, election of law courses by Arts and Sciences students is limited by the following regulations:

Students registered in this college may take work in the College of Law only on securing the consent of the Dean of the College of Law.

Students taking the combined six-year Arts-Law course must, before taking up law subjects, complete the first three years of Arts and Sciences work including all subjects required for the degree in this College.

RESIDENCE REQUIREMENTS

A minimum of 30 of the last 36 credits presented for the degree must be completed in residence at the University. In the College of Arts and Sciences the last 30 credits must be completed while registered in the college.

EXTENSION AND SPECIAL EXAMINATION

A maximum of 32 credits, taken by extension, special examination, or both, may be counted toward the baccalaureate. Not more than half of the credits required for the major may be gained by extension, special examination, or both.

COMBINED COURSES IN ARTS AND LAW, ARTS AND MEDICINE, ARTS AND DENTISTRY, ARTS AND FORESTRY, AND ARTS AND ENGINEERING

A student may combine his courses in Arts and Sciences and Law, Medicine, Dentistry, Forestry, or Engineering, gaining the A.B. or B.S. degree after three years in this college and one or more years in the professional school.

1. He must gain at least 98 credits in Arts and Sciences subjects, with a standing of 2.0 or more, before transferring to the professional school. For Arts-Law or Arts-Engineering he should have 100 credits plus physical education, with a standing of 2.3 on all work attempted, before transferring to either Law College or Engineering College.*

2. He must have met the specified requirements of the College of Arts and sciences (except hygiene, in Arts-Medicine) and have gained at least 20 credits in his field of concentration before transferring to the professional school.

3. He must have been registered in the College of Arts and Sciences for at least one full year, immediately preceding the completion of his Arts and Sciences requirements, and must have gained at least 30 credits in Arts and Sciences subjects.

4. He must spend at least one year in a College of Law approved by the Association of American Law Schools, or in an accredited Medical School, an accredited College of Dentistry as rated by the Dental Educational Council of America, an accredited school of Forestry, or an engineering school approved by the Engineers' Council for Professional Development.

5. He must in his professional courses secure sufficient credits to bring his total in the Arts and the professional work up to 128 credits exclusive of the required Physical Education, and must secure a standing of at least 2.0, or its equivalent, in the professional work. Professional courses duplicating Arts and Sciences courses, or duplicating courses elected in other colleges of the University by the student while registered in the College of Arts and Sciences, will not be counted in the total.

PRE-MEDICAL COURSES

The College of Arts and Sciences offers work preparatory for the study of medicine in compliance with the minimum entrance requirements of the American Medical Association and the Association of American Medical Colleges. However, most medical schools require considerably more than these minimum requirements.

MINIMUM REQUIREMENTS FOR ENTRANCE TO MEDICAL SCHOOLS

1 year English Composition
1 year Biology with laboratory
1 year Physics with laboratory
2 years Chemistry including

(a) General Chemistry
(b) Qualitative Analysis
(c) Quantitative Analysis
(d) Organic Chemistry

Electives sufficient for Junior classification

The student may pursue a combination Arts-Medicine curriculum, spending three years at the University before transferring to medical school and obtaining the A.B. or B.S. degree after the first year's work in medical school.

The student who completes a four years' course of study and thereby obtains his degree will have time to meet the requirements for entrance to all medical schools. Opportunity is thus afforded for a broader background in the natural sciences, social studies, and humanities, which will be of advantage both in medical school and in later life. The student may elect any field of concentration and may major in any department of the field which he desires.

The number of students applying annually for admission to medical colleges exceeds the number which can be admit-

* If a student enters the College of Law with only 98 credits he must complete 30 credits while in Law before he can receive the A.B. degree.

ted. Boards of admission consequently fill their quotas from those who are best prepared, or who have had three or four years of college work, or even a college degree. Furthermore, these boards seldom select a student who does not have a satisfactory standing, regardless of the number of years spent in college.

RECOMMENDATION FOR PROSPECTIVE MEDICAL STUDENTS

1. Consider the study of medicine only if you have a serious desire to follow this profession, and if you are capable of demonstrating this by successfully and satisfactorily completing your college courses. An applicant for entrance to medical school should have at least a 2.5 standing.

2. Rather early in your academic career, try to determine to what medical school or schools you will make application. Then, inform yourself as to the specific requirements and desires of these schools and try to conform to them. In order to do this it is advisable for you to write the Dean of the medical school or meet with him in an interview.

3. The College of Arts and Sciences has a faculty committee, known as the "Premedical Advisory and Recommendation Committee," the purpose of which is to advise prospective medical students and ultimately to recommend them for entrance to medical schools. When you enroll, you will be assigned by the Dean to a member of this committee who will be your advisor and with whom you should consult early and frequently in your premedical work. This committee collectively passes upon you as an applicant to medical school. Only the recommendation of this committee carries the endorsement of the University.

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF MEDICINE*

Freshman Year

First Semester	Crs.
CHE 110 or 102, General Chemistry	5
BOT 101, General Botany	4
MA 111, College Algebra	3
ENG 101, Freshman Composition	3
Military or Aerospace Science, or elective	2
Physical Education	1
Second Semester	
CHE 112 or 104, General Chemistry	5
ZOO 100, General Zoology	4
**MA 112, Plane Trigonometry	2
ENG 102, Freshman Composition	3
Military or Aerospace Science, or elective	2
Physical Education	1

Sophomore Year

First Semester	Crs.
ECO 251, Principles of Economics	3
German or French	3
†CHE 230 and 231, Organic Chemistry or	
†CHE 226, Analytical Chemistry	5
Humanities	2
PHY 211, General Physics	5
Military or Aerospace Science, or elective	2
Second Semester	
ECO 252, Principles of Economics	3
German or French	3
‡CHE 232 and 233, Organic Chemistry	5
Physics 213, General Physics	5
Military or Aerospace Science, or elective	2
Humanities	4

MA 111 and 112 are advised and should be taken sometime during the freshman year.

** It is strongly recommended that more mathematics (especially MA 113) be taken.

† Choice depending on length of preparatory course desired.

UPPER DIVISION

The student in his junior and senior years will proceed to complete the group and field requirements and the additional specific requirements demanded by the medical school to which he will apply for admission. He should consult both his major professor and his pre-medical advisor.

PRE-DENTAL CURRICULUM

Students who wish to take up the study of dentistry are advised to follow the two years' Pre-Medical curriculum which more than meets the pre-dental requirements specified by the Dental Education Council of America. With the two years' curriculum, entrance may be gained to all accredited dental schools with the exception of a very few which require three years of preparatory work. A combination Arts-Dental curriculum which is similar to that of Arts-Medicine may be followed.

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

Students planning to enter the ministry or the field of religious education should consult the advisor to pre-ministerial students, who will plan with them their schedule for the first year and help them in the choice of their major department after the first year.

All accredited theological seminaries require a degree for entrance. The American Association of Theological Schools recommends a curriculum including English (12-16 credits); Philosophy (6-12 credits); Bible or Religion (4-6 credits); History (6-12 credits); Psychology (2-3 credits; Foreign Language—one or more of the following: Latin, Greek, Hebrew, French, German (12-16 credits); Physical or Biological Sciences (4-6 credits); Social Sciences—two or more of the following: Economics, Sociology, Political Science, Social Psychology, Education (4-6 credits).

PRE-LAW COURSES

Three years of college credit (exclusive of certain specified courses) with a minimum standing of 2.3 on all work attempted normally will be required for admission to the College of Law. Students expecting to enter the College of Law later are advised to lay special emphasis on English, history, economics, political science, and psychology and should read carefully admission requirements of the College of Law. At least one semester of accounting is desirable.

Many students now complete their work for a bachelor's degree before enrolling in the College of Law. Such students usually major in Economics, Political Science or History though no specific field is required. All Pre-law majors should design their study program so as to fulfill Arts and Sciences requirements. They are thus assured of the broad background required by the College of Law and at the same time are taking a necessary step toward a Bachelor's degree in Arts and Sciences.

‡ Some medical schools require only an abbreviated course in Organic Chemistry.

PRE-PHARMACY

The equivalent of two years of liberal arts and basic sciences is required for admission to the professional program. This pre-professional training is offered in the College of Arts and Sciences.

MINIMUM REQUIREMENTS FOR ADMISSION TO THE COLLEGE OF PHARMACY

1 year English Composition
1 year Biology with laboratory (General Botany, General Zoology)
1 year Mathematics (Algebra, Trigonometry, or advanced mathematics)
1 year Physics with laboratory
1 year of Philosophy or its equivalent
1 semester of Economics

Chemistry,
(a) General Inorganic, including qualitative analysis
(b) Quantitative Analysis

Electives sufficient to total 67 hours (Junior classification).

The electives are chosen from such areas as—

Ancient and Modern Languages	History
Anthropology	Humanities
Art	Mathematics
Commerce	Music
Economics	Philosophy
Education	Psychology
English and Speech	Sociology
Geography	

Total Semester hours of credit required, 67.

It is recommended that the student distribute his electives among several disciplines, rather than concentrate in any particular area.

All students must demonstrate a minimum proficiency in typing, must offer it as an elective, or must be concurrently registered in an elementary typing course to be eligible to begin the professional course.

Admission to the College of Pharmacy is limited to sixty students.

RECOMMENDED COURSES PREPARATORY TO THE STUDY OF PHARMACY

First Year

Course	Cr.
CHE 110—General Chemistry	5
ENG 101—English Composition	3
BOT 101—General Botany	4
MA 111—College Algebra	3
CHE 112—General Chemistry	5
ENG 102—English Composition	3
ZOO 100—Principles of Animal Biology	4
MA 112—Trigonometry	2
*PHI 200—Introduction to Philosophy	3

Second Year

PHY 211—General Physics	5
CHE 226—Analytical Chemistry	5
*PHI 220—Elementary Logic or	
*PHI 230—Ethics	3
PHY 213—General Physics	5
ECO 251—Principles of Economics	3
**MB 200—Principles of Bacteriology	4

Additional electives chosen from the areas above to total, with these requirements, 67 semester hours.

* The Philosophy requirement (6 hours) may be satisfied by six hours of Humanities (HUM 200, 201, 202, two hours each). Analytic Geometry and Calculus may be substituted for either or both of these Philosophy courses. For those who expect to enter Graduate School later we strongly advise the Mathematics.

** If the pre-pharmacy requirements are obtained in a college which does not offer Microbiology, a suitable elective may be chosen instead, and the microbiology may be taken after admission to the College of Pharmacy.

ARTS-FORESTRY DEGREE

The University of Kentucky offers a program in forestry in cooperation with the School of Forestry of Duke University. Upon successful completion of a five year coordinated course of study, a student will have earned the Bachelor of Science degree from the University of Kentucky and the professional degree of Master of Forestry from the Duke School of Forestry.

A student electing to pursue this curriculum spends the first three years in residence at the University of Kentucky. Here he obtains a sound education in the humanities and other liberal arts in addition to the sciences basic to forestry. Such an education does more than prepare a student for his later professional training; it offers him an opportunity to develop friendships with students in many fields, expand his interests, broaden his perspective, and fully develop his potentialities.

The student devotes the last two years of his program to the professional forestry curriculum of his choice at the Duke School of Forestry. Since Duke offers forestry courses only to senior and graduate students, the student from the University of Kentucky finds himself associating with a mature student body. He is well prepared for further personal and professional development.

Candidates for the forestry program should indicate to the Dean of the college that they wish to apply for the Liberal Arts-Forestry curriculum. Admission to the college is granted under the same conditions as for other curricula. At the end of the first semester of the third year the college will recommend qualified students for admission to the Duke School of Forestry. Each recommendation will be accompanied by the student's application for admission and a transcript of his academic record at the University of Kentucky. No application need be made to the School of Forestry prior to this time.

THE PREPARATION OF TEACHERS

Students of the College of Arts and Sciences may, by electing courses in the College of Education, qualify for teachers' certificates within the 130 hours required for graduation from the State Department of Education. For specific information concerning courses consult the statement of the College of Education.

AEROSPACE SCIENCE

FACULTY

Professor: John Elliott Delap (A.B., University of Maryland, 1961), CHAIRMAN. *Assistant Professors:* Ronald B. Allen, (M.S., Kentucky, 1950), Fred B. Augsburg

(B.A., Kentucky, 1952), Nathan B. Durham, Jr. (B.S., California, 1957), Wallace H. Franklin (B.B.A., Oklahoma, 1953), Robert W. Harman (B.S., Denver, 1949), Ernest G. Kerby (B.S., Florida State, 1952), James S. Tucker (M.A., DePauw, 1959), John L. Wilson (M.A., Southeastern State College, 1959).

THE AIR FORCE RESERVE OFFICERS TRAINING CORPS

The University of Kentucky maintains a unit of the senior division of the United States Air Force Reserve Officers' Training Corps.

Mission: To provide training in Aerospace Science for the purpose of qualifying selected students for Commission as Second Lieutenant in the United States Air Force Reserve. This program is designed to fit men physically, mentally and morally for pursuits of peace as well as for duties as leaders in the Armed Forces in times of national emergency.

Educational Aim: To train the student in skills and abilities which will be valuable to him in his civilian career as an executive as well as in military service should his nation call upon him to serve.

General Policy: The policy adopted by the Department of the Air Force is to qualify students for positions of leadership in times of national emergency and to inculcate in them a respect for lawful authority, and to teach the fundamentals of the military profession and aerospace science.

The primary purpose of all training is the development of character, leadership, and good citizenship; character through high standards of honor and integrity, leadership through the acquisition and use of knowledge, good citizenship through the idea of service as the real measurement of accomplishment and success.

The Air Force Reserve Officers' Training Corps curriculum is applicable to all students regardless of their field of academic study and is designed to produce junior officers possessing qualities and attributes essential to their progressive development in the Air Force Reserve and the Air National Guard.

The Aerospace Science Department offers two programs leading to a Bachelor of Arts or Bachelor of Science degree with a major in Aerospace Science. In addition to general admission requirements, candidates must possess to a high degree the intellectual, physical and moral attributes desired in an officer of the armed services.

Books and Uniforms: Aerospace Science textbooks are provided by the Air Force.

Cadet uniforms and equipment are furnished to Basic Cadets on a loan basis. Each student is required to make a deposit of $10.00 with the Business Office of the University to cover the cost of any lost or damaged articles. This deposit is refunded upon turn in of the items.

Students formally enrolled in the Advanced Course receive an individually tailored Air Force Officer's uniform which they retain upon commissioning. In addition, they receive, at the time they enter Active Duty, a $300.00 allowance to defray the cost of additional uniform requirements.

Basic Course: The Department of Aerospace Science offers a two year Basic Course which is elective and is open to those full time students who are citizens of the United States and are physically qualified in accordance with standards established by the University Health Service.

Advanced Course: The elective and Competitive Advanced Course, including attendance at one Summer Training Unit (four weeks), is open to selected students with the approval of the President of the University and the Professor of Aerospace Science. Advanced Cadets must possess to a high degree the intellectual, physical and moral attributes desired in an Officer of the Armed Forces. Physical and mental examinations conforming to current Air Force standards will be administered prior to admission to the Advanced Course. Upon completion of the Advanced Course and attainment of a Baccalaureate Degree, the student receives a Commission as Second Lieutenant in the United States Air Force Reserve. Reserve Officers on Active Duty in the Air Force may compete for a Commission in the Regular Air Force.

Flight Instruction Program: Those Advanced Cadets who are physically and mentally qualified for flying training will receive, at no cost to themselves, a program of flying instruction which includes thirty hours of ground school in addition to thirty-six hours of dual and solo flying time under the supervision of competent flight instructors at Bluegrass Field. This portion of the Advanced Course normally leads to the award of a Private Pilot License.

Course Descriptions

AIR FORCE ROTC BASIC COURSE

First Year

101,102 *Aerospace Science, I, ROTC.* (2 ea.)
A general survey of aerospace power designed to provide the student with an understanding of the elements of aerospace power and basic aeronautical science. Leadership Laboratory. Three hours per week.

Second Year

211,212 *Aerospace Science II, ROTC.* (2 ea.)
A comparative study of world military forces to include Free World land and naval forces, Free World air forces, Communist military systems, and trends in the development and employment of military power. Three hours per week. Prereq: 101, 102.

ADVANCED COURSE, AIR FORCE ROTC

A summer training period at a regular Air Force base will be required of all students as part of this course.

Third Year

331,332 *Aerospace Science III, ROTC.* (3 ea.)
A survey course about the nature of war; development of airpower in the United States; mission and organization of the Defense Department; Air Force concepts, doctrine, and employment; astronautics and space operations; and the future development of aerospace power. Includes the United States space programs, vehicles, systems, and problems in space exploration. Five hours per week. Prereq: Basic ROTC course or equivalent.

303 *AFROTC Summer Training Unit.* (0) S
Familiarization flying, field exercises, individual weapons, USAF base activities and equipment, and Air Base problems. Prereq: AS 301, 302.

Fourth Year

311,312 *Global Relations 1, 2.* (3)
Military law, courts and boards; introduction to international relations; military aspects of world political geography; briefing for commissioned service. Leadership Laboratory. Five hours per week. Prereq: 301, 302.

313 *AFROTC Flight Instruction Program.* (2)
Approximately 36 hours of aerial flight instruction, five hours of classroom instruction on Federal Aeronautics Agency Regulations. Prereq: Category I Aerospace Science 301, 302; Senior standing.

395 *Independent Work* (2-6 crs.)
A study of an advanced problem on subject area in aeronautical science under the guidance of a departmental staff member. One discussion per week; term paper required. Prereq: AS 101, 102, 201, 202, 301, 302; Senior standing; major and 3.0 standing in Aerospace Science.

AGRICULTURE

A student in the College of Arts and Sciences may elect toward the A.B. or B.S. degree a total of 30 credits from other colleges of the University.

ANATOMY

See listing under College of Medicine

ANTHROPOLOGY

FACULTY

Professors: Frank J. Essene (Ph.D., California, 1947), CHAIRMAN. George Patterson Faust (Ph.D., Princeton, 1932), Marion Pearsall (Ph.D., California, 1950), Douglas Wright Schwartz (Ph.D., Yale, 1955), Charles Ernest Snow (Ph.D., Harvard, 1938). *Associate Professor:* Art Gallaher (Ph.D., Arizona, 1956). *Assistant Professors:* John Edward Barrows (Ed.D., Kentucky, 1959), Kenneth Edward Harper (Ph.D., Kentucky, 1959), Donald Lee Hochstrasser (Ph.D., Oregon 1962), Thomas Weaver (Ph.D., California, 1965). *Instructor:* Louise M. Robbins (M.A., Indiana, 1964).

Anthropology is the study of Man in all his aspects, past and present. It must concern itself with anything that concerns Man, and thus it synthesizes the materials of a large number of separate studies and disciplines in both the social and biological sciences. Basically, anthropology is divided into (1) Physical Anthropology, which deals with man's origin, evolution, and growth, the relationships of races, and man's physical response to his total environment; and (2) Cultural Anthropology, which includes prehistory (or archaeology), and ethnology (or social anthropology), the study of the culture of various societies. Attention has been directed chiefly toward "primitive" peoples, in the attempt to learn how such aspects of man's behavior as religion, language, social controls, and economic activities have developed and interacted on each other. But "civilized" groups, as well, are studied with the broad viewpoint and emphasis on understanding the total scope of man's life.

While many of the Department's advanced courses are planned for students interested in professional training, the introductory courses Anthropology 100 and 121 should be of much wider interest. They survey the entire field, and show the relations between all the facets of human activity throughout man's long occupation of the earth. These courses emphasize the essential unity of mankind and furnish a basis for further work in many different fields of the social and biological sciences. In addition, properly qualified students in other departments will find the advanced courses sufficiently broad in scope to be of value to them. Anthropology 526, Culture and Personality, is of particular interest to Psychology majors.

Students who intend to major in Anthropology should know that advanced degrees are required by nearly all institutions that hire professional anthropologists. The best positions go to persons with the doctoral degree but many with only a master's degree are being hired as so many colleges are adding Anthropology to their curricula. Properly qualified anthropologists presently have a wide variety of employment possibilities, not only in teaching or research, but in the many practical applications of this field.

The Museum of Anthropology has a series of public exhibits on the pre-history of Kentucky and a number of study exhibits which are correlated with the teaching program. In addition, the extensive collections of artifacts and skeletal remains from prehistoric sites in Kentucky provide varied opportunities for advanced research problems, especially in archaeology and physical anthropology.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in any related fields during the sophomore, junior and senior years, including the major work.

Requirements for a Major. Prerequisites: Anthropology 100 and 121; Anthropology, Sociology, or Geography 153. *Required:* A minimum of 24 credits of advanced work including Anthropology 582 repeated once, and at least one course in each subdivision of Anthropology, namely, in ethnology, archaeology, and physical anthropology; plus a comprehensive examination in the Senior year.

Course Descriptions

100 *Introduction to Physical Anthropology.* (3) I, II, S
Meets Biological Sciences requirements. An outline of the biological aspects of man. Demonstration lectures on man's origin and development, the primates, fossil man, races, race mixture, human biology, and growth. Authorized to be offered by television. *Snow.*

101 *Osteometric Techniques.* (1) I, II, S
An elementary laboratory study of the skulls of primates, fossil man and modern race populations; morphological measurements and classification techniques. Prereq: ANT 100 or concurrent. *Snow.*

121 *Introduction to Cultural Anthropology.* (3) I, II, S
Meets Social Studies requirements. Archaeological remains of prehistoric man and the arts, industries, social organization, languages, and religions of modern primitive peoples. *Essene, Schwartz.*

153 *Societies Around the World.* (3) I, II
Meets Social Studies requirements. Comparative study of Eskimo, Navajo, and Baganda as preliterate, primitive societies in difficult environments. Same as Geography and Sociology 153. *Staff.*

200 *Anthropometry.* (2) I, S
A laboratory course teaching the technique of measuring and describing the human body and skeleton from anatomical landmarks with emphasis upon the practical application to human engineering. *Snow.*

221 *Primitive Inventions.* (3) I
Ancient and modern inventions of primitive peoples. Theoretical approach combined with handling and manufacturing artifacts. *Essene.*

383 *Special Problems.* (2) I, II, S
Designed for upper division students who undertake minor research problems in archaeology, ethnology and physical anthropology in regular consultation with the instructor. May be repeated to maximum of 8 credits. *Staff.*

402 *Human Identification.* (2) II
A systematic and detailed study of human morphology (bones and soft parts) for purposes of identification. Two hours laboratory, one hour lecture per week. *Snow.*

500 *Physical Anthropology.* (4) II
A lecture-laboratory course on the biological nature of man. The fields of the primates, fossil man, races, race mixture, constitutional anthropology and human growth with supplementary laboratory exercises will be covered. Prereq: ANT 100 or 3 hours in any other biological science. *Snow.*

501 *Human Ancestry.* (4) I
A lecture-laboratory course on human origins and the fossil remains of Pleistocene man throughout the world. The lineage, formation, and inter-breeding of modern racial groups will be stressed. Prereq: ANT 500 or special permission. *Snow.*

510 *History of Anthropological Theory.* (3)
Description and analysis of significant anthropological ideas in their historical context; the growth of the theoretical concepts in physical anthropology, archaeology and ethnology. *Schwartz.*

514 *General Linguistics: Phonetics.* (3)
Articulatory description of speech sounds; practice in recognition and control. (Same as ENG 514.) Prereq: consent of instructor. *Faust.*

515 *Descriptive Linguistics II: Phonemics.* (3)
An investigation of speech-sounds and systems of speech-sounds. Also, attention to both speech and writing as communication systems. (Same as ENG 515.) Prereq: ANT 516. *Faust.*

516 *Descriptive Linguistics I: Morphemics.* (3)
An explanation of some of the ways speech-sounds are put together in patterns so as to form languages. (Same as ENG 516.) Prereq: consent of instructor. *Faust.*

521 *Ethnology of the New World.* (3) II
Cultures and physical types of the American Indians during and after white settlement. (Northwestern North America is not included.) Prereq: ANT 543 or equiv. course on Near East. *Essene.*

522 *North Pacific Coast Cultures.* (3) I
Ethnology of the maritime peoples of western North America and Northeast Asia. Cultural connections between America and Asia will be stressed. Lecture, 3 hours. Prereq: ANT 121. *Essene.*

523 *Ethnology of Oceania.* (3) I
A survey of the various cultures to be found on the islands of the Pacific Ocean. Both aboriginal and modern acculturated societies will be considered. *Essene.*

524 *Mythology.* (3) II
The unwritten literature of primitive peoples. Themes, diffusion, style, literary devices, and function of myths. *Essene.*

525 *Applied Anthropology.* (3) II
Application of anthropological methods to contemporary practical problems such as acculturation, colonial administration, intercultural education, and race relations. Prereq: ANT 121. *Essene, Gallaher.*

526 *Culture and Personality.* (3) I
The cultural basis of personality. Personal character considered as the result of culturally fostered patterns. The ideal personality in several selected societies. (Also listed as SOC 526.)

527 *Culture Change.* (3) I
Internal change and contact change in cultures; agents and conditions promoting change; an analysis of innovation, dissemination, integration, diffusion, acculturation, and related concepts. Prereq: ANT 121. *Gallaher.*

533 *Social Anthropology.* (3) II
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: Consent of instructor. Same as SOC 533. *Pearsall.*

541 *Archaeological Theory and Method.* (3) II
The concepts and aims of archaeology, its history as a scientific discipline and its present role in the social sciences. Attention to basic principles in field work and to recent advances. *Schwartz.*

542 *North American Archaeology.* (3) I
Origin and growth of prehistoric American Indian cultures north of Mexico as revealed by archaeological data. *Schwartz.*

543 Beginnings of Civilization (3) I
Prehistory of the Near East, the earliest evidences of agriculture, pastoralism, pottery, smelting, writing, law codes, irrigation, astronomy, kingships, building of stone, priesthood, temples, coined money. Prereq: One course in ANT. *Schwartz.*

544 *Diffusion of Civilization.* (3) II
Prehistory of the Far East, Europe, and Negro Africa and ethnology of primitive tribes in these areas. The spread of Near Eastern civilization provided the basis for higher culture developments. Prereq: ANT 543 or equivalent course on the Near East. *Essene.*

545 *Archaeology of Kentucky.* (3) II, S
A rapid survey of the more important prehistoric cultures found in North America and the sequence of cultures found in Kentucky to the time of the white settlers. *Schwartz.*

546 *Prehistoric Meso-America and Peru.* (3) I
An intensive study of the native American civilizations, their origins, development, and achievements. *Schwartz.*

547 *Cultures of the Southwestern United States.* (3) II
Development of sedentary and nomadic Indian peoples, from earliest times to the present. Emphasis on Puebloan, Mogollon, and Hohokam archaeology and continuity with modern Indians. *Schwartz.*

561 *Anthropology: Man and His Works.* (3) I, S
Survey of the major fields of anthropology, physical, prehistory, and ethnology and a guide to source material. Designed for students not contemplating further work in anthropology. *Staff.*

581 *Independent Work in Anthropology.* (3) I, II, S
Prereq: Major and a standing of 3.0 in the dept. May be repeated 3 times for a maximum of 12 credits. *Staff.*

582 *Tutorial Seminar.* (2) I, II, S
Anthropological methods and theory. May be repeated three times for a maximum of 8 credits. Prereq: Major in anthropology. *Staff.*

731 *Seminar in Comparative Social Organization.* (2) II
A seminar for advanced students. Emphasizes principles in the comparative study of social systems; the role of kinship, age, sex, locality, and voluntary associations in determining relationships between individuals and between groups in non-literate and literate societies. May be repeated once. Same as Sociology 731. *Gallaher.*

768 *Thesis.* (0) I, II, S
Residence credit for the master's degree. May be repeated once.

770 *Seminar.* (2) I, II, S
Intensive work in particular fields of anthropology. All students during a given semester will be assigned related phases of the same problem. Designed primarily for students working toward a master's degree in anthropology. May be repeated once. *Staff.*

790 *Research Problems in Anthropology.* (3) I, II, S
Intensive study in the fields of Physical Anthropology, Archaeology and Ethnology with qualified staff members. Term papers required. May be repeated three times. *Staff.*

ART

FACULTY

Professors: Richard Borden Freeman (A.M., Harvard, 1934), CHAIRMAN. Clifford Amyx (M.A., Kentucky, 1943), C. Raymond Barnhart (M.A., Ohio State, 1936). *Assistant Professors:* Anne G. Green (M.A., Columbia,

1945), Jerrold Maddox (M.F.A., Indiana, 1959), James K. Loveless (M.F.A., Indiana, 1960), William B. Stephens (M.A., Texas, 1964), Frederic M. Thursz (M.A., Columbia, 1954), John R. Tuska (M.F.A., Alfred University, 1959). *Instructors:* Sanford Eisen (M.A., New York University, 1960), Fred I. Sauls (M.A., California, 1963), Janis Karlis Sternbergs (M.A., Latvian Art Academy, 1932).

As a department within the College of Arts and Sciences, the Department of Art is concerned that its majors shall have a liberal education. Hence, all students in art are grounded in the accepted foundations of a liberal education: science, social studies, language and the humanities. This kind of education should result in a command of ideas and a mastery of skills which will afford graduates the possibility of creative action through life. A departmental faculty of professional artists and scholars is dedicated to these purposes.

The University of Kentucky has one of the best equipped fine arts buildings in the country. There are modern studios for creative work in drawing, painting, printmaking, sculpture and ceramics; classrooms and conference rooms for the critical study of art; a large study collection of photographs and facsimile reproductions; an adequate collection of slides; an excellent fine arts library; and an art gallery which in size, design, and lighting is well suited to offer a wide variety of art.

The Department offers two separate majors: (1) a straight art major for those wishing a liberal arts education built around the study of art, and (2) a combined art and education major for prospective teachers of art in the public schools.

1. *The Art Major* provides for a balanced program of studio classes for creative work in painting, sculpture, printmaking, etc., with, at the same time, lecture and conference courses in the history, criticism, and philosophy of art. These two types of experience complement one another in the study of art, and a synthesis is made in a senior seminar. Since some students demonstrate an aptitude for scholarly research, others for creative studio work, these difference are recognized in a system of independent-work courses where the qualified student may have separate and individual instruction.

Students with professional intentions in the Applied Arts (Industrial Design, Interior Design, Advertising Design and Illustration, etc.) will find that the basic courses offered by the Department of Art constitute excellent preparation for advanced work in these fields. In addition, appropriate electives can be chosen from courses given by other departments and colleges.

2. *The Art-Education Major* has been developed in cooperation with the College of Education. Students graduating with a major in art-education are fully qualified to teach art in the elementary schools. Teaching in the secondary schools usually calls for work beyond the A.B. degree, and the present tendency is to require the M.A. degree which again includes studies in both art and education.

The Graduate Program in Art for the M.A. degree allows for emphasis in any one of three broad fields: (1) creative work in painting, sculpture, constructive design, printmaking, etc.; (2) critical studies and research in art, comparative studies in art, music, literature, etc.; (3) research and planning in art-education. In each case a written thesis is required. And in all cases the masters' candidates continue to balance their course work between studio classes for creative work and classes in the history of art, criticism and aesthetics.

Upper Division Requirements

Requirements in the Field of Concentration: 40 credits in advanced work in the field of Literature, Philosophy, and the Arts, including the Major work.

Requirements for a Major in Art. Prerequisites: ART 100, 101, 110, 130, 200, 201, 210, and 236 or 237. *Required:* A minimum of 26 credits of advanced work in Art, including courses 500, 509, 12 credits in studio courses, 9 credits in the history and theory of art; and a comprehensive examination in the senior year.

Requirements for a Major in Art Education. (College of Arts and Sciences) *Prerequisites:* ART 100, 101, 110, 130, 200, 201, 210 and 237. *Required:* 11 credits in advanced studio courses, including ART 330, 242, 310, and 336, 9 credits in public school art, including ART 170, 172 and 577, 10 credits in history and theory of art, including ART 564 and one more history course, 500 and 509, 4 credits to be chosen within one of the studio areas; and 22 credits in Education, including EDU 202, 325, 342, 440 or 444, and 450.

Course Descriptions

GENERAL COURSES

100,101 *Orientation in Art.* (1 ea.) I, II
Introduction to the major forms of visual art, with detailed study and analysis of original works of art. Discussions, studio and gallery presentations, art films, etc. Required of and open only to prospective majors in art.

105 *Forms of Art.* (2) I, II, S
Evolution of forms in art; style; relation of styles to cultural context. *Green.*

500 *Criticism of Art.* (3) I
History and theory of criticism in the visual arts. Contemporary problems in criticism. Analyses, interpretations, evaluations. *Amyx.*

509 *Seminar in Art.* (1) I, II
Current problems in art; correlations of theory and practice; discussions and reports. For seniors and graduates majoring in art. The seminar is prerequisite to the comprehensive examination. May be repeated for a total of 4 credits. *Staff.*

592 *Aesthetics.* (3) II
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts, in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. (Same as PHI 592.) *Amyx.*

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. *Staff.*

DRAWING, PAINTING AND PRINTMAKING

110 *Beginning Drawing and Painting.* (2) I, II
Basic concepts and procedures in drawing and painting. Media: pencil, charcoal, ink, casein and watercolor. Six studio hours. *Staff.*

112,113 *Descriptive Drawing.* (2 ea.) I, II, S
A course designed for students majoring in the sciences and engineering. Descriptive drawing, freehand perspective, technical problems in rendering and illustration. Pencil, pen and ink, charcoal and watercolor. *Sternbergs.*

115 *Painting. (For non-art majors)* (2) I, II, S
A general studio course for students not intending to major in art. Study of color, form and space as expressive elements in the making of pictures. Instruction in various media. Six studio hours. May be repeated once for a total of 4 credits. *Sternbergs.*

210 *Intermediate Drawing and Painting.* (2) I
Creative representation based upon analytic study of natural forms. Figure, still life and landscape. Media: charcoal, ink, casein and watercolor. Six studio hours. Prereq: ART 110.

310,311 *Intermediate Painting.* (3 ea.) I, II, S
Principles of pictorial structure and composition. Still life and landscape. Medium: oil. Prereq: ART 210. *Maddox, Thursz.*

312,313 *Printmaking.* (2 ea.) I, II
Technical instruction in printmaking processes: lithography, etching, woodcut. Six studio hours. Prereq: ART 210. *Sternbergs.*

395 *Independent Work: Painting, Printmaking.* (3) I, II, S
Individual work in drawing, painting and printmaking. Prereq: Major and a standing of 3.0 in the department. May be repeated twice for a total of 9 credits. *Staff.*

510 *Advanced Painting.* (3) I, II, S
Individual development in creative painting. May be repeated twice for a total of 9 credits. Prereq: ART 311. *Maddox, Thursz.*

615 *Traditional and Experimental Media in Painting.* (3) I, II, S
A survey of historical and contemporary procedures and materials with sustained problems in mural and easel painting. Preparation of grounds and consideration of permanency in pigments, vehicles and supports. Prereq: 3 credits in advanced painting. *Staff.*

783 *Problems in Painting and Printmaking.* (3) I, II, S
Sustained individual problems in drawing, painting and printmaking. Prereq: 12 credits in upper division studio work and consent of the instructor. May be repeated twice for a total of 9 credits. *Staff.*

SCULPTURE, CERAMICS AND DESIGN

130 *Basic Design.* (2) I, II
Training in basic design skills. Creative construction in common materials; logical development of unified forms. Six studio hours. *Barnhart, Green, Sauls, Tuska.*

236 *Beginning Sculpture.* (2) II
Wood carving. Problems of sculptural form and composition. Six studio hours. Prereq: ART 110, 130. *Barnhart, Sauls.*

237 *Beginning Sculpture.* (2) II
Clay modeling. Problems of sculptural form and composition. Prereq: ART 110, 130. *Tuska.*

242 *Graphic Design.* (2) I, S
Basic training in the design of printing; lettering; layouts and presentation. Six studio hours. Prereq: ART 110 or 112. *Sternbergs.*

243 *Graphic Design.* (2) II
Continuation of 242. Problems in the design of posters; illustration, etc. Six studio hours. Prereq: ART 242. *Barnhart.*

247 *Art in Advertising.* (2) II
Advertising as a problem in vision and expression; its relation to art forms and concepts. Four studio hours and weekly problems. Prereq: Junior standing in Commerce, Journalism, or Art. *Barnhart.*

330 *Advanced Sculpture and Design.* (3) I
Special problems in one field or aspect of design. Intensive analysis and sustained creative work in a chosen problem. Nine hours studio work. Prereq: ART 130 and 236 or 237. *Barnhart, Sauls.*

336,337 *Ceramics.* (3 ea.) I
The design, construction, glazing and firing of pottery. Nine hours studio work. Prereq: ART 130 and 237 or consent of instructor. *Tuska.*

397 *Independent Work: Sculpture, Ceramics and Design.* (3) I, II
Individual research and experimental work in technical and theoretical problems of design. May be repeated twice for a maximum of 9 credits. Prereq: Major and a standing of 3.0 in the department. *Staff.*

780 *Problems in Sculpture, Ceramics and Design.* (3) I, II, S
Sustained individual problems and experimental work in the technical and theoretical problems of design. Prereq: 12 credits in upper division studio work and consent of instructor. May be repeated twice for a total of 9 credits. *Staff.*

HISTORY OF ART

200 *Art History Survey: Primitive to Medieval Art.* (2) I
A survey of the major art forms from primitive through ancient and medieval periods. Emphasis on the development of major styles. Required of prospective majors in art. *Eisen.*

201 *Art History Survey: Renaissance to Modern Art.* (2) II
Continuation of 200. A survey of major styles and of major artists from the early Renaissance to the present. Required of prospective majors in art. *Staff.*

252 *History of Architecture.* (2) I
A survey of architectural developments from ancient times through the 18th century. Analysis of Classical, Medieval, Renaissance, and Baroque styles.

253 *History of Architecture.* (2) II
A study of architecture in the 19th and 20th centuries.

399 *Independent Work: History, Criticism.* (3) I, II, S
Individual research: history, criticism, aesthetics. Prereq: Major and a standing of 3.0 in the department. May be repeated to a maximum of 9 credits. *Staff.*

554 *Ancient Art.* (3) I
The art of the ancient cultures of the Mediterranean and West-Asian world through Greek and Roman times. Emphasis on classical art. *Eisen.*

556 *Medieval Art.* (3) II
The art of Byzantium and the Near East and of the Latin and Germanic cultures in the West; Romanesque and Gothic Art in Northern Europe. Emphasis upon Christian Art. *Eisen.*

558 *Renaissance Art in Italy.* (3) I
The arts of the Renaissance in Italy from the late middle ages through the sixteenth century. Italian humanism; analyses of style; study of individual masters. *Eisen.*

559 *Renaissance Art in Northern Europe.* (2) II
The arts of the Renaissance and Reformation outside Italy from the late middle ages through the sixteenth century. Northern humanism; analyses of style; study of individual masters.

560 *Baroque Art.* (3) II
The arts of the Reformation and Counter-Reformation in Europe from the mid-sixteenth century in Italy through the eighteenth century in France and Germany. The Baroque and Rococo styles; study of individual masters. *Amyx.*

562 *Nineteenth Century Art.* (3) I
The arts in Europe and America from the mid-eighteenth century through the nineteenth century. Consideration of social and economic changes in relation to art; study of individual artists. *Amyx.*

563 *Art in America.* (2) II
A survey of American architecture, sculpture, painting, illustration, handicrafts, industrial design, etc., from Colonial times to the present. *Amyx.*

564 *Twentieth Century Art.* (3) II
The arts of the twentieth century in Europe and the Americas. Consideration of social and technological changes in relation to art; study of individual artists. *Amyx, Thursz.*

664 *Studies in Contemporary Art.* (3) II
Intensive study of the content of selected 19th and 20th century works. Emphasis, according to works chosen, upon parallels with contemporary theory and procedure in the sciences, psychology and philosophy; consideration of influence from relativism, psychoanalysis, Gestalt psychology, mathematical and social theory. Prereq: ART 564 and 500 or 592. *Amyx.*

781 *Problems in Art History and Criticism.* (3) I, II, S
Sustained individual research and interpretation in history, criticism, aesthetics. Prereq: 12 hours in art history and criticism and the consent of the instructor. May be repeated twice for a total of 9 credits. *Amyx, Eisen.*

ART EDUCATION

170 *Public School Art.* (3) I, II, S
Essentials of public school art. The development of vision and art in the child; the major forms of two-dimensional art. Creative problems in drawing and painting. For students in elementary education. Two hours lecture-discussion; four studio hours. *Stephens.*

171 *Studio for Art 170.*

172 *Public School Art.* (3) I, II, S
Continuation of Art 170, 171. Emphasis on the three-dimensional forms of art, and the relation of art to visual environment. Creative problems in sculpture and design. For students in elementary education. Two hours lecture-discussion; four studio hours. Prereq: ART 170. Stephens.

173 *Studio for Art 172.*

379 *Art Education Workshop.* (1) S
Creative problems, lectures and discussion in public school art. Primarily for in-service teachers. Thirty class hours. Prereq: ART 170, 171.

575 *Art in Elementary Schools.* (2) S
An advanced course for in-service teachers in elementary schools. Programs of instruction related to the development levels of vision and expression in the child. Lectures, conferences, studio work, and reports.

577 *Art in Secondary Schools.* (3) II, S
Art for teachers in secondary schools. The literature of art education. Courses of study. Teaching materials. Lectures, conferences, and reports. *Barnhart, Stephens.*

670 *School and Community Art.* (3) I, S
Analyses of the social function of art; organization of school and community programs in art; case studies of existing programs. Emphasis on relation of school programs to community needs. Prereq: ART 564, 575 or 577; SOC 220; EDU 732 or 661; or consent of the instructor. *Stephens.*

BIOLOGY

Biology 101 and 102 will be taught at the University centers only. Students expecting to transfer to the Lexington campus should be warned that it would be unwise to take Biology 101 without following it by Biology 102. The equivalent cannot be obtained by following Biology 101 with Zoology 100 or Botany 101.

Course Descriptions

101 *Biology.* (4)
An elementary course concerned with a study of plant and animal organisms, including man, and designed to serve both the major and non-major in an understanding of biological principles and processes. Two lectures and two laboratories per week.

102 *Biology.* (4)
A continuation of BIL 101. Two lectures and two laboratories per week. Prereq: BIL 101.

BOTANY

FACULTY

Distinguished Professor: Herbert Parkes Riley (Ph.D., Princeton, 1931), CHAIRMAN. *Associate Professors:* Edward Tankard Browne, Jr. (Ph.D., North Carolina, 1957), Carl Ernest Henrickson (Ph.D., Ohio State, 1950). *Assistant Professor:* Jasper Henry Barkdoll Garner (Ph.D., Iowa, 1954). *Instructor:* John C. Warden (A.B., B.S., Chicago, 1955).

The elementary courses of the Department of Botany are designed to give the general student a knowledge of the basic principles of plant life, to show him the relation of plants to man, and to give him a better understanding of his environment. These courses are fundamental to students of agriculture, forestry, and pharmacy and will satisfy part of the premedical requirements of most medical schools. The advanced courses lead to an undergraduate major in botany with emphasis upon morphology, classification, physiology, and cytogenetics and should be of interest to students of applied botanical sciences.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of Biological Sciences including the major work.

Requirements for a Major. Prerequisites: Botany 101 and 103 or equivalents. *Required:* A minimum of twenty credits of advanced work in Botany and the passing of a comprehensive examination.

Course Descriptions

101 *General Botany.* (4) I, II
Principles of botany. Cells and tissues; the structure and physiology of the root, stem, and leaf; reproduction in flowering plants. Two lectures and two two-hour lab periods per week. *Staff.*

102 *Laboratory for Botany 101.*

103 *Plant Kingdom.* (3) II
Structure, life cycles, and biological relationships of typical lower plants and gymnosperms. Two lectures and one two-hour lab period per week. Prereq: BOT 101, 102 or 125. *Garner, Warden.*

104 *Laboratory for Botany 103.*

125 *General Plant Biology.* (3) I, II, S
The principles underlying the structure, physiology and reproduction of flowering plants. Three lectures per week. Students cannot receive credit for BOT 125 and 101. *Staff.*

201 *Local Flora.* (4) II, S
The identification and recognition of the vascular plants primarily of Kentucky, including an introduction to the use of manuals, herbarium, field study, and the principles of taxonomy. Two lectures and two two-hour labs per week. Prereq: BOT 101 or 125. *Browne.*

202 *Laboratory for Botany 201.*

219 *Dendrology.* (2) I, II
Primarily a field course in which a student is taught how to identify and recognize trees by their bark, bud and leaf characters. Summer and winter conditions studied. Two lectures per week. Prereq: BOT 101 or 125. *Browne.*

240 *The Origin of Cultivated Plants.* (3) II
Archaeological, historical, and biological evidence for the place and time of origin of many plants useful to man and the relation of these plants to ancient centers of civilization. Three lectures per week.

400 *Fundamentals of Biology for Secondary School Teachers.* (4)
A course designed to aid the teacher in the selection of subject matter and in the presentation of modern biology to high school students. Lectures, discussions, laboratories, ten hours per week. Prereq: Employment as high school teacher. (Same as Zoology 400.)

401 *Laboratory for Botany 400.*

402 *Advanced Topics in Biology for Secondary School Teachers.* (4)
A treatment of selected topics from the point of view of modern developments designed to aid the high school teacher to keep abreast of changes in theory and practice; to increase his knowledge of subject matter, and to provide better motivation for his students. Lectures, discussions, and demonstrations, eight hours per week. Prereq: Employment as high school teacher and consent of instructor.

501 *Plant Physiology.* (3-5)
Basic principles of plant physiology; the physiological processes of green plants and the effect of the environment on these processes. Lecture, 3 hours; Laboratory, 2 two-hours during regular session. Prereq: BOT 101, 102 or 125, CHE 112, 113 or 104, 105 or equiv. *Henrickson.*

502 *Laboratory for Botany 501.*

506 *Special Problems.* (3) I, II
Independent work in some phase of advanced Botany. May be repeated three times for a maximum of 12 credits. Prereq: consent of instructor. *Staff.*

507 *Morphology of Algae.* (3) I
The economic value of algae and the structure and life histories of representative forms of the various groups. Three two-hour lab periods per week. Prereq: Six credits of botany. *Warden.*

513 *Ecology.* (4) I
The interrelations that exist between plants and their environment. Three lectures and one two-hour lab period per week. Prereq: Six credits of Botany. *Warden.*

514 *Laboratory for Botany 513.*

515 *Seminar.* (1) I, II
Readings and reports on special topics. Required of all senior botany majors. May be repeated once. *Staff.*

521 *Anatomy of Vascular Plants.* (4) II
The nature and origin of primary and secondary tissues and their distribution in plant organs; the use of anatomical information in phylogeny, ecology, pathology and other research areas. Two lectures and two two-hour lab periods per week. Prereq: Six credits in Botany. *Warden.*

522 *Laboratory for Botany 521.*

524 *Mycology.* (4) I
The structure, life history, and physiology of the fungi and their relations with and effects on other plants and animals. Two lecture-discussions and two two-hour lab periods per week. Prereq: BOT 101, 102 or its equivalent. *Garner.*

525 *Laboratory for Botany 524.*

526 *Advanced Mycology.* (4) II
Detailed examination of the structure and physiology of specific groups of fungi that are of economic importance. Two lecture-discussions and two two-hour lab periods per week. Prereq: BOT 524, 525 or its equivalent and consent of instructor. *Garner.*

527 *Laboratory for Botany 526.*

528 *Plant Cytology.* (4) I
The structure of plant cells; mitosis and meiosis. Lectures four hours and four hours lab per week. Prereq: 3 credits in the Biological Sciences. *Riley.*

529 *Laboratory for Botany 528.*

530 *Introduction to Heredity.* (3) II
The principles of heredity and their physical basis. Three lectures per week. Prereq: 3 credits in the Biological Sciences. *Riley.*

532 *Genes and Their Action.* (3) II
The nature and action of genes. Physiological genetics. Three lectures per week. Prereq: BOT 530 or equivalent. *Riley.*

534 *Cytogenetics.* (3) II
Cytological and genetic evidence for the chromosome theory. Chromosome aberrations and their importance in heredity and evolution. Three lectures per week. Given in alternate years. Prereq: BOT 528 and 530 or equivalent. *Riley.*

541 *Plant Pathology.* (3)
Significance, nature, causes, and methods of control of plant diseases. Lectures and discussion, two hours; lab, two hours. Prereq: BOT 101. (Same as PPA 541.) *Chapman.*

542 *Laboratory for Botany 541.*

551 *Taxonomy of Vascular Plants.* (4) II
A study of the principles and practices of taxonomy and a detailed consideration of the families of vascular plants. Two lectures and two two-hour labs per week, including field trips. Prereq: BOT 101, 102, 103 and 104 or consent of instructor. *Browne.*

552 *Laboratory for Botany 551.*

560 *Plant Microtechnique.* (3) II
The principal methods used in the preservation and preparation of plant materials for microscopic examination; basic microscopy; techniques for measurement and illustration. Six hours of laboratory per week. Prereq: BOT 101, 102 or 125. *Browne.*

701 *Advanced Plant Physiology.* (4)
A study of metabolism, mineral nutrition and hormones in green plants. The physiology of growth and development. Lecture and discussions, three hours; lab, two hours. Prereq: CHE 236 or 432; BOT 501 or consent of instructor. *Henrickson.*

702 *Laboratory for Botany 701.*

735 *Biosystematics.* (3) I
Principles in the application of data from the fields of ecology, genetics, cytology, morphology, phytogeography, and physiology to the solution of taxonomic problems. Lecture two hours and one two-hour lab per week. Prereq: BOT 551, 552, 530 and 534. *Riley.*

736 *Laboratory for Botany 735.*

738 *Radiation Genetics.* (4)
Types of ionizing radiations and their effects on the hereditary mechanism; the induction of gene mutations and chromosomal aberrations by radiation. Two lectures or discussions and four hours lab per week. Given in alternate years. Prereq: BOT 528 and 530 or equivalent. *Riley.*

739 *Laboratory for Botany 738.*

768 *Residence Credit for Master's Degree.* (0)
May be repeated once.

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely.

770 *Seminar.* (1)
Reports and discussions on various topics in botany. One hour. May be repeated five times for a total of six hours. *Staff.*

790 *Research in Plant Morphology.* (4)
Graduate students prepared for independent work will be assigned to investigations in anatomy, histology, or special morphology of plants. May be repeated twice for a maximum of 12 credits.

791 *Research in Mycology.* (4)
Those desiring to carry on investigations in mycology should have had BOT 524, 525, or the equivalent. Suitable work will be suggested to students desiring to enter this field. May be repeated twice for a maximum of 12 credits. *Garner.*

792 *Research in Plant Physiology.* (4)
Graduate students with adequate preparation in plant physiology, physics, and chemistry may carry on independent investigations in plant physiology. May be repeated twice for a maximum of 12 credits. *Henrickson.*

793 *Research in Systematic Botany.* (4)
Graduate students may carry on independent work that may be used in preparation of their thesis. May be repeated twice for a maximum of 12 credits. *Browne.*

794 *Research in Cytogenetics.* (4)
Independent investigations in cytogenetics and radiation genetics. In connection with his investigations, the student will be expected to master the literature and present a report. May be repeated two times for a maximum of 12 credits. *Riley.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely. *Staff.*

CHEMISTRY

FACULTY

Distinguished Professor: Lyle Ramsay Dawson (Ph.D., Iowa, 1935), CHAIRMAN. *Professors:* Ellis Vincent Brown (Ph.D., Iowa State, 1936), Hartley Clayton Eckstrom (Ph.D., Iowa, 1937), Ellwood Meacham Hammaker (Ph.D., Rutgers, 1940), Jacob Robert Meadow (Ph.D., Johns Hopkins, 1933), Paul Gregory Sears (Ph.D., Kentucky, 1953), Walter Thomas Smith, Jr. (Ph.D., Indiana, 1946), William Frederick Wagner (Ph.D., Illinois, 1947). *Associate Professors:* Rodney Elmer Black (Ph.D., Wisconsin, 1942), William Donald Ehmann (Ph.D., Carnegie Institute of Technology, 1957), John Miles Patterson (Ph.D., Northwestern, 1953), William K. Plucknett (Ph.D., Iowa State, 1942). *Assistant Professors:* James Edward Douglass (Ph.D., Texas, 1959), Donald Edgar Sands (Ph.D., Cornell, 1955), Stanford Lee Smith (Ph.D., Iowa State, 1961), Donald H. Williams (Ph.D., Ohio State, 1964), Joseph William Wilson (Ph.D., Indiana, 1961).

The Department of Chemistry offers training leading to the Bachelor of Science degree with a major in chemistry and the Bachelor of Arts degree with a major in chemistry.

Commercial subjects combined with training in this department constitute preparation for technical salesmen, technical service men, liaison agents between laboratory and plant, or secretaries in scientific or industrial laboratories. Persons majoring in chemistry may choose library techniques as electives with the expectation of becoming technical librarians.

By including certain courses in Education in the requirements for the A.B. degree, the student may become well prepared for teaching science and mathematics in the high school.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE WITH CHEMISTRY AS A MAJOR

Freshman Year

First Semester	Crs.
ENG 101—English Composition	3
CHE 110—General Chemistry	5
CHE 001—The Chemical Profession	0
MA 111—College Algebra	3
MA 112—Trigonometry	2
HYG 109—Hygiene	2
Physical Education	1
	16

Second Semester	Crs.
ENG 102—English Composition	3
CHE 112—General Chemistry	5
CHE 002—The Chemical Profession	0
MA 113—Analytics and Calculus I	4
Biological Science	4
Physical Education	1
	17

Sophomore Year

First Semester	
CHE 230—Organic Chemistry	3
CHE 231—Organic Chemistry, Lab	2
CHE 003—The Chemical Profession	0
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics, Lab	2
Social Studies	3
	17

Second Semester	
CHE 232—Organic Chemistry	3
CHE 233—Organic Chemistry, Lab	2
CHE 004—The Chemical Profession	0
MA 212—Analytics and Calculus, III	4
PHY 232—General College Physics	3
PHY 242—General College Physics, Lab	2
Humanities	2
	16

Junior Year

First Semester	
CHE 440—Physical Chemistry	3
CHE 441—Physical Chemistry, Lab.	2
CHE 532—Qualitative Organic Analysis	3
CHE 005—The Chemical Profession	0
MFL 121—Elementary German	3
Social Studies	3
Humanities	2
	16

Second Semester	
CHE 442—Physical Chemistry	3
CHE 443—Physical Chemistry, Lab.	2
CHE 006—The Chemical Profession	0
Biological Science	3
MFL 122—Simple German Reading	3
Humanities	2
ENG 181—Basic Public Speaking	3
	16

Senior Year

First Semester

CHE 510—Advanced Inorganic Chemistry	3
CHE 520—Elementary Radiochemistry	2
CHE 395—Independent Work	2
CHE 007—The Chemical Profession	0
MFL 225—Readings in Chemical German	3
Elective	3
Elective	3
	16

Second Semester

CHE 522—Instrumental Analysis	4
CHE 572—Seminar	1
CHE 395—Independent Work	2
CHE 008—The Chemical Profession	0
MFL 226—Readings in Chemical German	3
Elective	3
Elective	3
Elective	3
	19

Note: A student who is planning for graduate study should complete one year of French or Russian.

Lower Division Requirements

Freshman and Sophomore Years: For a major in chemistry the lower division requirements of the College of Arts and Sciences must be fulfilled.

Upper Division Requirements

Registration of juniors and seniors as majors in the Department of Chemistry is restricted to students having a grade-point average of 2.0 or higher in all chemistry courses.

Students transferring into the curriculum leading to the A.B. degree above the sophomore level must have an overall average of 2.5 or higher.

REQUIREMENTS FOR THE DEGREE, A.B. WITH A MAJOR IN CHEMISTRY

Requirements in the Field of Concentration: Forty credits in courses not open to freshmen in the combined fields of physical and biological sciences including the major field. A maximum of six hours of education may be included in satisfying this requirement.

Requirements for a Major. Prerequisites: Chemistry 110, 112 (or 102, 104), 226, Mathematics 113. *Required:* Chemistry 430, 431, 432, 433, 444 (or 440, 441, 442, 443), 572; Physics 211, 213 (or 231, 232, 241, 242), and sufficient additional courses in physical and biological sciences to satisfy the requirements in the field of concentration.

REQUIREMENTS FOR THE DEGREE, B.S. WITH A MAJOR IN CHEMISTRY

Requirements in the Field of Concentration: Forty credits of advanced work in the field of physical sciences, including the major work.

Requirements for a Major. See curriculum leading to the degree of Bachelor of Science with a major in chemistry.

Course Descriptions

001 *The Chemical Profession* (Freshmen). (0) I

002 *The Chemical Profession* (Freshmen). (0) II

003 *The Chemical Profession* (Sophomores). (0) I

004 *The Chemical Profession* (Sophomores). (0) II

005 *The Chemical Profession* (Juniors). (0) I

006 *The Chemical Profession* (Juniors). (0) II

007 *The Chemical Profession* (Seniors). (0) I

008 *The Chemical Profession* (Seniors). (0) II

Discussions and lectures on various aspects of the chemical profession. Required of all students majoring in chemistry who expect to enter either industrial work or academic work in chemistry. May be repeated indefinitely. *Staff.*

100 *Chemistry for Nurses.* (4) I

This course deals with those general principles of chemistry which give the necessary foundation for practical work in nutrition, materia medica, and other subjects. Lecture and recitation, three hours; lab, four hours. *Patterson.*

101 *Laboratory for Chemistry 100.*

102,104 *Elementary General Chemistry.* (4 or 5 each) I, II, S

This course is for students who have not had high school chemistry and for other students who desire an elementary approach to the subject. Students who have not had a high school course and who expect to take more chemistry should register for five semester hours. Lectures and recitations, three to five hours; lab, two hours. Prereq: Proficiency in arithmetic and elementary algebra.

103,105 *Laboratory for Chemistry 102, 104.*

110,112 *General College Chemistry.* (5 ea.) I, II, S

Chemistry of the non-metallic elements and the metals including a brief study of the qualitative analysis scheme for the metallic ions. Lectures and recitations, three hours; lab, four hours. Prereq: High school chemistry and proficiency in arithmetic and algebra. *Staff.*

111,113 *Laboratory for Chemistry 110, 112.*

226 *Analytical Chemistry.* (3-5) I, II, S

An introduction to the theory and practice of quantitative analysis. Chemical Engineering students should register for three semester hours. Lectures, two hours; lab, two to six hours. Prereq: Che 112 or 104. *Hammaker.*

227 *Laboratory for Chemistry 226.*

230,232 *Organic Chemistry.* (3 ea.) I, II, S

Lectures, three hours. Prereq: CHE 112 or 104. *W. T. Smith.*

231,233 *Organic Chemistry Laboratory.* (1 or 2 each) I, II, S

Laboratory for CHE 230,232. Six hours.

236 *Organic Chemistry.* (4) I, II, S

An elementary course for non-professional students. Lectures and recitations, three hours; lab, two hours. Prereq: CHE 112, or 104. *Patterson.*

237 *Laboratory for Chemistry 236.*

395 *Independent Work in Chemistry.* (1-2) I, II, S

May be repeated for a total of four credits. Prereq: Major and a standing of 3.0 in the Department.

402,404 *Orientation in Modern Chemistry for Teachers.* (3 ea.) S
A review of the fundamentals of Chemistry and a study of recent developments. The relation of chemistry to various aspects of modern life is considered. Lectures and discussions in the classroom or by Continental Classroom television broadcasts. Prereq: Employment as high school science teacher.

406 *Fundamentals of Chemistry for High School Teachers.* (4) S
A course to aid the teacher in the selection of subject matter and in the presentation of modern chemistry to high school students. Lectures, discussions, six hours. Lab, six hours. Prereq: Employment as high school teacher.

407 *General Chemistry Laboratory to Accompany Chemistry 406.*

430,432 *Organic Chemistry.* (3 ea.) I, II, S
A systematic study of organic compounds. Allow undergraduate credit only for chemistry majors. Lectures, three hours. Prereq: CHE 112 or 104. *W. T. Smith.*

431,433 *Organic Chemistry Laboratory.* (1 or 2 each) I, II, S
Laboratory for CHE 430, 432. Three or six hours.

440,442 *Physical Chemistry.* (3 ea.) I, II
The fundamental principles of physical chemistry are studied with emphasis upon the application of these in the correlation of natural phenomena. Allow undergraduate credit only for majors. Lectures and recitations, three hours. Prereq: Analytical Chemistry, MA 212, PHY 242, or consent of instructor. *Sears.*

441,443 *Physical Chemistry Laboratory.* (2 ea.) I, II
Laboratory studies in physical Chemistry to accompany 440, 442. Allow undergraduate credit only for chemistry majors. Six hours. *Sears.*

444 *Physical Chemistry.* (5) II
For students in Agriculture and in the Biological Sciences. Lectures and recitations, three hours. Lab, six hours. Prereq: CHE 112 or 104, and 236; PHY 213, and MA 113.

445 *Laboratory for Chemistry 444.*

446,448 *Physical Chemistry for Engineers.* (4 ea.) I, II
The principles of physical chemistry are studied with applications of these in mining and metallurgical engineering. Lectures and recitations, three hours. Prereq: CHE 226; MA 212; PHY 242. *Sears.*

447,449 *Laboratory for Chemistry 446, 448.*

506 *Advanced Topics in Chemistry for High School Teachers.* (4) S
A course in selected topics and modern developments to enhance the competence of the high school teacher. Lectures and discussion, twelve hours. Prereq: Employment as a high school teacher and consent of instructor.

510 *Advanced Inorganic Chemistry.* (3) I
A systematic course in inorganic chemistry with especial emphasis upon theory and the preparation and reactions of various types of compounds. Lectures and recitations, three hours. Prereq: CHE 432 or consent of instructor.

520 *Elementary Radiochemistry.* (2) I
An introductory study of the radioactive elements and other substances involved in nuclear reactions. Lectures, lab, and discussion, three hours. Prereq: CHE 226 or equiv. *Ehmann.*

522 *Instrumental Analysis.* (4) I, II, S
The theory and application of instrumental methods of analysis. Lectures, two hours; lab, six hours. Prereq: CHE 442. *Wagner.*

528 *Principles of Analytical Chemistry.* (2) II
An intermediate study of the theory and practice of quantitative analysis. Lectures and discussion, two hours. Prereq: CHE 548 or consent of instructor.

532 *Qualitative Organic Analysis.* (3) I, S
A systematic study of the separation and identification of organic compounds. Lecture, one hour; lab, six hours. Prereq: CHE 432 or 232.

533 *Laboratory for Chemistry 532.*

535 *Synthetic Organic Chemistry.* (3)
A critical comparison of preparation methods accompanied by laboratory work and reports. Lab, nine hours. Prereq: CHE 432 or 232.

538 *Principles of Organic Chemistry.* (3) II
A general survey of the field of organic chemistry. Lectures, three hours. Prereq: CHE 432 and consent of instructor. *Brown.*

542 *Chemical Thermodynamics.* (3) II
Principles and applications of chemical thermodynamics. Lectures, three hours. Prereq: CHE 442, 443. *Eckstrom.*

544 *Colloid Chemistry.* (2) II
Lectures, recitations, and assigned readings on the chemistry of colloids. Lectures and recitations, two hours. Prereq: CHE 442.

548 *Principles of Physical Chemistry.* (3) I
An intermediate course dealing with the fundamental principles of physical chemistry. Prereq: College physics, integral calculus, and one course in physical chemistry. *Eckstrom.*

550,552 *Physiological Chemistry.* (4 ea.) I, II
A study of the chemistry of living processes. Lectures and recitations, three hours; lab, three hours. Prereq: CHE 112 or 104, 226 or equiv. and 432. *W. T. Smith.*

570,572 *Seminar.* (0, 1) I, II
Reports and discussions on recent research and current chemical literature. Required of all seniors. Attendance at the seminar for two semesters is required before the one hour of credit is earned. *Staff.*

582 *Chemical Literature.* (1) I
Training in the use of chemical literature. One hour per week. Prereq: Junior or Senior standing. *Black.*

583 *Laboratory Arts.* (2) I, II
The fabrication of chemical apparatus of glass, metal, and plastics. Prereq: Major in the Department of Chemistry with Junior or Senior standing. *Eckstrom.*

616 *Radiochemistry.* (2) II
The chemistry of the radioactive elements and other substances involved in nuclear reactions. Prereq: CHE 442, 443, 520. *Ehmann.*

622 *Quantitative Organic Analysis.* (3)
The applications of semimicro and micro techniques to the quantitative analysis of both organic and inorganic substances. Prereq: Chem. 442, 522.

625 *Optical Methods of Analysis.* (3) II
An intensive study of the theory and applications of each of the following methods: emission spectroscopy, absorption spectrophotometry, colorimetry, refractometry, and polarimetry. Lectures and laboratory, seven hours. Prereq: CHE 522 and 442.

626 *Advanced Analytical Chemistry.* (3) I
An advanced study of the theory and practice of quantitative analysis. Lectures and discussions, three hours. Prereq: CHE 528 or equivalent. *Hammaker.*

630,632 *Synthesis of Organic Compounds.* (2 ea.) I, II
A thorough study of the types of reactions used in organic synthesis with emphasis on the conditions and reagents that can be used. Lectures, two hours. Prereq: CHE 432. *W. T. Smith.*

633,635 *Advanced Organic Chemistry.* (3 each) I, II
Fundamental organic chemistry as interpreted by modern theory. Prereq: CHE 538 or consent of instructor.

642 *Advanced Physical Chemistry.* (3) II
An advanced course dealing with kinetic-molecular theory, thermodynamics, quantum theory, molecular structure, inter-facial state, chemical equilibria and kinetics of reaction. Lectures, three hours. Prereq: CHE 548 or equivalent. *Eckstrom.*

644 *Phase Rule.* (2)
Lectures and assigned readings on the theory and applications of the phase rule. Lectures, two hours. Prereq: CHE 542.

646 *Chemical Kinetics.* (2) I
Studies of chemical reactions from the standpoint of velocity and mechanism. Lectures, two hours. Prereq: CHE 542. *Plucknett.*

710 *Topics in Inorganic Chemistry.* (2) II
The chemistry of the rare earths and other less common elements. Selected topics dealing with recent advances in the field. Lectures, two hours. Prereq: CHE 510.

714 *Non-Aqueous Solutions.* (2) II
A study of the properties of non-aqueous solutions and reactions in non-aqueous media. Lectures, two hours. Prereq: CHE 442 and 443. *Sears.*

720 *Advanced Instrumental Analysis.* (3) I
The theory and applications of the following methods to chemical analysis: chromatography, solvent extraction, ion-exchange, infra-red spectroscopy, coulometry and non-aqueous titrimetry. Lectures and laboratory, seven hours. Prereq: CHE 522 and 442.

726 *Topics in Analytical Chemistry.* (3)
Selected topics which may include nuclear magnetic resonance, mass spectrometry, x-ray diffraction and spectroscopy, microscopy, and recent advances in analytical chemistry. Lectures, three hours. Prereq: CHE 522 and 442.

730 *Theoretical Organic Chemistry.* (3) I
The application of the principles of kinetics, thermodynamics and quantum mechanics to the problems of organic chemistry. Prereq: CHE 635 and MA 431.

733 *Stereochemistry of Organic Compounds.* (3) I
The steric aspects of fundamental organic processes; the application of optical rotatory dispersion to the problems of stereochemistry. Prereq: CHE 635.

736,738 *Topics in Organic Chemistry.* (2 ea.) I, II
Selected topics which may include heterocyclic organic compounds, natural and synthetic dyes, carbohydrates, nitrogen compounds, and other recent advances in the field of organic chemistry. Offered alternate years. Lectures, two hours. Prereq: CHE 432.

740 *Electrochemistry.* (2)
Modern theories of solutions. Applications of electrochemical methods in determining the properties of solutions. Polarization. Electrolysis. Equilibrium in solutions of electrolytes. Offered alternate years. Lectures, two hours. Prereq: CHE 542.

742 *Quantum Chemistry.* (3) I
An introduction to quantum mechanics with emphasis on the aspects closely related to chemistry. Lectures, three hours. Prereq: MA 431 and consent of instructor. *Plucknett.*

743 *Molecular Structure.* (3) II
Applications of quantum theory to chemical problems, theories of chemical bond, structure and spectra of molecules. Prereq: CHE 742.

744 *Statistical Thermodynamics.* (2)
The study of chemical thermodynamics from the viewpoint of the statistical treatment of systems rather than from the empirical classical approach. Prereq: CHE 542 and MA 431. *Plucknett.*

746,748 *Topics in Physical Chemistry.* (2 ea.)
Selected topics which may include photochemistry, structure of crystals, molecular spectra, nature of the chemical bond, and other recent advances in the field of physical chemistry. Lectures, two hours. Prereq: CHE 642 or consent of instructor.

768 *Residence Credit for the Master's Degree.* (0)
1 to 9 weeks residence.
May be repeated. Maximum of six weeks can be applied toward master's degree with thesis.

769 *Residence Credit for the Doctor's Degree.* (0)
1 to 18 weeks residence.
May be repeated indefinitely.

776,778 *Graduate Seminar.* (1 ea.) I, II
Reports and discussions on recent research and current literature. Required of all graduate students.

780 *Individual Work in Chemistry.* (1-5) I, II, S
Selected library and laboratory problems in conformance with the student's interest will be attacked and pursued under the direction of a suitable staff member who is proficient in the area under investigation.

790 *Research in Chemistry.* (1-5) I, II, S
Work may be taken in the following fields, subject to the approval of the Departmental Graduate Committee: Analytical Chemistry, Inorganic Chemistry, Organic Chemistry, or Physical Chemistry. May be repeated indefinitely.

CLASSICS

FACULTY

Professors: Richmond Y. Hathorn (Ph.D., Columbia, 1950), CHAIRMAN. Jonah W. D. Skiles (Ph.D., Chicago, 1938), on leave. Wilbert L. Carr (LL.D., Drake, 1937), visiting. *Associate Professor:* Leon Zolondek (Ph.D., Chicago, 1957). *Assistant Professor:* Warren James Castle (Ph.D., Wisconsin, 1953). *Instructor:* Conrad Rothrauff (M.A., Ohio State, 1957), Katherine H. Shaw (M.A., North Carolina, 1961).

The courses and curricula are concerned with the Classical, the Semitic, and the Middle Eastern fields. The languages concerned are Latin, Greek, Hebrew, and Arabic. The curricula are planned to meet the needs of the following:

1. Students who are going to teach Latin or Greek or Hebrew or Arabic or who are going to do graduate work or research in Classical languages, Semitic languages, ancient history, archaeology, Middle Eastern studies, Medieval studies, theology, philosophy, or linguistics.

2. Students who wish to get a general liberal education without preparing for any specific vocation.

3. Students who want for the work of their major department a background in the foundations of Western civilization.

4. Students who want to fulfill through Greek or Latin or Hebrew or Arabic the foreign language requirement or course requirements.

The student, in working out his major, may place emphasis on Greek, or on Latin, or on Classical civilization, or on Hebrew and Hebraic civilization, or on Arabic and Middle Eastern studies, or on a combination of these. To this end, five majors are offered: Latin, Greek, Classical Civilization, Hebrew and Hebraic Civilization, Arabic and Middle Eastern civilization, or a combination of these.

Upper Division Requirements

Requirements in the Field of Concentration: 40 credits of advanced work, including the major work and such other courses as may be approved by the advisor as being useful to the student.

Requirements for a Major. Prerequisites: Six semester credits of Latin or Greek or Hebrew or Arabic. *Required:* A minimum of 15 credits of advanced work in Classics; Tutorial Seminar; comprehensive examination in the senior year.

Note—The student who offers two high school units of a foreign language should register for the first semester of the intermediate course. Students who have had more than 2½ high school units should register for the second semester of the intermediate course. In case of doubt, any member of the Department will advise the student as to his correct placement.

Course Descriptions

LATIN

101 *Beginning Latin.* (3) I, II, S
Emphasis on learning to read simple Latin, with attention to the basic elements of Latin grammar. Much attention to English words derived from Latin and to a basic understanding of Roman civilization. Vocabulary building.

102 *Elementary Latin Reading.* (3) I, II, S
Selections relating to Roman life and literature, including Caesar. Emphasis on learning to read Latin. Prereq: CL 101 or one year of high school Latin.

107,108 *Latin Conversation and Composition.* (1 ea.)
Practice in the oral and written use of the language. Primarily designed to be taken concurrently with CL 101 and 102.

203 *Intermediate Latin.* (3) I
Selections from Cicero, showing the orator, statesman, and humanist, from Ovid's Metamorphoses studied as myths and short stories and from other writers. Prereq: CL 102 or two years of high school Latin.

204 *Intermediate Latin.* (3) II
Selections from the *Aeneid* studied as a masterpiece of epic poetry and as a product of the Augustan Age. The influence of the *Aeneid* on Western Literature. Prereq: CL 102 or two years of high school Latin.

205 *Latin Prose Selections.* (3) II, S
Selections from Livy's *History, Cicero's de Senectute,* or such other prose as may meet the needs of the class. Prereq: Three years of high school Latin or three semesters of college Latin or consent of instructor.

206 *Horace.* (3) I
Selections to show the poetic genius and the thought of the poet. Prereq: Three years of high school Latin or three semesters of college Latin or consent of instructor.

209,210 *Selections from Latin Literature.* (3 ea.) I, II
An author or authors or selections will be used to develop both the student's ability to read Latin and his acquaintance with classical ideas. Prereq: Three years of high school Latin or three semesters of college Latin or consent of instructor.

217 *Medieval Latin.* (3) I
Selections of prose and poetry down to the Renaissance. Introduction to the thought and life of the Middle Ages. Prereq: Three years of high school Latin or three semesters of college Latin or consent of instructor.

218 *Plautus.* (3) II
Selected plays of Plautus. Lectures on Greek and Roman comedy. Introduction to the comedy of manners. Prereq: Three years of high school Latin or three semesters of college Latin or consent of instructor.

509,510 *Latin Literature.* (3 ea.) I, II, S
Courses in various authors, periods, or types to suit the need of the class. Prereq: Twelve semester hours of Latin, or the equivalent, and permission of the instructor.

511,512 *Studies in Roman Philology.* (3 ea.) I, II, S
Courses to meet the needs of students in various areas of Roman philology, e.g., in Latin literature, in Roman civilization, in Latin linguistics, etc. Prereq: Consent of instructor.

514,515 *Latin Composition.* (1 ea.) I, II, S
The writing of Latin prose of moderate difficulty. Prereq: CL 203 or consent of instructor.

530 *The Teaching of Latin.* (3) I, II, S
The place of Latin and the classical humanities in general education. Objectives, materials, and methods. The reading approach to learning Latin. Evaluation of textbooks and other materials. Prereq: Junior or senior standing in Latin.

GREEK

150 *Beginning Greek.* (3) I
Easy excerpts from Greek literature. The basic elements of Greek grammar. Emphasis on learning to read Greek, but attention will be given to some understanding of Greek civilization. Vocabulary building.

151 *Elementary Greek Reading.* (3) II
Reading from the easier Greek authors to introduce Greek literature and to give facility in reading Greek. Prereq: CL 150.

157 *Greek Conversation and Composition.* (1)
Practice in the oral and written use of the language. Primarily course to be taken concurrently with 150.

252,253 *Selections from Greek Writers.* (3 ea.) I, II, S
Selections from various writers, such as Xenophon, Herodotus, Plutarch, or from various periods of Greek literature, including the *Koine.* Prereq: CL 151 or consent of instructor.

254 *Homer.* (3) I
Readings to give some idea of the greatness of the *Iliad* and the *Odyssey* as epics and some idea of their place in the background of Greek literature and of Western literature as a whole. Prereq: CL 151 or consent of instructor.

255 *Plato.* (3) II
Selections, with an attempt to evaluate their philosophy in its relation to both ancient and modern thought. Prereq: CL 151 or consent of instructor.

258 *Greek Conversation and Composition.* (1)
Practice in the oral and written use of the language. Primarily course to be taken concurrently with CL 251.

364,365 *Greek Composition.* (1 ea.) I, II, S
The writing of Greek of moderate difficulty. Prereq: CL 151 or consent of instructor.

556 *Greek Tragedy.* (3) I
Selected plays from Aeschylus, Sophocles, and Euripides. Lectures on Greek tragedy and its effects on the Western World. Prereq: CL 254 or 255 or consent of instructor.

559 *Greek Comedy.* (3) II
Selected plays of Aristophanes. Lectures on Greek comedy and its effect on the Western World. Prereq: CL 556 or consent of instructor.

561,562 *Studies in Greek Philology.* (3 ea.) I, II, S
Courses to meet the needs of students in various areas of Greek Philology, e.g., in Greek literature, in Greek civilization, in Greek linguistics, etc. Prereq: Consent of instructor. *Staff.*

652 *The Greek of the New Testament.* (3) I, II, S
Class and/or individual work. Reading or research in the vocabulary and syntax of the Koine, in the text of the New Testament, and in other fields. Prereq: Two years of college Greek or consent of instructor.

HEBREW

170 *Beginning Hebrew.* (3) I, II
Emphasis on learning to read simple Biblical Hebrew prose, with attention to the basic elements of Hebrew grammar.

271 *Elementary Hebrew Reading.* (3) I, II
Selections from the prose portions of the Hebrew Old Testament. Emphasis on learning to read Hebrew. Prereq: CL 170 or the equivalent.

272,273 *Selections from the Hebrew Old Testament.* (3 ea.) I, II

Selections of prose and/or poetry to develop ability in reading Hebrew and in understanding Hebrew thought. Prereq: CL 271 or the equivalent.

278,279 *Hebrew Conversation and Composition.* (1 ea.) I, II

Practice in the use of the language. Primarily for those wishing to improve aural-oral ability, but also for those wishing to have additional practice in the language. Prereq: Consent of the instructor.

324,325 *Hebrew Civilization.* (3 ea.) I, II

Special reference to relation to Western Civilization. Emphasis on literature, thought, and religion rather than on political history. The student may concentrate his reading in any of these fields. Given in English, no knowledge of Hebrew necessary.

574 *Isaiah.* (3) I

Selections with attention to the literary, historical, and general cultural background. Prereq: CL 273 or consent of instructor.

575 *The Psalms.* (3) II

Selections with attention to poetic form and to historical and general cultural background. Prereq: CL 273 or consent of instructor.

576,577 *Studies in Semitic Philology.* (3 ea.) I, II

Courses to meet the needs of students in various areas of Semitic Philology, e.g., in literature, in civilization, in linguistics, etc. Prereq: Consent of instructor.

ARABIC

140 *Beginning Arabic.* (3) I, II

Emphasis on learning to read simple Arabic, with attention to the basic elements of Arabic grammar.

147 *Arabic Conversation and Composition.* (1) I

Practice in the use of the language. Primarily for those wishing to improve aural-oral ability, but also for those wishing to have additional practice in the reading and writing of the language.

241 *Elementary Arabic Reading.* (3) II

Selections from various prose sources. Prereq: 140.

242,243 *Intermediate Arabic: Selections from Classical Arabic Authors.* (3 ea.)

Selections from the Classic Arabic Period with such writers as Ibn Qutaybah, Ibn abdai Rabbihi, and other writers of the Ninth and Tenth Centuries, A.D. Prereq: CL 241.

248 *Arabic Conversation and Composition.* (1) II

A continuation of Classics 147. Prereq: 147.

CLASSICS AND SEMITICS IN GENERAL

131 *Medical Terminology from Greek and Latin.* (3) II

Latin and Greek roots, prefixes, and suffixes as found in medical terminology. Primarily for pre-medical, pre-dental, pre-nursing and pre-veterinary students, but others will be admitted for help in vocabulary building.

235 *Greek Mythology.* (2) I, II, S

The Greek myths studied both from the standpoint of their meaning to the Greeks and Romans and from the standpoint of their use in later literature and in everyday life. No knowledge of Latin or Greek required.

326,327 *Middle Eastern Literature in English Translation.* (3 ea.) I, II

Selections from various genres to give the student a basic understanding of Middle Eastern Literature. The material will be drawn from Hebraic, Arabic, Persian, Syriac, Egyptian, Akkadian, Sumerian, Turkish and Hittite sources. Given in English. No knowledge of any Middle Eastern language necessary.

328 *Islamic Civilization I: The Rise of Islam to the Fall of the Abbasid Dynasty.* (3) I

The rise of Islam and its classical development.

329 *Islamic Civilization II: Islam and the West, 1453-1798.* (3) II

The Islamic community and its relation to Europe.

330 *Islamic Civilization III: Islam and the Modern World.* (3) I

The Islamic community and its response to westernization.

395,396 *Tutorial Seminar.* (1 ea.) I, II, S

Conferences, readings, and reports in preparation for the comprehensive examination. Required of all senior majors in Classics.

520 *Greek Civilization.* (2) II, S

Special reference to relation to modern life. Emphasis placed on literature, art, philosophy, and religion, rather than on political history, and the student may concentrate his reading in any field. No knowledge of Greek necessary.

521 *Roman Civilization.* (2) II, S

Special reference to the relation to modern life. Topics in literature, art, philosophy, and religion, as well as in political history. No knowledge of Latin necessary.

522 *Greek Literature in English Translation: Homer to Xenophon.* (3) I, II, S

Extensive reading in the most important works. Discussion of the significance of the works in their own and later times to the present. No knowledge of Greek necessary.

523 *Greek Literature in English Translation: Plato to Procopius.* (3) I, II, S

Extensive reading and discussion as in 522.

580 *Independent Work in Ancient Languages.* (3) I, II, S

Courses to meet the needs of the students will be arranged in various areas of classical philology, e.g., in Greek or Latin writers, in classical civilization, in Greek or Latin linguistics, in various areas of Semitics, etc. May be repeated to a maximum of 12 credits. Prereq: Major and a standing of 3.0 in dept.

632 *Comparative Greek and Latin Grammar.* (3) I, II, S

Studies or research in comparative linguistics, historical syntax, semantics, and other aspects of linguistics in the Greek and Latin area. Prereq: Necessary command of the language involved.

633 *Intensive Study of an Author.* (3) I, II, S

Studies or research in the works of an author (Plato, Aristotle, Lucretius, Caesar, Ovid, or Horace): with due regard to his sources, milieu, purposes, technique, language, and influence on later periods. Prereq: Necessary command of language involved.

636 *Intensive Study of a Period.* (3) I, II, S

Studies or research in a period of significance (Age of Pericles, Hellenistic Age, Ciceronian Age, Augustan Age, Silver Age, Christian Latin, or Medieval Latin): with emphasis on literary, social, and linguistic trends, with consideration of sources, and of influence on later periods. Prereq: Necessary command of languages involved.

637 *Intensive Study of a Literary Genre.* (3) I, II, S

Studies or research in a genre (epic, tragedy, comedy, satire, history, or the novel): from its beginnings in the ancient world and throughout its development in the ancient world, with some attention to its effect on later periods. Prereq: Necessary command of the languages involved.

638 *The Transmission of Classical Texts.* (3) I

Preservation and transmission of Greek and Latin texts. Introduction to epigraphy and palaeography. Introduction to the history of classical scholarship. Prereq: Reading knowledge of Greek and Latin.

768 *Residence Credit for Master's Degree.* (0)

May be repeated once.

790 *Research in the Teaching of Classical Languages.* (3) I, II, S

Problems in the teaching of Latin and/or Greek in secondary and/or higher education. Objectives, methods, preparation of materials, development of curricula, or the history of the field. Prereq: CL 530 or the equivalent.

ECONOMICS

Students wishing to major in economics from the social science approach may register in the College of Arts and Sciences. This program will enable the graduate to enter many fields of governmental and private employment. Opportunities for service include the general field of economic research and many specialties such as taxation, labor relations, finance, and statistics.

The student wishing to major in economics will be guided by an advisor in the economics department of the College of Commerce.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of social studies, including the major work.

Requirements for a Major. Prerequisites: Economics 251 and 252. *Required:* A minimum of 18 credits of advanced work in Economics, including Economics 402, 504, 505, and 515. Tutorial course 396 must be taken in the senior year to prepare for the required comprehensive examination.

List of Courses. Courses that may be used to satisfy the over-all requirements are described under the College of Commerce and include the following: 251 and 252—Principles of Economics; 207—Statistical Method; 386—Economic Research; 396—Tutorial Work in Economics; 402—Labor Economics; 503—Transportation; 504—Public Finance; 505—Money and Banking; 515—Intermediate Economic Analysis; 516—Business Cycles; 524—State and Local Taxation; 525—Economic Development; 527—International Economics; 530—Labor Legislation; 534—Advanced Economic History of the United States; 550—Advanced Business and Economic Statistics; 554—Urban Real Estate; 555—Industrial Relations; 560—Business Combinations; 565—Comparative Economic Systems; 566—Personnel Problems; 579—Collective Bargaining; 590—Introduction to Mathematical Economics.

EDUCATION

A student in the College of Arts and Sciences may elect toward the A.B. or B.S. degree a total of 30 credits from other colleges of the University.

ENGINEERING

A student in the College of Arts and Sciences may elect toward the A.B. or B.S. degree a total of 30 credits from other colleges of the University.

ENGLISH, SPEECH, & DRAMATIC ARTS

FACULTY

Professors: Gifford Blyton (Ph.D., Ohio State, 1941), Arthur Louis Cooke (Ph.D., North Carolina, 1932), Thomas Bradley Stroup (Ph.D., North Carolina, 1933), William Smith Ward (Ph.D., Duke, 1943).

Associate Professors: Jacob Henry Adler (Ph.D., Harvard, 1951), CHAIRMAN. Wallace Neal Briggs (M.A., Kentucky, 1945), John Levi Cutler (Ph.D., Ohio State, 1949), Guy Mattison Davenport, Jr. (Ph.D., Harvard, 1961), Robert O. Evans (Ph.D., Florida, 1954), Maurice A. Hatch (Ph.D., Cornell, 1948), Robert Durene Jacobs (Ph.D., Johns Hopkins, 1953), William Hugh Jansen (Ph.D., Indiana, 1948), J. W. Patterson (Ph.D., Oklahoma, 1960), Mary Ellen Rickey (Ph.D., Florida, 1955), J. Reid Sterrett (Ph.D., Wisconsin, 1941).

Assistant Professors: Michael E. Adelstein (Ph.D., Michigan, 1958), William Fitch Axton (Ph.D., Princeton, 1961), Wendell Erdman Berry (M.A., Kentucky, 1957), Ben W. Black (Ph.D., Michigan, 1953), James Harrell Cobb (M.A., Indiana, 1931), Alfred L. Crabb, Jr. (M.A., Peabody, 1941), Charles F. Dickens (M.F.A., Western Reserve, 1957), Leila Gott Harris (M.A., Kentucky, 1945), Lolo Lemme Robinson (A.B., Kentucky, 1930), Raymond A. Smith (M.F.A., Western Reserve, 1955), Lizette O. Van Gelder (M.A., Syracuse, 1944), Robert Lee White (Ph.D., Minnesota, 1960).

Instructors) Peter L. Arons (Ph.D., Yale, 1962), Henry Butler Chapin (M.A., New Mexico, 1961), Yerger Hunt Clifton (Ph.D., Trinty College, Dublin, 1962), Martin John Dillon (B.S., Canisius, 1961), Alston Fitts, III (M.A., Harvard, 1963), Edward Earl Gibbons (M.A., Kentucky, 1959), Alvin David Greenberg (Ph.D., Washington, 1964), Margaret Thornton Greynolds (M.A., Indiana, 1962), George William Griffith (B.S., Florida, 1953), Rollin Amos Lasseter, III (M.A., Yale, 1963), William Lee McAdams (Ph.D., Rice, 1962), John Robert McCown, Jr. (M.A., California, 1963), William John McMurray (Ph.D., New Mexico, 1961), Jean Gardner Pival (M.A., Kentucky, 1962), Anna Kremer Reed (M.A., Duke, 1960), Susan Richards (M.A., Washington, 1961), Virginia Marie Scheff (M.A., Marshall, 1957), Nelson Jay Smith, III (B.A., DePauw, 1953), Ollye Tine Snow (M.A., Ohio University, 1962), Gerda Taranow (Ph.D., Yale, 1961), Mary Ann Taylor (M.A., Columbia, 1962), Betite G. Vinklers (M.A., Michigan, 1964), Lawrence Frances York (M.A., Connecticut, 1959).

Though many of the courses in the Department are planned to fit the needs of other departments and colleges, most of them are designed to meet the undergraduate and graduate needs of those who may wish to specialize in English, Speech, and the Dramatic Arts.

The majority of students who take English courses do so either because they expect to teach English in high school or college, or because of the personal satisfaction that they derive from great books. A few take English because it provides a good background for an editor, or professional book reviewer, dramatic or literary critic, or author of imaginative literature. And others take language, speech, and dramatic arts courses because they need to learn

the accurate, precise use of language; need speech experience as a part of their preparation for such professions as law, the ministry, teaching, and salesmanship; or training in drama and theatre leading to a career in little theatre work, dramatic criticism, and in a few cases in professional acting.

The Department offers training in language study; English, American, and comparative literature; creative writing; speech; and the dramatic arts. Course work leading to the A.B. and M.A. degrees is available in most of these areas and to the Ph.D. in English language and literature.

REQUIREMENTS FOR A MAJOR

1. English: *Prerequisites:* 101-2 or 105-6; 221, and 222.

2. Speech: *Prerequisites:* 101-2 or 105-6; 161; 181; 285.

3. Dramatic Arts: *Prerequisites:* 101-2 or 105-6; 191 or 192 (or both); 291; and 6 hours from 161, 221, 222, 251, 252.

Required for an English major: A minimum of 24 additional credits of advanced work in English, Speech, and Dramatic Arts, as set forth in the departmental statement of requirements, available from the office of the chairman.

Required for Speech and Dramatic Arts majors: A minimum of 24 additional credits of advanced work in Speech, Dramatic Arts, and English, as set forth in the departmental statement of requirements, available from the office of the chairman.

Requirements in Field of Concentration. Forty credits (in courses not open to freshmen) in the field of Literature, Philosophy, History, and the Arts, including the major work.

Course Descriptions

1 *Sub-Freshman Composition.* (0)
A course for students inadequately prepared for English 101. Frequent short writing assignments; work in grammar and mechanics as needed. Freshmen are advised to enter the course on the basis of (1) classification tests or (2) first papers written in English 101. *Staff.*

3 *English for Foreign Students.* (0)
A course for foreign students inadequately prepared to do the work required in ENG 101. The course is designed to help the student achieve a basic proficiency in oral and written communication in English. Phonetics, pronunciation, reading of materials in English, frequent exercises in written composition.

5 *Remedial English for Remanded Students.* (0)
Instruction (normally on a tutorial basis) for upperclassmen who have been referred to the department because of their poor work in English. The student is excused from the course upon proof of proficiency. *Staff.*

101 *Freshman Composition.* (3)
A course designed to teach students to develop and express their ideas in clear, effective English. The principal means are the reading and discussion of essays and articles, with frequent practice in expository writing. ENG 101 or 105 required of all freshmen. *Staff.*

102 *Freshman Composition.* (3)
A continuation of English 101, which is prerequisite. Emphasis on composition continues, with particular attention to forming and expressing acceptable judgments about significant topics of discussion. ENG 102 or 106 required of all freshmen. *Staff.*

105 *Advanced Freshman Composition.* (3)
A variant of ENG 101 for students who score in the 85th percentile or above on their classification tests. *Staff.*

106 *Advanced Freshman Composition.* (3)
A continuation of ENG 105. The reading matter is largely imaginative: Poetry, drama, fiction. Excellence in ENG 101 or 105 and recommendation of the instructor required for admission. *Staff.*

201 *Business English.* (2)
A study of the principles of composition with emphasis on their practical application in business. Letters, articles, and reports. Prereq: Freshman Composition. *Staff.*

203 *Composition for Technical Students.* (3)
A course designed to give writing experience for students in the sciences, engineering, agriculture, and business. Definitions, analyses, classifications, interpretations, directives, business letters, reports. Prereq: Freshman Composition. *Staff.*

205 *Advanced Composition.* (3)
A course for those who wish further instruction and practice in expository writing. The emphasis is upon thoughtful organization of material and clear writing. Prereq: Freshman Composition. *Staff.*

207 *Writing of Fiction.* (3)
A course for those who wish to write fiction and to develop a critical appreciation of narrative writing. Analysis of models and student manuscripts. Prereq: Consent of instructor. *Berry.*

208 *Writing of Poetry.* (2)
The theory and practice of the craft of English verse, to develop the student's ability to understand and write poetry. *Berry.*

412 *History of the English Language.* (3)
A survey emphasizing the characteristics of English from the times of Alfred, Chaucer, Shakespeare, and Johnson to the present. *Cutler.*

472 *Studies in English for High School Teachers.* (1-3)
Specialized topics in language, literature, and composition designed to increase the high school teacher's knowledge of subject matter, to aid him in meeting major problems in the curriculum, and to enlarge his understanding of new developments and approaches to the teaching of high school English. May be repeated to a total of 6 crs. Prereq:E mployment as a high school teacher. *Staff.*

501 *Fiction Workshop.* (2)
Chief attention is directed to the short story, but time is also given to the novel. Manuscripts are analyzed, but primary attention is given to the theory and convention of fiction writing. Prereq: Consent of instructor. *Berry.*

502 *Fiction Workshop.* (2)
Emphasis on application of fictional techniques in student writing. Designed to bring about a fuller understanding of the conventions set forth in ENG 501 and to bring practice closer to theory. Prereq: Consent of instructor. *Berry.*

504 *Writing the One-Act Play.* (3)
This course is designed for those students interested in creative drama. The completion of at least one one-act play is required during the semester. *Robinson.*

505 *Writing the Full-Length Play.* (3)
The writing of a full-length play is required during the semester. *Robinson.*

509 *Composition for Teachers.* (3)
The basic studies helpful to high school teachers of composition. The teaching of grammar, punctuation, usage, etc., and of theme planning, correction, and revision. Students are required to do quite a bit of writing. *Crabb, Hatch, VanGelder.*

510 *Modern British and American English.* (3)
A survey of modern British and American English with respect to pronunciation, syntax, spelling, and usage. Historical developments will be examined insofar as doing so sheds light on modern practice. *Cutler.*

512 *Grammar of Structure and Usage.* (3)
Descriptive grammar for advanced students. Analysis of sentence structure; consideration of standards of usage; investigation of current practice. *Faust.*

514 *Descriptive Linguistics: Phonetics.* (3)
Articulatory description of speech sounds; practice in recognition and control. Prereq: Consent of instructor. Same as ANT 514. *Faust.*

515 *Descriptive Linguistics: Phonemics.* (3)
An investigation of speech-sounds and systems of speech-sounds. Also attention to both speech and writing as communication systems. (Same as ANT 515.) Prereq: Consent of instructor. *Faust.*

516 *Descriptive Linguistics: Morphemics.* (3)
An explanation of some of the ways speech sounds are put together in patterns so as to form languages. (Same as ANT 516.) Prereq: ENG 515. *Faust.*

610 *Old English.* (3)
Introduction to Old English language and literature. *Moore.*

611 *Beowulf.* (3)
Chiefly a study of *Beowulf*, though with some reference to allied literature and the Germanic background. *Moore.*

612 *History of the English Language.* (3)
A survey tracing the development of modern standard English from its Indo-European origin. Emphasis will be placed on the history of sounds, inflections, and vocabulary and on the varying concepts of "correctness." *Cutler.*

ENGLISH, AMERICAN, AND COMPARATIVE LITERATURE

161 *Introduction to Literature.* (3)
An analytical rather than historical approach to literature, intended to deepen the student's insight into the nature and purpose of literature and to develop literary taste and judgment. *Staff.*

221 *Survey of English Literature.* (3)
A survey of English literature from *Beowulf* to the beginnings of the Romantic movement. The emphasis is upon the more important writers, with attention to their cultural background. *Staff.*

222 *Survey of English Literature.* (3)
A survey of English literature from the beginnings of the Romantic movement to the present. The emphasis is upon the more important writers, with attention to their cultural background. *Staff.*

251 *Major American Writers.* (3)
The approach is aesthetic and analytical, rather than historical. Authors such as the following are studied: Franklin, Irving, Cooper, Poe, Longfellow, Hawthorne, Emerson, Thoreau, Melville. *Staff.*

252 *Major American Writers.* (3)
The approach is aesthetic and analytical, rather than historical. Authors such as the following are studied: Whitman, Twain, Howells, James, Frost, Robinson, Eliot, O'Neill, Maxwell Anderson. *Staff.*

395 *Independent Work.* (3)
For undergraduate majors in English with a high standing. Each pursues a course independently under the guidance of a staff member, writes a paper embodying the results of his study, and takes an examination. May be repeated once for a total of 6 credits. Prereq: Major and standing of 3.0 in the Department. *Staff.*

520 *Chaucer.* (3)
Extensive readings in the principal works of Chaucer, with particular attention to The Canterbury Tales and Troilus and Criseyde. *Moore and Cutler.*

522 *English Literature: 1500-1600.* (3)
Literature of the Elizabethan period exclusive of the drama. Foreign sources of the English Renaissance. Major writers such as More, Ascham, Wyatt, Sidney, Spenser, Raleigh, and Marlowe. *Stroup, Evans.*

523 *English Literature:1600-1660.* (3)
Selected non-dramatic works of such writers as Bacon, Donne, Ben Jonson, George Herbert, Izaak Walton, Herrick, Sir Thomas Browne, Vaughan, Traherne, and Milton. *Stroup, Rickey.*

524 *Pre-Shakespearean Drama.* (3)
A course in English origins, beginning with the *Quem Quaeritis* Trope and extending through the works of the early Elizabethans. *Stroup.*

525 *Elizabethan Drama, Exclusive of Shakespeare.* (3)
A survey of English drama from the early Elizabethans until the closing of the theatres. *Stroup.*

526 *Shakespeare: The Comedies.* (3)
Shakespeare's comedies will be studied in detail. *Black, Evans, Rickey.*

527 *Shakespeare: The Tragedies.* (3)
Shakespeare's tragedies will be studied in detail. *Black and Evans.*

528 *Milton.* (3)
A study of all of Milton's poetry and of his more important prose; readings from contemporary thinkers; studies in thought currents of the time and Milton's relation to them. *Stroup.*

530 *Age of Pope.* (3)
Addison and Steele, Swift, Pope, Defoe, and other contemporary figures. *Cooke.*

531 *Age of Johnson.* (3)
Johnson and his circle; Burke, Goldsmith, Gray, Walpole, Cowper. The Pre-Romantic movement. *Cooke.*

532 *Restoration and Eighteenth-Century Drama.* (3)
A study of the dramatic types that arose between the closing of the theatres in 1642 and the death of Sheridan. *Cooke.*

533 *Eighteenth-Century British Novel.* (3)
Study of the novel from its beginnings in English literature through the eighteenth century. *Cooke.*

535 *English Romantic Poetry.* (3)
The philosophical, critical, social, and political backgrounds of romanticism are examined. The emphasis is on Wordsworth, Coleridge, Byron, Shelley, and Keats. *Ward.*

536 *English Romantic Prose.* (3)
The emphasis is on the essays and critical prose of Lamb, Hazlitt, and DeQuincey; the critical prose of Wordsworth, Coleridge, and Shelley; and the letters of Keats. *Ward.*

538 *Victorian Literature: 1830-1860.* (3)
Poets and essayists—Macaulay, Mill, Carlyle, Newman, Tennyson, Mrs. Browning, Browning, Ruskin, and Arnold—in their historical setting. *Shine, Axton.*

539 *Victorian Literature: 1860-1900.* (3)
Poets and essayists—Rossetti, Swinburne, Meredith, Huxley, Pater, Wilde, Davidson, Henley, Stevenson, Housman, Hardy, Kipling, and some others—in their historical setting. *Shine.*

540 *Nineteenth-Century British Novel.* (3)
Study of the novel in English literature from Scott through Gissing. *Axton.*

541 *Twentieth-Century British Novel.* (3)
A study of the content and technique of the best twentieth-century British novels, with some consideration of these in relation to significant social, philosophical, and literary trends. *Evans.*

542 *Twentieth-Century British Poetry.* (3)
Close study of major British poetry of the twentieth century, with attention to literary movements and critical theory. *Moore.*

551 *American Literature Before 1860.* (3)
A survey of the development of American life, thought, and letters from the beginnings to 1860. *Jacobs, White.*

552 *American Literature After 1860.* (3)
A survey of the development of American life, thought, and letters from 1860 to the present. *Jacobs, White.*

554 *American Novel Before 1900.* (3)
Study of the American novel from the beginnings to Henry James. *White.*

555 *Modern American Novel.* (3)
Novels chosen for their enduring value rather than historical importance. Attention to shifting techniques of fiction and to contrasting interpretation of the American scene. *Jacobs.*

556 *Modern American Poetry.* (3)
Examination of the forces which brought about the revolutionary changes in technique and idea in twentieth-century poetry; study of the major American poets from 1890 to the present. *Jacobs, White.*

560 *Comparative Literature I.* (3)
A study of Western World literature. From Homer to Montaigne. *Shine.*

561 *Comparative Literature II.* (3)
A study of Western World literature. From Montaigne to Anatole France. *Evans.*

562 *Comparative Literature III.* (3)
Masterpieces and examples of twentieth-century Western World literature, with emphasis on the emergence of new forms and techniques invented to express the complexity of modern life; the course will study novels, poems, and plays in their traditional development and in experimental and divergent forms. *Davenport.*

563 *Modern Drama.* (3)
Continental, British, and American dramatic literature from Ibsen to the present. *Adler.*

565 *The Lyric in English.* (3)
A critical examination of selected lyrics from the Middle Ages to the present. *Moore.*

568 *History of Literary Criticism I.* (3)
Literary criticism in the Western World from Plato through the eighteenth century. Application of critical principles to literary works. *Adler.*

569 *History of Literary Criticism II.* (3)
Literary criticism in Europe and America from Wordsworth to the present. Application of critical principles to literary works. *Adler.*

570 *Literature of the Old Testament.* (3)
Critical analysis of the canonical and apocryphal Old Testament in English, with particular attention to Biblical ideas and symbols helpful to students of literature.

571 *Literature of the New Testament.* (3)
Critical analysis of the canonical and apocryphal New Testament in English, with particular attention to Biblical ideas and symbols helpful to students of literature. *Rickey.*

573 *General Introduction to Folklore.* (3)
An introduction—on a world-wide scope—to the types of folklore. Emphasis upon folklore as a cultural phenomenon in its own right and upon its relations to literary types. The development of the science of folklore. *Jansen.*

574 *American Folklore.* (3)
A study of the major materials in American folklore. The use of this material in other forms. Experience in actual collecting and in the cataloging of materials. *Jansen.*

600 *Bibliographical Studies.* (3)
An introduction to graduate work, with particular attention to the monuments of literary scholarship, reference works, and use of the library. The preparation of an extensive bibliography is required. Must be taken by all candidates for the M.A. in English. *Ward.*

620 *Middle English Literature.* (3)
Survey of Middle English literature, exclusive of Chaucer, with collateral reading of non-English monuments in English translation. *Moore.*

622 *Studies in English Literature: 1500-1600.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Stroup.*

623 *Studies in English Literature: 1600-1660.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Stroup.*

630 *Studies in English Literature: 1660-1720.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Cooke.*

631 *Studies in English Literature: 1720-1780.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Cooke.*

635 *Studies in English Literature: 1780-1830.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. May be repeated once for a total of 8 credits. *Ward.*

638 *Studies in English Literature: 1830-1860.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Shine.*

639 *Studies in English Literature: 1860-1900.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Shine.*

651 *Studies in American Literature Before 1860.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Jacobs.*

652 *Studies in American Literature Since 1860.* (4)
Comprehensive study of broad topics, normally limited to an intensive survey of the literature and scholarship of the period as a whole. *Jacobs.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely.

770 *Seminar in English Literature.* (3)
Intensive study and research centering upon such subjects as the following: a particular author or group of authors, a literary *genre,* a literary movement, a restricted period of time. May be repeated three times for a total of 12 credits. *Graduate Staff.*

772 *Seminar in American Literature.* (3)
Intensive study and research centering upon such subjects as the following: a particular author or group of authors, a literary *genre,* a literary movement, a restricted period of time. May be repeated once for a total of 6 credits. *Graduate Staff.*

774 *Seminar in Comparative Literature.* (3)
Intensive study and research centering upon the relationship between English or American literature and that of some other country. May be repeated once for a total of 6 credits. *Graduate Staff.*

780 *Directed Studies.* (3)
Independent work devoted to study and research on specific subjects and problems according to the interests and needs of individual students. May be repeated twice for a total of 9 credits. *Graduate Staff.*

SPEECH

181 *Basic Public Speaking.* (3)
A course designed to give the student platform experience in the fundamentals of effective speaking. *Staff.*

183 *Parliamentary Usage.* (2)
The theory and practice of parliamentary procedure as it applies both to governmental and non-governmental organizations. Ample time is allocated for practice in organizing groups and conducting meetings. *Blyton.*

184 *Intercollegiate Debating.* (1)
Preparation for and participation in intercollegiate debating. May be repeated once for a total of 2 credits. *Blyton.*

283 *Argumentation and Debate.* (3)
A course in the theory of argument, with practice in the several forms of debate. *Blyton, Patterson.*

284 *Intercollegiate Debating.* (1)
Preparation for and participation in intercollegiate debating. May be repeated three times for a total of 4 credits. *Blyton.*

285 *Applied Phonetics.* (3)
Study of the phonetic structure of the English language with requirement of mastery of international Phonetic Alphabet. Emphasis will be placed on phonetic transcription, and application will be made for students interested in general speech, speech correction, radio, television, and theatre. *Blyton.*

287 *Speeches for Special Occasions.* (3)
Practice in various types of speeches motivated by specific occasions, such as introductions, welcomes, presentations, dedications, good-will speeches, and after-dinner speeches. *Sterrett, Patterson.*

288 *Oral Interpretation.* (3)
An analysis of prose and poetry for oral interpretation. Helpful to those who plan to teach literature. *Sterrett.*

388 *Oral Reading of the Bible.* (3)
Specific training in the oral readings of the Bible as one of the world's great pieces of literature. *Sterrett.*

580 *Discussion.* (3)
To offer the student the essentials of discussion, with emphasis upon the thinking process as it operates in group situations. Participation in the various forms of discussion. *Blyton, Patterson.*

581 *Advanced Discussion.* (3)
An intensive study of discussion as democracy in action. Ample time devoted to practice discussions. *Blyton.*

582 *Persuasion.* (3)
The principles and methods of persuasion. Of particular benefit to teachers, lawyers, business majors, and other persons whose work is concerned with motivating human conduct. *Blyton, Patterson.*

583 *Advanced Argumentation and Debate.* (3)
The function of argumentation and debate in a democracy, plus a much more detailed and critical examination of logic and argument than in ENG 283. *Blyton.*

584 *Teaching of Speech.* (3)
An analysis of the field of speech education as related to the teacher of speech. *Blyton, Patterson.*

588 *Oral Interpretation of Drama.* (3)
The cutting and adapting of the three-act play for oral presentation. *Sterrett.*

782 *Special Topics in Speech.* (3)
Study and research on specific topics and problems according to the interests and needs of individual students. Normally offered as an independent work course. *Staff.*

DRAMATIC ARTS

191 *Stagecraft.* (2)
A laboratory course in the craft of play production: scenery, construction, properties, lighting, painting of scenery etc. Recommended for those interested in any technical phase of amateur theatre. *Smith.*

192 *Staging Techniques.* (2)
Problems in stage management, lighting, equipment, and design. Students are given an opportunity to take charge of completing important scenic units in a current production and to serve on its production staff. *Smith.*

291 *Voice Development.* (2)
An analysis of each student's voice and articulation, and a pointing out of methods to correct speech faults. Exercises for flexibility, range, relief from tension, and articulation. One hour of lecture and two hours of laboratory weekly. *Briggs and others.*

591 *Theatre Directing.* (3)
Study of movement, interpretation of lines, creation of atmosphere, use of stage areas, use of levels, methods of achieving a climax, handling of groups, planning of mob scenes. *Briggs.*

592 *Theatre Production.* (3)
Application of modern aesthetic principles and theories of the theatre. Attention to coordination of the playwright, designer, technical director, electrician, stage manager, actor. *Smith.*

593 *Scenic Design.* (3)
A study of form, line, and color as applied to the stage. Practical work in building model sets and in the application of these models to the major production. *Smith.*

594 *Acting I.* (2)
Study of acting styles from antiquity to the present, with emphasis on important acting periods. Lecture and weekly demonstrations for the development of skill in the use of body and for projection of voice and total characterization. One hour lecture and three hours laboratory weekly. *Briggs.*

595 *Acting II.* (2)
Study and acting of scenes from classical and modern dramatic literature. Intensive application of techniques studied in 594. One hour lecture and three hours of laboratory weekly. *Briggs.*

596 *History of the Stage.* (3)
Designed to give the student a knowledge of the problems of staging from ancient to modern times. Theatre and stage architecture, scenic effects, costuming, and acting styles of all major periods are discussed and their relation to dramatic literature analyzed. *Dickens.*

597 *Survey of Theatre Principles.* (3)
A course designed to introduce teachers and community theatre workers to the problems of staging under circumscribed conditions; minimum essentials of play production and the means of supplying these needs. *Briggs.*

784 *Special Topics in Dramatic Arts.* (3)
Study and research on specific topics and problems according to the interests and needs of individual students. Normally offered as an independent work course. *Staff.*

GEOGRAPHY

FACULTY

Professors: Joseph Raymond Schwendeman (Ph.D., Clark, 1941), CHAIRMAN. Thomas Parry Field (Ph.D., North Carolina, 1948). *Associate Professor*: Pradyumna Prasad Karan (Ph.D., Indiana, 1956), William Adriance Withington (Ph.D., Northwestern, 1955). *Assistant Professor:* Forrest Lester McElhoe, Jr. (Ph.D., Ohio State, 1955).

The need for well-trained personnel in the field of Geography has become increasingly apparent. At the present time three major fields of activity utilize the services of competent professional geographers: Education (Elementary, Secondary, and Collegiate), Government (National, State, and City), and Business (Trade, Transportation, Publishing). The Department of Geography is prepared to offer necessary training to students for these economic activities.

In addition to the training of professional geographers, the Department of Geography contributes directly to the fulfillment of the College of Arts and Sciences requirement in Social Studies (GEO 153 and 154). To non-geography majors in all colleges of the University the Department of Geography offers a wide selection of supplementary and elective courses which contribute importantly toward a liberal education.

A foundation in all phases of Geography is required of all department majors seeking a career in the field. For those who do not wish to become professional geographers, a major in Geography may be arranged. (See Catalogue of Courses.)

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits, including the major work, in advanced courses in the field of Social Studies and certain closely allied physical science fields.

Requirements for a Major. Prerequisites: Geography 151 and 155. *Requirements:* A minimum of 18 credits of advanced work in Geography varied according to the curriculum elected by the student.

Course Descriptions

151 *Elements of Geography.* (3) II
An orientation course in the field of geography, certain basic facts and geographical tools. Major emphasis upon elements of weather, climate, and earth processes. *Karan.*

152 *Regional Geography of the World.* (3) I, II, S
A study of the geography of the world by regions, an explanation of their (1) position, (2) extent, and (3) influence upon people. (Required of students in Education for elementary certification.) *Karan, Field.*

153 *Societies Around the World.* (3) I, II, S
Meets Social Studies requirements. Comparative study of the Eskimo, Navajo, and Baganda as preliterate, primitive societies in difficult environments. (Same as ANT and SOC 153 except for Ed. majors.) *Schwendeman, McElhoe, Field.*

154 *Societies Around the World.* (3) I, II
Meets Social Studies requirements. Comparative study of the Chinese Peasant, Cotton South and British Midlands as more highly developed societies living in more moderate environments. (Same as SOC 154 except for Ed. majors.) *Schwendeman and Field.*

155 *Economic Geography of the World.* (3) I, II, S
Description and analysis of world patterns of major resources and their development through agriculture, fishing, forestry, mining, manufacturing, transportation and trade. *Withington, McElhoe.*

252 *Introduction to Weather and Climate.* (3) I
A study of the atmosphere directed toward a basic understanding of the elements and controls of weather and climate. Attention is given to instruments, maps and observation techniques. Prereq: GEO 151 or consent of instructor. *Karan.*

260 *Introductory Field Studies in Geography.* (3)
Techniques of obtaining and verifying data in the field, association of geographic names, technical and descriptive terms of geographic phenomena with classification and report. May be repeated once. *Staff.*

520 *Regional Geography of Anglo-America.* (2) I, S
A regional study of the physical, economic, and cultural characteristics of the various areas of the United States, including Hawaii, and Alaska. Prereq: One geography course. *Withington.*

521, 523, 525, 527, 529, 535, 537, 539, 541, 543 *Special Problems.* (1 ea.) I, II, S
Designed for advanced students who undertake minor research problems to be conducted in regular consultation with the instructor. It can only be taken concurrently with a related upper division course in Geography. *Staff.*

Sub titles: 521 Anglo-America, 523 Kentucky, 525 Latin America, 527 Europe, 529 Asia, 535 Australia & the Pacific Islands, 537 Africa, 539 Conservation of Natural Resources, 541 Urban Areas, 543 Geographical Foundations of World Power.

522 *Geography of Kentucky.* (2) II, S
A study of how the people of Kentucky adjust themselves to the location, surface, climate, and other natural resources of their state. Prereq: One geography course. *Schwendeman.*

524 *Regional Geography of Latin America.* (2) I
A study of countries and geographic regions of Mexico, Central America, and South America. Prereq: One geography course. *Schwendeman.*

526 *Regional Geography of Europe.* (2) I
A study of Western Europe major geographic regions, climate, soil, terrain, mineral, and biotic factors. Population problems, economic adjustments, and political significance of resources. Prereq: One geography course. *Karan.*

528 *Regional Geography of Asia.* (2) II
A regional study of the countries of Asia including European U.S.S.R., China, Japan, and India. Role of the Orient in the international landscape. Prereq: One geography course. *Karan, Withington.*

530 *Intermediate Field Studies.* (3)
An intensive study of a particular geographic area with such specific skills as filling in a base map and observing and recording data for map composition and report. May be repeated once. *Staff.*

534 *Regional Geography of Australia and the Pacific Islands.* (2) I
A study of the geographical problems and adjustments of the peoples and countries of the Pacific area. Reference to the strategic nature of the location. Prereq: One geography course. *Field.*

536 *Regional Geography of Africa.* (2) II
A study of Africa as a complete continent and not as an example of European imperialist policy; as a series of geographic regions. Prereq: One lower division course in geography. *Field.*

538 *Conservation of Natural Resources.* (2) I
A general study of the needs for and problems of conserving the natural resources including the development of the conservation movement and resource use. Prereq: GEO 155. *Withington, McElhoe.*

540 *Geography of Urban Areas.* (2) II
A study of the location and growth of cities and urban areas in relation to environmental factors. Prereq: GEO 155 or permission of Instructor. *McElhoe, Withington.*

542 *Geographical Foundations of World Power.* (2) I
The influence of such factors as location, size, form, surface, climate, and natural resources, on the rise and fall of nations. Consideration given to geopolitics. Prereq: One geography course. *Schwendeman.*

544 *Climatology.* (3) II
A study of the elements and controls of climate and of world climatic patterns. Prereq: GEO 151 or consent of instructor. *Karan.*

545 *Independent Work in Geography.* (3) I, II, S
Individual research involving such problems as: (a) Materials and methods in teaching geography; (b) the Historical Evolution of Geography; (c) map reading and interpretation; (d) special area studies; (e) other topics may be elected by consent of instructor. May be repeated once. Prereq: Major and a standing of 3.0 in the department. *Staff.*

547 *Cartography.* (3) I
A course in the construction and interpretation of maps. Prereq: GEO 151. *Field.*

548 *Applied Cartography.* (3) II
Map compilation techniques as directed by Army Map Service specifications. Enrollment by permission. Field.

650 *Regional Study of Special Areas.* (3)
The application of the methods of regional interpretation to special areas such as the U.S.S.R., Mediterranean Basin, Caribbean Region, Mexico, Central Europe, etc. May be repeated once. *Staff.*

660 *Advanced Field Studies in Geography.* (3)
Field study and preparation of a report which shall include both manuscript and graphic material. This field study will be based upon the work done in the field of Geography 530, but will be carried forward to include the more difficult problems of preparation of graphic material, map composition, and manuscript preparation, such as later can be used in thesis preparation and publication. Prereq: GEO 151, 541, or 548 and 530 for GEO students, or consent of instructor for students offering field experience in allied subjects, such as Geology. May be repeated once. *Staff.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once.

770 *Seminar—Development of Geographic Thought.* (3) II
Series of topics selected in order to acquaint the graduate student of geography or of related subjects with the basic literature and evolution of the broad field of geography. Prereq: Geography major or consent of instructor. *Staff.*

GEOLOGY

FACULTY

Professors: Arthur Crane McFarlan (Ph.D., Chicago, 1924), CHAIRMAN. William Randall Brown (Ph.D., Cornell, 1942), Vincent E. Nelson (Ph.D., Chicago, 1942), William C. MacQuown (Ph.D., Cornell, 1943). *Associate Professors:* Irving Sanborn Fisher (Ph.D., Harvard, 1952), Erwin John Lyons (Ph.D., Wisconsin, 1947), Thomas Glasdir Roberts (Ph.D., Columbia, 1949). *Assistant Professor:* Lois Jeannette Campbell (Ph.D., Ohio State, 1955).

The demand for the professional geologist comes from the need for geological guidance in the exploitation of the nation's mineral wealth. Its relation to mining and to oil and gas exploration is such that geological services are indispensable to companies engaged in developing these mineral resources. Opportunities are also open with state and federal geological surveys, in museum work, in earth science teaching in secondary schools, and in college teaching. The Department of Geology is prepared to equip men and women for such work.

The George W. Pirtle Fellowship:

A grant of $500 a year is given by George W. Pirtle to a graduate student in geology upon the recommendation of the faculty of the Department of Geology. The award is made upon the basis of need and promise of future achievement in the geological field. Mr. Pirtle has set up this grant in appreciation of the training he received in the Geology Department and is given in honor of Dr. A. C. McFarlan.

The recipient shall write a thesis based on field work. Mr. Pirtle was the first student to obtain the Master's Degree from the University with a major in Geology.

Applications for this grant should be directed to the Head, Department of Geology.

LIST OF COURSES FOR PROFESSIONAL TRAINING IN GEOLOGY

	Crs.
Freshman Year	
GLY 104, 105, Outlines of Geology	6
GLY 110, Lab Work in Elementary Geology	1
Sophomore Year	
GLY 210, 211, Historical Geology	6
GLY 220, 221, Field Geology	5
GLY 212, 213, Mineralogy	6
Junior Year	
GLY 520, 521, Advanced Field Geology	4
GLY 500, 501, Paleontology	6
GLY 502, Economic Geology	4
GLY 524, 526, Field Work in Regional Geology (Summer)	8
Senior Year	
GLY 504, Elementary Petrology	3
GLY 505, Elementary Structural Geology	3
GLY 522, 523, Advanced Field Geology	4
GLY 503, Petroleum Geology	2
GLY 530, Seminar	2
GLY 506, Advanced Principles of Geology	4

ALLIED SCIENCES, ETC.

Chemistry—General, Qualitative,* and Quantitative
Physics—General*
Zoology—General Zoology*
Mathematics—College Algebra, Trigonometry, Analytics and Calculus 1*
Engineering—Basic Engineering Graphics*

The suggested courses do not constitute a prescribed curriculum. It is planned, however, to give the necessary background for professional work. For a less professional major, courses in other fields may be substituted except for those prerequisite to required courses in Geology. For mineral resource work attention is called to courses in Mining and Metallurgy. For paleontological work take Zoology 200 and 500. For later training in geo-physical methods, add analytics and calculus I and substitute Physics 231, 232, and 241, 242, for a second year of Chemistry. For combination engineering and geology, consult Dr. Lyons.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits in the field of Physical and Biological Sciences, including the major work, in courses not open to freshmen.

Requirements for a Major. Required: Geology 210, 211, 212, 213, 220, 221, 500, 501, 502, 504, 505, 506, 520, 521, 524, 526, 530, 531. *Field Work:* A summer field course, Geology 524, and a report, Geology 526, are required of major students for graduation. Local field work is offered throughout the year.

Students majoring in Geology are required to pass a final comprehensive examination in the department.

Course Descriptions

100 *Elementary Geology.* (3)
A course in general geology including the common minerals and rocks, geologic processes, and a brief discussion of historical geology. Lecture and recitation, two hours; one lab. conf. (Credit is not allowed for both 100 and 104). *Staff*

101 *Laboratory for Geology 100.*

104 *Outlines of Geology.* (3)
An introduction to general geology. Lecture, three hours. *Staff.*

105 *Outlines of Geology.* (3)
A study of some of the more important and better known geologic features of the earth. An introduction to mineral resources, historical geology and the fossil record. Lectures, three hours. Prereq: GLY 100 or 104 or 200.

110 *Laboratory Work in Elementary Geology.* (1)
Prereq or Concurrent: GLY 104.

112,113 *Elementary Field Geology.* (1 ea.)
Visits are made to localities in the vicinity of Lexington to study local geologic phenomena.

120,121 *Elementary Field Work in Regional Geology.* (6 ea.)
Eight weeks in the field. The party works along with that in GLY 524. Prereq: Elementary Geology. For special fee see "Expenses" section. *McFarlan and Lyons.*

200 *Elementary Geology for Engineers.* (3)
An introduction to the principles of geology. Three lectures. *Lyons.*

201 *Laboratory for Geology 200.*

* Required work in other sciences indicated by asterisks.

202 *Elementary Geology for Engineers.* (3)
The practical application of geology to engineering. A treatment of metallic and non-metallic mineral resources. Geologic maps. Two lectures, one lab conference. Prereq: GLY 200. *Lyons.*

203 *Laboratory for Geology 202.*

204 *Laboratory in Engineering Geology.* (1)
Prereq: GLY 200. *Lyons.*

210,211 *Historical Geology.* (3 ea.)
A study of the events of earth history and the interpretation of this record from the rocks. Continental evolution—stratigraphic succession —fossil record. Two lectures, one laboratory conference. Prereq: a course in Elementary Geology with laboratory. *Nelson.*

212 *Mineralogy.* (3)
A study of geometrical crystallography and other physical properties useful in mineral identification. Lecture, one hour; lab, four hours. Prereq: GLY 104 and 110, or equivalent, and CHE 110 and 112 (or concurrent). *Fisher.*

213 *Mineralogy.* (3)
The determination of minerals by physical properties, blowpipe analysis, and the petographic miscroscope. A study of their origin, occurrence, and associations. Lecture, one hour; lab, four hours. Prereq: GLY 212. *Fisher.*

214 *Physiography of North America.* (3)
A regional study of the physical regions of North America, land forms, their nature and origin. Lecture, two hours; lab, two hours. Prereq: a course in Elementary Geology. *Campbell.*

215 *Geomorphology.* (3)
A study of the geologic origins and the development of landscapes by subaerial and submarine processes. Special attention will be given to the evolution of concepts of interpretation and classification. Prereq: a course in Elementary Geology. *Campbell.*

220 *Field Geology.* (3)
An introduction to field methods involving the identification and tracing of formations, areal mapping, and structure contouring. Prereq or concur: GLY 210. For special fee see section on "Expenses and Financial Aid" near front of catalogue. One lecture and 6 hours field work. *Lyons.*

221 *Field Geology.* (2)
Topographic mapping. Six hours of field work a week. Prereq: GLY 210, 211; MA 112. For special fee see section on "Expenses and Financial Aid" near front of catalogue. *Roberts.*

300 *Gems and Gem Materials.* (3)
Recognition, distribution, geologic occurrence, and origin of gems and gem materials. Lecture, two hours; lab, two hours. *Lyons.*

400 *Geology of Kentucky.* (3)
A study of the geological features of the state other than mineral resources. This includes the major events in its geological history, the development of regional characteristics, an explanation of its scenic and natural wonders. *McFarlan.*

500 *Paleontology.* (3)
A study of fossil invertebrates, their nature, classification, and geological distribution. Lecture, one hour; lab, four hours. Prereq: GLY 210, 211 and General Zoology. *Campbell.*

501 *Paleontology.* (3)
A study of geologic faunas. Practice in determining stratigraphic horizons. Lecture, one hour; lab, four hours. Prereq: GLY 500. *McFarlan.*

502 *Economic Geology.* (4)
Mineral deposits other than petroleum and natural gas. Distribution, mode of occurrence, origin, methods of search for and uses. Lecture, three hours; lab, two hours. Prereq: GLY 210, 211, 212 and 213. *Brown.*

503 *Petroleum Geology.* (2)
The origin and accumulation of petroleum and natural gas. A study of geological methods used in exploratory work. Geology of principal producing fields. Lecture, two hours. Prereq: GLY 210, 211. *Roberts.*

504 *Elementary Petrology.* (3)
A megascopic study of the common rocks with emphasis on the sedimentary rocks. Prereq: GLY 212, 213. *Fisher.*

505 *Elementary Structural Geology.* (3)
An introduction to Earth structures. Advanced geologic map interpretation. Prereq: GLY 210, 211; Physics 211, 213. *Nelson.*

506 *Advanced Principles of Geology.* (4)
A general study of geological processes. Lecture, three hours; lab, one hour conference. Prereq: Restricted to senior major students in geology or by permission of the instructor. *Fisher.*

520-523 *Advanced Field Geology.* (2 ea.)
A field course in geologic mapping involving problems of local structure and stratigraphy. Six hours a week in the field. Prereq: GLY 220, 221. For special fee see section on "Expenses and Financial Aid" near front of catalogue. *McFarlan.*

524,525 *Field Work in Regional Geology.* (7 ea.)
Eight weeks in the field in Colorado. The course is an effort to bring the student into contact with diverse geological phenomena and problems. Geological field methods. See special announcement. Required of major students at the end of junior year. Prereq: GLY 210, 211. For special fee see section on "Expenses and Financial Aid" near front of catalogue. *McFarlan, Lyons.*

526,527 *Report on Field Work in Regional Geology.* (1 ea.)
Prereq: GLY 524, 525.

530,531 *Seminar.* (1 ea.)
Required of all senior majors. *Staff.*

532 *Independent Work in Geology.* (3)
Directed work in independent investigations. Thesis required. May be repeated for a maximum of 12 credits. Prereq: Major and standing of 3.0 in the department.

600 *Structural Geology.* (3)
A study of the structural features of the earth's crust with an analysis of the mechanics involved. Lecture, three hours; or lecture, two hours; lab, two hours. Prereq: PHY 211, 213; GLY 210, 211, 505. *Nelson.*

601 *Stratigraphy.* (3)
Regional stratigraphy. Sucession of faunas and the use of fossils for stratigraphic correlation. Lecture, one hour; lab, four hours. Prereq: GLY 210, 211, 500, 501. *McFarlan.*

602 *Stratigraphy.* (3)
A continuation of 601. Lecture, two hours; lab, three hours. Prereq: GLY 601. *McFarlan.*

603 *Optical Mineralogy.* (3)
A study of the optical properties of minerals by means of the petrographic microscope. Lecture, one hour; lab, four hours. Prereq: GLY 212 and 213; PHY 211 and 213. *Brown.*

604 *Sedimentary Petrology.* (3)
The classification and interpretation of sedimentary rocks, with emphasis on those aspects which relate to the occurrence of petroleum. Lecture, two hours; lab, two hours. Prereq: GLY 603. *Roberts.*

605 *Petrology of the Igneous Rocks.* (3)
The occurrence, origin, and classification of igneous rocks. Identification with the petrographic microscope. An introduction to metamorphic rocks. Lecture, one hour; lab, four hours. Prereq: GLY 603. *Brown.*

606 *Advanced Economic Geology.* (3)
Lecture, two hours; lab, two hours.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. *Staff.*

770 *Seminar.* (1)
May be repeated three times for a total of 4 credits. *Staff.*

HISTORY

FACULTY

Distinguished Professor: Thomas Dionysius Clark (Ph.D., Duke, 1932), CHAIRMAN. *Professors:* Carl B. Cone (Ph.D., Iowa, 1940), William Clement Eaton (Ph.D., Harvard, 1929), James Franklin Hopkins (Ph.D., Duke, 1949), Albert Dennis Kirwan (Ph.D., Duke, 1947), Shelby Thomas McCloy (Ph.D., Columbia, 1933). *Associate Professors:* Will D. Gilliam, Jr. (Ph.D., Indiana, 1941), Holman Hamilton (Ph.D., Kentucky, 1954), Robert Gerhard Lunde (M.A., Chicago, 1928), Paul Chester Nagel (Ph.D., Minnesota, 1952), Rhea Alec Taylor (Ph.D., Chicago, 1948), Bennett H. Wall (Ph.D., North Carolina, 1946), Stanley John Zyzniewski (Ph.D., Harvard, 1956). *Assistant Professors:* William J. Chambliss (Ph.D., Michigan, 1963), Arthur F. Corwin (Ph.D., Chicago, 1958), Richard L. Kay (Ph.D., Wisconsin, 1959), Thomas Kelly (M.A., Illinois, 1962), Gerard E. Silberstein (Ph.D., Harvard, 1962), Ross Allan Webb (Ph.D., Pittsburgh, 1956).

The Department of History has two fundamental functions in a liberal arts curriculum. First, it seeks to give a maximum number of students an understanding of the background of civilization. History is a significant gateway to the world's great collections of literature embodying the story of man's striving, hopes, and accomplishments. It is basic to many of the fields of the Arts and Sciences, and to an intelligent understanding of the complexities of civilization. The second function of the Department of History is that of offering a sound and comprehensive advanced and graduate program whereby students may acquire better familiarity with the broad movements in history, an intense knowledge of given fields, and specific knowledge of historical criticism and techniques.

For a Department of History to render effective service to its students, it must be composed of scholarly persons who have had original experience in research, writing, and interpretation of source materials. Since this department offers work leading to two advanced degrees, it tries to live up to these objectives.

History offers students an excellent foundation for many special courses in the university curriculum, its cultural possibilities are unlimited, and it provides excellent training for specialists in the fields of journalism, library work, public service, literature, law, and the radio. In his own right the historian has an unlimited field for teaching, research, and writing.

The introductory courses—104 and 105 in European history, 108 and 109 in American history, and 202 and 203 in British history—will aid freshmen and sophomores in subsequent courses in history, commerce, law, education, journalism, literature, and general liberal arts.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of social studies, including the major work.

Requirements for a Major. Prerequisites: History 104 and 105, 108 and 109, or 202 and 203. *Required:* A minimum of 18 credits of advanced courses in history plus the Senior Seminar.

Course Descriptions

104 *Modern Europe to the French Revolution.* (3) I, II
A survey of the growth of Europe from the decline of the Roman Empire to the French Revolution. *Staff.*

105 *Modern Europe Since the French Revolution.* (3) I, II
A survey of European developments from the French Revolution to the present. A continuation of HIS 104. *Staff.*

108 *History of the United States Through 1865.* (3) I, II
This course traces the nation's development through the Civil War. It is designed to meet the demands for a general understanding of American history. This course fulfills the requirements for the elementary teachers' certificate. *Staff.*

109 *History of the United States Since 1865.* (3) I, II
A continuation of 108, from 1865 to the present. *Staff.*

202 *History of British People to the Restoration.* (3) I, II
From the Roman period to the Stuart period. A general survey of the various epochs and phases of the English people at home and abroad. *Cone.*

203 *History of British People Since the Restoration.* (3) I, II
From the Stuart period to the present. A continuation of HIS 202. *Cone.*

229 *The Ancient Near East and Greece to the Death of Alexander the Great.* (3)
Covers the birth of civilization in Egypt and Mesopotamia, and the history of the Ancient Near East and Greece to the conquest of Greece by Philip of Macedon. *Kelly.*

230 *The Hellenistic World and Rome to the Death of Constantine.* (3)
Covers the conquests of Alexander the Great, and the main features of the Hellenistic World, the Roman Republic and the Roman Empire to the death of Constantine. *Kelly.*

240 *History of Kentucky.* (3) I, II
A general survey of the chief periods of Kentucky's growth and development from 1750 to the present. *Clark.*

285 *History of Russia to 1801.* (3)
A broad survey of the life of the Russian people from earliest times to the start of the modern imperial period. Primary attention is given to political developments and the socio-economic patterns that evolved, as well as to the significant intellectual and cultural achievements. *Zyzniewski.*

286 *History of Russia Since 1801.* (3)
Political institutions and events are surveyed, along with the progress and problems in towns and country (serfdom, industrialization, agrarian pressures). A summary of the revolutionary movements is presented as a preface to the upheavals of 1905 and 1917 and the subsequent evolution of the Soviet system. *Zyzniewski.*

I. AMERICAN HISTORY

316 *Seminar: Historical Method.* (2) I
To be taken during the first semester of junior year. *Staff.*

416 *Senior Seminar: Historical Literature.* (2)
A course for seniors designed to present the bibliography and literature in selected fields of history. Open to senior majors only. *Staff.*

500 *The Diplomacy and Foreign Policy of the United States to 1898.* (3) I
A survey designed to acquaint the student with the principles of American foreign policy and its historical evolution. Prereq: HIS 108 or equivalent. *Hopkins.*

501 *The Diplomacy and Foreign Policy of the United States Since 1898.* (3) II
A continuation of 500. Foreign policy after the United States became a world power. Prereq: HIS 109 or equivalent. *Hopkins.*

505 *Colonial America.* (3) I
A study of the origins and development of the English colonies; their relations with England and European states. Emphasis on imperial policies and colonial autonomy. Prereq: One year of American or European History. *Gilliam.*

506 *The American Revolution and the Constitution, 1763-1800.* (3) II
This course deals with the American Revolution and the beginning of the United States as a sovereign nation. Prereq: One year of American or European History. *Taylor.*

508 *Colonial Latin America.* (3) I
A survey of the origins and development of Latin American Colonies and their struggle for independence. *Corwin.*

509 *Latin American Republics.* (3) II
This course involves a study of the political, economic, and social institutions, and problems of the Latin American Republics from attainment of independence to the present. *Corwin.*

511 *Economic History of Latin America Since Independence.* (3)
Course emphasizes Latin American efforts in the 19th and 20th centuries to promote economic and social development, the problems encountered, the role of foreign investments and diplomatic pressures, and more recently, the economic factors in Latin American Social revolutions. Prereq: Hist. 508 or 509; or Econ. 102 or 103; or approval of instructor.

524 *Social and Cultural History of the United States to 1865.* (3) I
The development of American life and thought. *Nagel and Eaton.*

525 *Social and Cultural History of the United States Since 1865.* (3) II
A continuation of HIS 524. *Nagel and Eaton.*

532 *History of American Agriculture.* (3)
A study of American agriculture from 1800 to 1941. *Wall.*

540 *Independent Work.* (2 ea.)
Under special conditions selected students may investigate problems, with weekly reports to the instructor. Prereq: Major and standing of 3.0 in the dept. May be repeated three times for a total of 8 credits. *Staff.*

545 *Tutorial Reading.* (1)
Staff.

546 *The Middle Period of American History, 1800-1850.* (3)
A study of powerful personalities and pivotal events during this period: presidential influence of Jefferson; War of 1812; the impact of Marshall and Jackson; sectional differences and similarities; Mexican War, Compromise of 1850. Emphasis is placed on national growth, party battles, social cleavage, and industrial change. Prereq: HIS 108, 109. *Hamilton.*

547 *The Civil War and Reconstruction, 1850-1877.* (3) II
The political, social, and constitutional history of the Confederacy and the Reconstruction of the Southern States. *Kirwan and Eaton.*

548 *Recent History of the United States. 1877-1920.* (3) I
A study of the transformation of America from a rural society "isolated" from world affairs into a highly industrialized power. Prereq: HIS 108 and 109 or equivalent. *Wall, Eaton and Kirwan.*

549 *Recent History of the United States, 1920 to the Present.* (3) II
An intensive study of the principal movements and episodes in the history of the people of the United States from World War I to the present. Prereq: One year of American History. *Wall.*

551 *The American Frontier.* (3) I
A course dealing specifically with American westward expansion. Prereq: HIS 108 and 109 or equivalent. *Eaton and Clark.*

552 *The American Frontier.* (3) II
A continuation of HIS 551. It will consider the Trans-Mississippi West. *Eaton and Clark.*

555 *History of the Old South.* (3) I
A study of the colonial beginnings and expansion of southern life, economics, and society. The growth of slavery, staple agriculture, and sectional politics will constitute the major interest. Prereq: HIS 108. *Eaton and Kirwan.*

556 *History of the New South.* (3) II
The evolution of southern life and society, agrarian politics, relationships with other sections, industrial growth, and new leadership. *Clark.*

II. ENGLAND AND THE BRITISH EMPIRE

561 *English Constitutional History to 1603.* (3) I
A study of the backgrounds of the English constitution. Prereq: HIS 202 or equivalent. *Cone.*

562 *English Constitutional History Since 1603.* (3) II
A continuation of HIS 561. The constitutional struggle between the Stuart kings and Parliament; triumph of constitutional monarchy; rise of the Cabinet; effect of democracy in recent times. Prereq: HIS 203 or equivalent. *Cone.*

564 *History of Canada.* (3)
A brief survey of Canada under the French; the development under British control; evolution of the Dominion; relation with the United States and British Commonwealth of Nations. Prereq: One year of college history. *Webb.*

565 *The British Empire to 1860.* (3) I
Origin of the British Empire, 1783 to 1860; development of British sea power; the early growth and development of Canada, Australia, New Zealand, South Africa, and India. *Cone.*

566 *The British Empire and Commonwealth.* (3) II
A continuation of 565. Great Britain and the growth of the Dominions and the Commonwealth since 1860. Prereq: HIS 202 and 203. *Cone.*

568 *British Social History During the Tudor Period, 1485-1603.* (3) II
A study of British life, manners, and customs in town and country. Particular emphasis will be placed upon the age of Elizabeth, with political events subordinated to social changes. Prereq: HIS 202. *Cone.*

569 *British History Since 1815.* (3) I
A detailed study of Britain's political, social, diplomatic and industrial development during the modern period. Special consideration of Britain in World War I and World War II, and her position in the contemporary world. *Cone.*

III. EUROPE

570 *Early Middle Ages.* (3)
The political, economic and cultural aspects of medieval development from the fourth to the twelfth centuries. *Kay.*

571 *Later Middle Ages.* (3)
Emphasis will be placed on the significant political and intellectual development of the "High Middle Ages" through the later Middle Ages. *Kay.*

572 *Medieval Civilization.* (3) II
The chief emphasis will be placed on the "High Middle Ages" of the twelfth and thirteenth centuries and the distinctive civilization which then flourished in Western Europe. *Kay.*

573 *History of Classical Greece.* (3)
Covers the major political, economic, social and intellectual developments in Greece from the Persian Wars to the close of the War between Athens and Sparta. Emphasis will be placed on the reading of primary source material in translation. *Kelly.*

574 *Fourth Century Greece.* (3)
Traces the intellectual and social developments of Greece in the fourth century; the decline of the city-state system, and the rise of Macedon. The semester will end with the conquests of Alexander the Great. Prereq: HIS 573 or consent of the instructor. *Kelly.*

575 *The Renaissance and Reformation.* (3) I
This course is designed for a study of the birth of modern spirit and institutions. *McCloy.*

576 *The Roman Republic from 133 B.C. to 27 B.C.* (3)
The history of the Roman Republic from 133 B.C. to 27 B.C. The first semester will stress the effects of Rome's political expansion on her republican institutions, and the history of the Roman Revolution. The use of ancient source materials (in translation) will be emphasized. *Kelly.*

577 *History of the Roman Empire from 27 B.C. to A.D. 117.* (3)
The history of the Roman Empire from 27 B.C. to A.D. 117. The second semester will cover the founding of the Roman Empire by Caesar Augustus, the political history of the Empire through the reign of the Emperor Trojan, and the social and intellectual history of the Graeco-Roman world during the early Empire. Prereq: HIS 576 or consent of the instructor. *Kelly.*

578 *Social History of Europe in the Eighteenth Century.* (3) II
A study of the life and manners of the people of Europe in the 1700's. Special attention will be given to Western and Southern Europe. *McCloy.*

580 *The French Revolution and Napoleon.* (3) I
A study of the period 1789-1815 in Europe, treating of the appearance and manifestation of the spirit of revolt. Conditions in France and adjoining nations, the evolution of France from 1774 to 1795, and changes under Napoleon. *McCloy.*

581 *Europe 1814-1870.* (3) II
This course treats the successive political changes in 1823, 1830, 1848, and 1870, together with the outstanding commercial, cultural, and scientific developments of European life after 1815. *Silberstein.*

582 *Europe, 1870-1918.* (3)
A balanced treatment of the political, social, cultural, economic, and intellectual life of Europe in the period indicated. Special emphasis placed on diplomatic and military developments leading to the first World War. *Silberstein.*

583 *Europe Since 1919.* (3) I
A study of the origins and consequences of the two World Wars together with the revolutionary movements of fascism and communism and their challenge to liberal democracy. *Silberstein.*

584 *Russian Revolutions and the Soviet System I.* (3)
Study of the fundamental factors leading to the collapse of the monarchy, with emphasis upon the reforms and the governmental policies, their shortcomings, and the pressures of discontent that generated revolutionary movements. Prereq: HIS 104, 105 or HIS 285, 286. *Zyzniewski.*

587 *Russian Revolutions and the Soviet System II.* (3)
A continuation of 584, this course examines the ideological bases and *raison d'etre* of the Soviet State, before undertaking analyses of those conditions and policies which have molded the totalitarian system during the past four decades. Prereq: HIS 104, 105 or HIS 285, 286. *Zyzniewski.*

588 *The Age of Absolutism.* (3) I
A study of the development of absolute monarchies from Louis XIV; the European rivalries at home and abroad; benevolent depotism, and the Age of Enlightment. Prereq: HIS 104 or equivalent. *Lunde.*

589 *History of Russian Social and Political Thought, 1789-1914.* (3)
A study of the significant trends and concepts which evolved among the Russian intelligentsia is undertaken, with particular attention given to those ideas and doctrines which gave direction to revolutionary movements in Russia. Prereq: HIS 584 and 587 or consent of the instructor. *Zyzniewski.*

590 *Modern Europe.* (3)
This course is offered to meet a demand for a broader course which will equip students who are going out to teach European history in the present high school curriculum. Prereq: History 104 and 105. *Silberstein.*

591 *Political and Diplomatic History of East Central Europe from the French Revolution to the End of World War I.* (3)
A survey of the major factors and events which conditioned the political life and identity of the predominantly Slavic peoples inhabiting the region from Poland south to the Balkans, excluding the Eastern Slavs. Prereq: HIS 104, 105 or consent of the instructor. *Zyzniewski.*

592 *Cultural History of Seventeenth Century Europe.* (3) I
A history of the development of culture in Western and Southern Europe in various fields. *McCloy.*

593 *Cultural History of Eighteenth Century Europe.* (3) II
This course is designed to give a survey of European culture during the 1700's treating the sciences, literature, history, philosophy, the fine arts, and the industrial arts. *McCloy.*

594 *Political and Diplomatic History of East Central Europe Since World War I.* (3)
A comparative study is made of the political institutions and policies of these states located in the north-south corridor stretching from the Baltic to the Aegean-Adriatic Seas, their intra-regional relations and roles in European diplomacy. Prereq: HIS 104, 105 or consent of the instructor. *Zyzniewski.*

IV. THE FAR EAST

595 *The Far East to 1850.* (3)
A survey of Chinese, Japanese and Korean history from earliest times to 1850. Emphasis on political, economic, social and intellectual developments. Prereq: HIS 104 or equivalent.

596 *The Far East Since 1850.* (3)
A continuation of 595. A survey of the political and economic modernization of traditional Far Eastern society with emphasis on nationalistic reactions to Western pressure and international rivalry in the Far East. Prereq: HIS 105 or equivalent.

THE GRADUATE GROUP

a. 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) I
McCloy.

603 *American Historiography.* (3) II
Clark, Eaton, and Kirwan.

606 *Historical Criticism.* (3)
Required of every entering graduate student. *Staff.*

621,622 *Readings in European History, 1500-1815.* (3 ea.)

A course designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. Prereq: An undergraduate course in European History.

623,624 *Readings in European History Since 1815.* (3 ea.)

A course designed to provide systematic and extensive reading over broad areas of the period indicated, to acquaint the student with the standard source materials and literature of the field, and to provide opportunity for critical discussion of outstanding issues. Prereq: An undergraduate course in European History.

625,626 *Readings in British and British Empire History.* (3 ea.)

An intensive study of the bibliography of British and British Empire History, primary and secondary, with readings, analyses and criticisms of selected titles in the literature of the field and of recent published research in the professional journals. Prereq: An undergraduate course in British History.

631,632 *Readings in United States History to 1865.* (3 ea.)

A course designed to provide systematic and extensive reading over broad areas of American History in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American History.

633,634 *Readings in United States History Since 1865.* (3 ea.)

A course designed to provide systematic and extensive reading over broad areas of American History in the period indicated, to acquaint students with source materials and the secondary literature of the field, and to provide opportunity for critical discussion of books and issues. Prereq: An undergraduate course in American History.

b. Advanced Seminars

Seminars—Basically research in character. These are not content courses. They provide intensive training in historical research (collection and critical analysis of bibliography, note-taking and organization of materials, and the presentation of a properly documented thesis).

710 *Seminar in American History.* (3) I, II

Problems selected in critical periods in American foreign policy, particularly from the Spanish-American war. A seminar paper based upon research in source materials to be presented and defended in the seminar group.

Topics will be chosen in keeping with the interest of the professors in charge. May be repeated three times for a total of 12 credits. *Staff.*

720 *Seminar in Modern European History.* (3)

May be repeated three times for a total of 12 credits. *Silberstein.*

730 *Seminar in Modern British History.* (3)

Cone.

740 *Seminar in Kentucky History.* (3) I

The development of Kentucky as a western commonwealth, with emphasis on economic and political phases from the 18th century to the present, with writing of papers based upon research among documents and other source materials. *Clark.*

c. Theses

768 *Residence Credit for the Master's Degree.* (0)

May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)

May be repeated indefinitely.

HOME ECONOMICS

A student in the College of Arts and Sciences may elect toward the A.B. or B.S. degree a total of 30 credits from other colleges of the University.

HUMANITIES

Richmond Y. Hathorn, CHAIRMAN,
Humanities Committee

To satisfy the lower division requirement in the Humanities, students in the College of Arts and Sciences must take two courses in literature and philosophy (Humanities 200, 201 or 202) and one course in art or music (Humanities 203 or 204). Work in the Humanities has not been organized into a distinct department, but a faculty of instructors interested in the humanistic approach to literature, philosophy, and the fine arts has been assembled from the related departments.

200 *Classicism: Graeco-Roman; Modern European.* (2)

Lecture and discussion, and required reading from representative works. Typical of the writers to be considered are Plato, Aristotle, Sophocles, Vergil. Prereq: Sophomore standing.

201 *Romanticism: The Renaissance to the Present.* (2)

Lecture and discussion, and required reading from representative works. Typical of the writers to be considered are Ovid, Dante, Rabelais, Cervantes, Shakespeare, Spinoza. Prereq: Sophomore standing.

202 *Realism and Naturalism: The Contemporary.* (2)

Lecture and discussion, and required reading from representative works. Typical of the writers to be considered are Swift, Goethe, Ibsen, Joyce. Prereq: Sophomore standing.

203 *Art: The Renaissance to the Present.* (2)

Illustrated lectures and discussions, with required reading from the literature of art, history and criticism. Intensive critical study of selected masterworks. Prereq: Sophomore standing.

204 *Music: The Renaissance to the Present.* (2)

Lectures and discussion, with illustrations by performance and from recordings. Study of musical forms; required reading and listening; analyses of selected masterworks. Prereq: Sophomore standing.

205 *Aspects of Oriental Culture.* (2)

Selected readings from the literary masterpieces of India, China, Japan as an introduction to the outlook of Oriental man. Prereq: Sophomore standing.

206 *Aspects of Middle Eastern Culture.* (2)

Lectures, reading and discussion in the literature and thought of the Middle East, with emphasis on the perspective of the Middle Eastern man. Prereq: Sophomore standing. May be taken only as an elective.

300 *Seminar: Studies in the Humanities.* (2)

Intensive study of an area involving the several humanistic disciplines—literature, philosophy and the arts. May be repeated to a maximum of 4 credits. Prereq: 6 crs. in Humanities and consent of the staff.

HYGIENE & PUBLIC HEALTH

FACULTY

Professors: N. J. Pisacano (M.D., Hahnemaan, 1951), CHAIRMAN. William Brooks Hamilton (Ph.D., Massa-

chusetts, 1935). *Associate Professor:* Wilbur August Heinz (M.S.P.H., Michigan, 1930).

The lower division courses are designed to meet the general requirements in health and also to fulfill the requirements in health for teacher certification in elementary and secondary schools. The courses at the upper division level lead to a major in Hygiene and Public Health. There are opportunities in the field of Public Health for those interested in sanitary work, education, field positions in voluntary and official health agencies, etc.

Upper Division Requirements

Requirements in the Field of Concentration: 40 credits in the field of Biological Sciences, including the major work, in courses not open to freshmen.

Requirements for a Major. Prerequisite: 12 credits in Biological Sciences. *Required:* A minimum of 15 credits of advanced work in Hygiene and Public Health.

Course Descriptions

101 *Personal and Community Health.* (1) I, II
Lectures and recitations. An introduction to the principles of personal and community health. *Heinz and Hamilton.*

109 *Fundamentals of Health.* (2) I, II, S
A course considering the major health problems of today, with special emphasis upon the problems of adult health. It covers the area of chronic disease and disability and reviews our knowledge concerning the causes, prevention, and control of these diseases.

224 *Community Organization for Public Health.* (1) I, II
A consideration of community resources that may be utilized in the promotion of Public Health programs. *Staff.*

251 *Personal Health Problems.* (2) I, II
A course involving the detailed study of certain practical health problems of the present day. Not available for credit to students who have had HYG 101. Not open to Freshmen. *Hamilton.*

500 *Public Health.* (3) I, S
A consideration of the cause, prevalence, transmission, and control of preventable diseases. Prereq: HYG 109 or 251. *Hamilton.*

501 *Public Health.* (3) II, S
A continuation of 500. Administrative and organizational approach to disease prevention. Prereq: HYG 109 or 251. *Heinz.*

510 *Health Education.* (3) II, S
A course dealing primarily with principles of health education, health service, and health protection. Prereq: HYG 109 or 251. *Heinz.*

511 *Independent Work in Hygiene and Public Health.* (3) I, II, S
Prereq: Major and a standing of 3.0 in the department. May be repeated three times for a total of 12 credits. *Staff.*

515 *Communicable Diseases.* (3) II, S
Environmental sanitation and the effects of environment on the control of communicable diseases.

520 *Mental Hygiene.* (3) I, II, S
An introduction to mental hygiene including a consideration of the cause, treatment and prevention of mental disorders. Not open to students who have credit in PSY 520.

522 *School and Community Health.* (2) II, S
A course designed to develop an idea of the cooperative nature of school health work and the importance of connecting it up with adult health work. *Heinz.*

550,552 *Problems in Health Education.* (2, 2) I, S
An individual problems course for students and teachers in service, based upon a systematic attack upon the health problems of a school. Prereq: HYG 109 or 251. *Heinz.*

600 *Epidemiology.* (3) I, II, S
A study of the natural history of disease. *Hamilton.*

603 *Public Health Records.* (2) I, II, S
General principles of recording, filing, and use of public health data.

604 *Maternal and Child Health.* (2) I, S
A study of the principles of maternal, prenatal, infant, and child care. *Staff.*

612 *Public Health Administration.* (3) I, S
A consideration of the principles of public health administration. *Heinz.*

613 *Public Health Administration.* (2) II
A continuation of HYG 612. *Heinz.*

618 *Vital Statistics.* (3) I, S
Application of the statistics of population, births, deaths, etc. in Public Health.

619 *Vital Statistics.* (2) II, S
A continuation of HYG 618.

625 *County Health Practice for Health Officers.* (3) I, II, S
An internship in actual county health practice.

626 *County Health Practice for Health Officers.* (2) I, II, S
A critical analysis of one service of the Fayette County Health Department.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. *Staff.*

770 *Seminar.* (1) I, II, S
Staff.

JOURNALISM

See School of Journalism.

LAW

A student in the College of Arts and Sciences may elect toward the A.B. or B.S. degree a total of 30 credits from other colleges of the University. For the combined Arts-Law curriculum consult the Dean of the College of Arts and Sciences.

LIBRARY SCIENCE

FACULTY

Professor: Maurice Derby Leach, Jr. (B.L.S., Chicago, 1946), CHAIRMAN. *Associate Professors:* Willis Armstrong Katz (M.A., Washington, 1956), Laura Katharine Martin (M.A., Stanford, 1940). *Assistant Professors:* Norman Ford Clarke (M.A. and M.S. in L.S.,

Minnesota, 1955), Georgia R. Cole (M.S.L.S., Kentucky, 1953). *Instructor:* Margaret Roser (M.A., Kentucky, 1953).

The University provides professional education for librarianship through the Department of Library Science of the College of Arts and Sciences.

This Department is accredited by the American Library Association, the only library science department so accredited in Kentucky. The Department also is accredited by the Southern Association of Colleges and Schools. An acute nation-wide shortage of librarians, estimated at 18,000 by the American Library Association, provides unusual opportunities for qualified men and women entering the profession.

REQUIREMENTS FOR THE MASTERS DEGREE

Prerequisites: A bachelor's degree from an approved college or university; an undergraduate scholastic record that is above average, together with evidence of ability to perform graduate work satisfactorily; and completion of a preliminary core of nine semester hours in Library Science.

Undergraduate preparation should include academic rather than professional courses. Languages are considered basic for those interested in college or university library work. Subject to the recommendation of the Head of the Department, the preliminary core of nine semester hours in Library Science may be taken during the first semester of the graduate program; comparable work taken elsewhere may reduce this requirement.

The Master of Arts degree requires: Satisfactory completion of twenty-four semester hours of graduate work in Library Science; fulfillment of the residence requirement of 36 weeks; fulfillment of the requirement of a reading knowledge of one modern foreign language; preparation of a thesis; and passing a final oral examination in which the student is asked to defend his thesis and also is examined on any subject matter related to his field. The M.S.L.S. degree substitutes six semester hours for the thesis and a minimum of 12 semester hours with a minimum grade of C for the requirement of a reading knowledge of one modern foreign language.

The residence requirement may be fulfilled by any combination of semesters or summer sessions which totals the required number of weeks. Subject to the recommendation of the Head of the Department, candidates who have had previous training in Library Science may take up to one-third of their graduate work in courses in other departments. Such courses must be related closely to the student's field of specialization.

CERTIFICATION

Prerequisite: Junior standing. Library Science courses meeting the Kentucky State Board of Education requirements are: 513, 529, 533, 536, 537, 539, and 586 when qualifying in the secondary program.

Other libraries: Individual programs are arranged for students qualifying for sub-professional positions.

Course Descriptions

GENERAL COURSES

125 *Use of the Library.* (2) I, II
A practical survey of library book resources, tools, and services; designed to aid the college student in his study, research, and recreational reading. *Staff.*

311-316 *Workshop.* (1 ea.) S
Designed primarily for persons with little or no library science training who are responsible for a bookmobile or a public or school library situation. *Visiting Instructors.*

PROFESSIONAL COURSES

395 *Independent Work.* (2) I, II, S
Conferences, assigned readings, reports, etc. May be repeated once for a maximum of 4 credits. Prereq: Major and a standing of 3.0 in the department. *Staff.*

513 *Organization and Administration of the School Library.* (3) I, II, S
Designed to help beginning librarians organize collections for and administer school libraries. Planning and managing the library; ordering and preparing materials for use; and work with students and teachers. *Cole.*

521 *Libraries and Librarianship.* (3) I, II, S
An orientation course designed to give students a general understanding of libraries and library work. *Leach.*

529 *Cataloging and Classification.* (3) I, S
Emphasis on functions with sufficient practice to enable students to handle cataloging in the average library situation. Dewey Decimal classification and simplified cataloging emphasized with use of printed cards and other aids. *Clarke.*

533 *Reference and Bibliography.* (3) I, II, S
A study of the essential reference works, including dictionaries, encyclopedias, atlases, yearbooks, periodical indexes, and the more important subject and trade bibliographies. *Katz.*

536 *Literature and Related Materials for Young People.* (3) II, S
For teachers and librarians planning to work with young people. Emphasis on library materials to supplement the school curriculum and encourage recreational reading. (Covers types of materials of especial interest to readers of high school age—grades 7-12). Consideration given to materials for recreational reading and use with classes in high school. Some attention also paid to types of adult materials suitable for more mature students, and to problems of selection. *Cole.*

537 *Children's Literature and Related Materials.* (3) I, II, S
For teachers and librarians planning to work with children. Emphasis on library materials to supplement the school curriculum and encourage recreational reading. (Covers various types of materials for use by and with children of grades 1-6. Consideration given to types of books available in various fields, the authors of the books, their illustrators, and the use made of these materials in the school curriculum and as recreational reading.) *Cole and Roser.*

539 *Library Practice.* (3) I, II, S
Observation and supervised practice in a school library. This course fulfills a requirement of the Southern Association for school librarians. Prereq: LS 513, 529 and two of the following courses: 533, 536, 537. *Roser.*

545 *Organization of Library Materials.* (3) I, II, S
A course designed to give the beginning librarian practical instruction in the acquisition and organization of library materials. Among the topics included are ordering, accessioning, preparation of books and other materials. *Clarke.*

552 *Book Selection.* (3) I, S
A general study of book selection principles and methods, with emphasis on printed materials as they interpret modern problems. *Katz.*

586 *Visual Teaching.* (3) I, II, S
A course in methods and techniques of visual instruction. Emphasis is on the effective use of films, film strips, pictures, maps, graphs, slides, field trips, by means of lesson plans. Surveys are made of visual materials. (Same as EDU 544.)

612 *The Public Library.* (3) I, II, S
A study of the public library as a functioning institution. The course will include case studies of specific libraries. *Leach.*

613 *Problems in School Library Service.* (3) II, S
For experienced school librarians and administrators concerned with improving the program of library services in elementary and junior and senior high schools. Prereq: Library Science courses leading to professional certification (18 hours.) *Cole.*

614 *The College and University Library.* (3) I, II, S
A study of the college and university library as a functioning institution. The course will include case studies of specific libraries. *Clarke.*

627 *Problems in Reading for Children and Young People.* (3) II, S
Reading interests of young readers of various ages, and reading needs of average and exceptional readers. Current studies in field considered. Designed for those with experience in working with young readers. Prereq: 536, 537, or equivalent.

629 *Advanced Cataloging and Classification.* (3) II, S
Expansion of the principles and methods of classification and cataloging books and related materials. Attention given to more advanced problems in cataloging. Prereq: 529 or equivalent. *Clarke.*

632 *Library Work with Children.* (3) I, S
A study of the origin and present status of library work with children in school and public libraries. *Martin.*

633 *Subject Bibliography.* (3) II
A comprehensive study of basic reference materials in the humanities, social sciences, and natural sciences. This course emphasizes reference service in research libraries. Prereq: 533 or equivalent. *Katz.*

635 *Government Publications.* (3) II
A study of the problems of acquisition, preparation, and use of United States federal, state, and local government publications. Some consideration is given to documents of the United Nations. Prereq: LS 533 or equivalent. *Clarke.*

642 *History of Books.* (3) I
This course considers the records of early man, invention of the alphabet, early writing materials, manuscript books, the invention of printing, and book production in modern times. *Katz.*

650 *Adult Reading Guidance.* (3) II, S
Survey of the significant published studies of adult reading, as a guide to book selection through knowledge of adult needs and interests commonly satisfied through printed materials. *Clarke.*

652 *Advanced Book Selection.* (3) II, S
Emphasis on the more imaginative and creative forms of literature, especially the place of fiction in the modern library. Prereq: LS 552 or equivalent. *Katz.*

687 *Non-Book Materials.* (3) II
The evaluation, selection, acquisition, preparation for use, preservation and function of non-book materials in a library program. Prereq: LS 529, 533, and 545, or equivalent. *Katz.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. *Staff.*

771 *Seminar.* (3) II, S
Discussions and reports on current problems and trends in library service. Consideration of methods of investigating library problems. Assistance in the preparation of the thesis. *Katz and Leach.*

781 *Individual Study in Library Science.* (1) I, II, S
Individual conferences, assigned readings, reports, etc. May be repeated for a total of 4 credits. *Staff.*

786 *Problems in Library Science.* (1-4) I, II, S
Individual conferences, assigned readings, and reports on the investigation of chosen problems and areas in library science. May not be repeated. Prereq: 9 hours of library science at the 600 level.

MATHEMATICS & ASTRONOMY

FACULTY

Professors: Wimberly C. Royster (Ph.D., Kentucky, 1952), CHAIRMAN. Frederick V. Atkinson (Ph.D., Oxford, 1939), visiting, James Clifton Eaves (Ph.D., North Carolina, 1949), Adolph W. Goodman (Ph.D., Columbia, 1947), on leave, Wasley Swen Krogdahl (Ph.D., Chicago, 1942). *Associate Professors:* James Donnell Buckholtz (Ph.D., Texas, 1960), James H. Wells (Ph.D., Texas, 1958), Lech Wodarski (Ph.D., University of Lodz, Poland, 1954), visiting. *Assistant Professors:* James C. Beidleman (Ph.D., Pennsylvania, 1964), Marion C. Brown (M.A., Kentucky, 1925), Raymond H. Cox (Ph.D., North Carolina, 1962), Joseph B. Fugate (Ph.D., Iowa, 1964), Thomas L. Hayden (Ph.D., Texas, 1961), Charles N. Kellogg (Ph.D., Louisiana State, 1964), Lynn C. Kurtz (Ph.D., Utah, 1964), Donald Leon Prullage (Ph.D., Purdue, 1964), Harold G. Robertson (Ph.D., Illinois, 1962), John Selden (Ph.D., Georgia, 1963). *Instructors:* Guy R. Mauldin (M.S., Mississippi, 1959), William M. Priestley (M.A., Princeton, 1964).

The Department of Mathematics and Astronomy serves a two-fold purpose.

First: It provides courses leading toward the Bachelor of Science in Mathematics and Bachelor of Arts in Mathematics. It also provides a program whereby a prospective secondary school teacher may major in Mathematics in the College of Arts and Sciences while obtaining a teacher's certificate. Courses are offered in Algebra, Analysis, Geometry, Statistics and Applied Mathematics, Topology and Numerical Analysis. Courses at the advanced levels, leading to the M.A. Degree and the Ph.D. Degree, are offered.

Second: It provides courses to fit the specialized needs of students in other departments and colleges. To this end it offers courses to prepare the student for his work in agriculture, biological sciences, philosophy, physical sciences, and economics and social sciences. It also provides special background training for the prospective elementary school teacher. The teacher of secondary school mathematics is provided with courses suitable for both undergraduate and graduate work.

The Mathematics Department has a library that is adequate for both the researcher and the interested student.

Two non-mathematical courses in Introductory Astronomy are offered. Courses at the graduate level are offered in Astronomy. A portion of the departmental library consists of astronomical books, journals and bulletins.

Upper Division Requirements

Requirements in the Field of Concentration: At least forty credits of advanced work in the field of Physical Science, including the major work.

Requirements for a Major. Prerequisites: MA 110 or equivalent, 113, 211, 212, or 115, 116, 215, 216. *Required:* A minimum of 18 credits of advanced work in mathematics, including MA 432, 433 or 571. Upper division major work

is usually selected from courses numbered 261 through 572. Other courses may be substituted as approved by the advisor.

Requirements for Graduate Work. Graduate students must have had at least 12 credits of mathematics beyond MA 212 before counting work toward an advanced degree.

Course Descriptions

2 *Solid Geometry.* (non-degree credit)
A study of lines, planes, cubes, spheres, cones, and cylinders. For the student who has not had this subject in high school. Prerequisite for MA 211. Prereq: 1 unit high school plane geometry.

3 *Basic Geometry.* (non-degree credit)
An introductory course in Euclidean Geometry for students who have had no previous work in geometry. Five hours per week. Prereq: None.

12 *Trigonometry Lab for Engineers.* (0)
To be taken with MA 112.

110 *College Algebra and Trigonometry.* (5)
An integrated course in algebra and trigonometry covering the standard materials of these two courses. Prereq: One unit high school algebra, one unit high school plane geometry, and score of 60 or above on University Placement Test.

111 *College Algebra.* (3) I, II, S
Standard course. Prereq: 1 unit high school algebra. (Credit not allowed for both 110 and 111.)

112 *Plane Trigonometry.* (2) I, II, S
Study of the triangle with applications. Also a study of analytic trigonometry. Prereq: 1 unit high school plane geometry, and MA 111.

113 *Analytics and Calculus I.* (4) I, II, S
Introductory analytical geometry, differentiation and integration of algebraic and trigonometric functions, differentials, and applications of these concepts. Prereq: MA 111, 112 or 110.

115 *College Mathematics.* (3) I
A first course of a sequence designed for mathematics majors and honors students. Content: College Algebra, including set theory, foundations of mathematics, and other selected topics supported by outside readings and library selections. Prereq: Math Test score 90 or better or permission of the Department of Mathematics and Astronomy.

116 *Honors Calculus I.* (4) II
A three-semester calculus course designed for mathematics majors and honors students. Content: Topics covered in MA 113, 211, 212 with emphasis upon foundation theory and proofs. Prereq: MA 115 or permission of the Department.

121 *Mathematics of Finance.* (3)
A study of simple interest, simple discount, compound interest, and annuities with the derivations of the necessary formulas. Applications to solutions of problems in amortization, sinking funds, valuation of bonds. Prereq: MA 111.

122 *Mathematics for Social Sciences and Business.* (3) I, II
An introduction to the concepts of vectors and matrices, linear programming with application to business and economics. Prereq: MA 111.

201 *Fundamentals of Elementary Mathematics.* (3) I, II
A course designed to give teachers an understanding of elementary mathematics. Basic concepts of the number system and the laws of operation. This course is for elementary education majors. Prereq: Consent of instructor.

211 *Analytics and Calculus II.* (4) I, II, S
Additional topics in analytic geometry, transcendental functions, hyperbolic functions, integrational techniques and application to physics and engineering problems. Prereq: MA 113.

212 *Analytics and Calculus III.* (4) I, II, S
Vectors, determinants, space geometry, partial differentiation, multiple integrals, infinite series, complex numbers. Prereq: MA 211.

215 *Honors Calculus II.* (4) I
Continuation of MA 116.

216 *Honors Calculus III.* (4) II
Continuation of MA 215.

261 *Introduction to Number Theory.* (3) I
The division algorithm, Diophantine Equations, linear and quadratic congruences, historical enrichment material, Pythagorean triplets, open problems. Prereq: Consent of instructor.

262 *Linear Algebra.* (3) II
Real numbers, number fields ,single-valued mappings, vectors, vector spaces, determinants, linear transformations, second and third order square matrices. Prereq: MA 261.

331 *Differential Equations for Engineers.* (2)
First order differential equations, higher order differential equations with constant coefficients, and applications. Prereq: MA 212.

341 *Topics in Geometry.* (3)
Selected topics in geometry including Euclidean and non-Euclidean geometry (Hyperbolic and Elliptic Geometry). Convex spaces. Material to accent the contrast among the various geometries. Prereq: MA 211 or consent of instructor.

351 *Elementary Topology.* (3)
A beginning course in topology designed to develop mathematical maturity in topology and to cover the basic topology which is used in beginning graduate course in analysis. Open and closed sets, limits, continuous maps and homeomorphisms, connectedness, topological metric and compact spaces. Particular attention will be paid to the real line and the plane. Prereq: Consent of instructor.

361 *Foundations of Mathematics.* (3)
Sets, equivalent sets, infinite sets, cardinal numbers, ordered sets, point sets, bijective mappings, the natural numbers, algebraic systems, groups, rings, fields. Prereq: MA 211 or consent of instructor.

395-396 *Problem Seminar.* (3 ea.)
Reports on current research papers. Problems from various fields of mathematics. Prereq: Consent of instructor.

398,399 *Independent Work in Mathematics.* (3 ea.) I, II, S
Reading courses for upper division students of high standing. Prereq: Major and a standing of 3.0 in the department.

401 A *Historical Development of Mathematics.* (3)
A historical development of mathematics contrasting early solutions and approximations to modern techniques. Treats a vast number of mathematical problems from the process of elementary counting to the calculus and number theory. Prereq: MA 261, 341 or consent of instructor.

407 *College Geometry.* (3)
The geometry of the triangle and the circle. Requires only elementary Euclidean concepts. Prereq: Consent of instructor.

421 *Elementary Computational Methods.* (3)
Study of number systems, matrices, determinants, and Boolean Algebra with applications to electrical networks, machine computation, automatic electronic digital computors, and other engineering problems. Prereq: MA 212.

431 *Differential Equations.* (3)
First order differential equations, differential equations of higher order, series solutions, special second order equations. Prereq: MA 212.

432 *Applied Calculus.* (3) I
Limits; continuity; infinite series and sequences; differentiable functions; implicit functions; line, surface, and space integrals; Fourier series and integrals; vector analysis; matrices; partial differential equations; complex variables and conformal mapping. Prereq or concur: MA 431.

433 *Applied Calculus.* (3) II
A continuation of MA 432.

473 *Introduction to Complex Variables and Applications I.* (3)
An introductory course to complex variable theory with applications. Complex numbers, elementary properties of analytic functions, Cauchy theorems, power series, residue theory and conformal mapping. *Prereqs* MA 432 or equivalent.

485 *Fourier Series and Boundary Value Problems.* (3)
An introductory treatment of Fourier series and its application to the solution of boundary value problems in the partial differential equations of physics and engineering. Orthogonal sets of functions, Fourier series and integrals, solution of boundary value problems, theory and application of Bessel functions and Legendre polynomials. Prereq: MA 431 and 432 or equivalent.

501-504 *Summer Seminar in Selected Topics.* (3 ea.) S
This course is designed for those students who do not usually attend our regular semester courses but who wish to take several of the courses in summer school. The topics covered here will be selected from our present 500 or 600 courses. Prereq: Teaching experience in the field of mathematics and consent of instructor.

521 *Mathematical Statistics.* (3) II
Averages, coefficients of dispersion and skewness, correlation and regression lines, curve fitting, Bernouli Theorem, DeMoivre-Laplace Theorem, generating functions, sampling. Prereq: MA 212.

522 *Actuarial Mathematics.* (3)
Theory of mortality tables, life annuities, premiums, terminal reserve, joint-life annuities and insurance. Prereq: MA 211.

523 *Probability.* (3)
Theorems of total and compound probability, Bernoulli's Theorem, Bayes' Theorem. Poisson Law, Expected value, Law of large numbers. Distribution functions and characteristic functions. Prereq: MA 212.

525 *The Calculus of Finite Differences.* (3)
Method of differencing, interpolation, finite integration, summation of series, approximate integration and difference equations. Prereq: MA 212 and consent of instructor.

531 *Partial Differential Equations.* (3)
Equations in several variables, partial differential equations. Prereq: MA 431.

532 *Differential Equations.* (3)
This course consists of a thorough study of the linear differential equation of the second order along with its associated Riccati Equation. Attention is given to equations of the Fuchsian Type and other classical equations. Eigenvalue problems are considered along with oscillation theory of the second and fourth order linear differential equations. Prereq: MA 431.

535 *Vector and Tensor Analysis.* (3)
The algebra and calculus of vectors; theory of tensors; quadratic differentiable forms; Riemannian geometry. Emphasis on tensor analysis. Prereq: MA 431 or consent of instructor.

536 *The Operational Calculus.* (3)
The introductory theory and properties of the Laplace Transformation. Application in differential equations, difference equations and boundary value problems of mechanics, electricity and heat. Prereq: MA 431.

537 *The Operational Calculus.* (3)
The theory of the inverse Laplace Transformation. Applications in advanced boundary value problems. Fourier Transforms and applications. Prereq: MA 536.

538 *Elementary Numerical Analysis.* (3)
Approximate computation, approximate roots of equations, numerical curve fitting, interpolation formulas, numerical differentiation and integration, solutions of systems of linear equations, introduction to numerical solutions of ordinary differential equations. Prereq: MA 431 or consent of instructor.

541 *Projective Geometry.* (3)
Harmonic forms, projectively related primitive forms, curves and pencils of rays of second order, ruled surfaces of second order, theory of poles and polars, involution, inversion. Prereq: Consent of instructor.

542 *Curve Tracing.* (3)
A study of various methods for sketching algebraic curves. Emphasis on the analytic polygon in finding approximations to the form of the curve in the finite portion of the plane and at infinity. Prereq: Consent of instructor.

543,544 *Introduction to Higher Geometry.* (3 ea.)
Emphasis on fundamentals common to all geometry. Geometries associated with the projective group and the group of circular transformations. Prereq: Consent of instructor.

545,546 *Algebraic Curves.* (3 ea.)
Topics include general properties of algebraic curves, the theory of residuation, singular points, covariant curves, unicursal curves, systems of curves. Prereq: MA 544. *Pence.*

551 *Topology.* (3)
General topology, Hausdorf spaces, normal spaces, connectedness and compactness. Prereq: Consent of instructor.

561-562 *An Introduction to Modern Algebra.* (3 ea.)
Integral domains, Rational numbers and Fields, Polynomials, Real and Complex numbers, groups, vector spaces, Canonical Forms, Algebra of classes, rings and ideals, algebraic number theory, Galois Theory. Prereq: Consent of instructor.

565 *Introduction to Matrices.* (3)
The algebra of matrices, linear transformations, determinants of matrices, systems of equations, applications. Prereq: MA 211.

566 *Introduction to Theory of Numbers.* (3)
Divisibility, prime numbers, congruences and residues, Diophantine equations. Prereq: Consent of instructor.

571 *Introduction to Analysis.* (3) I
Point sets on the line and in Euclidean spaces, metric spaces, continuous functions, sequences, series.

572 *Introduction to Analysis.* (3) II
Functions of bounded variation, Riemann-Stieltjes integration, sequences of continuous functions, Fourier series, functions of several variables.

573 *Introduction to Complex Variables and Applications II.* (3)
Continuation to MA 473; boundary value problems, analytic continuation, contour integration, special functions. Prereq: MA 473.

601-604 *Summer Seminar in Selected Topics.* (3 ea.) S
Continued fractions, Peano's axioms, matrices and the solutions of systems of equations, machine computation, space curves, groups, rings, and fields. Prereq: Teaching experience in the field of mathematics and consent of instructor.

611-614 *Independent Work in Mathematics.* (3)
Reading course for graduate students of high standing. Prereq: Mathematics major and a standing of at least 3.0 in the department.

621 *Advanced Mathematical Statistics.* (3)
Theory of sampling, the Chi-square distribution, testing statistical hypotheses. Prereq: MA 521.

632 *Advanced Differential Equations.* (3)
Existence theorems, partial differential equations, linear equations with periodic coefficients, classical equations, equations in infinitely many variables. Prereq: MA 532, 571.

638 *Numerical Analysis.* (3)
Advanced methods of solutions of systems of equations, approximation of functions, numerical solution of ordinary and partial differential equations, convergence of iterative processes, error analysis, eigen-values of matrices. Prereq: MA 421 or 538 or equivalent with consent of instructor.

641 *Differential Geometry.* (3) I
Metric differential geometry of curves and surfaces in 3 dimensional Euclidean space, developable surfaces, curvature, geodesics, mapping of surfaces, absolute geometry of a surface. Prereq: Consent of instructor.

642,643 *Higher Geometry.* (3 ea.)
Topics include: Projective spaces, groups of collineations, invariants and covariants, Cremona transformations, the plane cubic and quartic, space curves, the cubic surface. Prereq: MA 544, or consent of instructor.

651 *General Topology.* (3)
Embedding and metrization, compact spaces, uniform spaces and function spaces. Prereq: MA 551.

661,662 *Higher Algebra.* (3 ea.)
Groups, rings, fields, Galois theory, linear algebra, hyper-complex numbers, ideals. Prereq: MA 561 or consent of instructor.

665 *Theory of Matrices.* (3)
Equivalence, inverses, symmetric and Hermetian matrices, similarity, canonical forms. Applications to systems of linear equations, differential equations, quadratic forms.

671,672 *Functions of a Complex Variable.* (3 ea.)
Differentiation and integration, contour integration, poles and residues, Taylor and Laurent series, conformal mapping, Riemann mapping theorem, Dirichlet problem, multiple-valued functions, Riemann surfaces, and applications. Prereq: MA 572.

678.679 *Calculus of Variations.* (3 ea.)
The ordinary problem for the plane and space cases; the necessary conditions of Euler, Weietrass, Legendre, and Jacobi. The parametric problem; the isoperimetric problem. Sufficiency conditions. Prereq: MA 531.

681,682 *Functions of a Real Variable.* (3 ea.)
Brief discussion of real numbers; continuous functions, semi-continuous functions, functions of bounded variation; Stieltjes Integral, measure and integration. Prereq: MA 571 or consent of instructor.

683, 684 *Summable Infinite Processes.* (3 ea.)
Fundamental limit ideas applied to infinite sequences, infinite series, infinite products, etc. Summability of Cesaro, Holder, Abel, Borel and Leroy. Prereq: MA 572.

685 *Fourier Series.* (3)
Expression of a general periodic function as a Fourier series, sufficient conditions for convergence, Fejer's theorem, applications. Prereq: MA 572.

687 *Integral Equations.* (3)
Systems of ordinary linear equations, linear operators, orthogonal systems, linear integral equations of the second kind, theorems of Freedholm, Volterra's equation. Prereq: Consent of instructor.

711 *Research in Mathematics.* (3)
Reading courses in the 600 group for graduate students. Prereq: Major standing of 3.0 in department. Consent of the Department. May be repeated to a maximum of 12 credits.

751,752 *Selected Topics in Topology.* (3 ea.)
Topological algebras, algebraic topology, topologies in lattices. Prereq: MA 651.

753,754 *Linear Spaces.* (3 ea.)
Topological spaces, metric spaces, vector spaces. Banach space, with applications to summability theory, infinite systems of linear equations, spectral theory. Prereq: Consent of instructor.

768 *Residence Credit for Master's Degree.* (0)
This course is designed for graduate students working for advanced degree. The time-credit is on the same basis as for any other course but no point-credit is given. May be repeated once.

769 *Residence Credit for Doctor's Degree.* (0)
This course is designed for graduate students working for advanced degree. The time-credit is on the same basis as for any other course but no point-credit is given. May be repeated indefinitely.

771-776 *Selected Topics in the Theory of Complex Variables.* (3 ea.)
Analytic continuation, functions with natural boundaries, gap theorems, over-convergence, entire functions, Dirichlet series. Prereq: Consent of instructor.

777,778 *Mathematical Seminar.* (2 ea.)

ASTRONOMY

191 *Descriptive Astronomy.* (3)
A non-mathematical course dealing with the earth, moon, solar system, the stars, the galaxy, and the universe at large. Occasionally special classes will be held at the observatory. Prereq: None.

192 *Descriptive Astronomy.* (2)
A study of the sun, moon, planets, comets, meteors; the celestial sphere, the telescope, latitude and longitude, time and calendar makings; tides; eclipses; stars and stellar systems; and theories of evolution. The course is non-mathematical. Prereq: MA 191 or consent of instructor.

193 *Elementary Astronomy.* (3)
A descriptive, non-mathematical account of the solar system, the sun and stars, our galaxy, and the universe at large. For elective credit, non-science requirement. (Credit is not given for both MA 193 and either 191 or 192.) Prereq: None.

291 *Spherical Astronomy.* (3)
Application of the formulae for the spherical triangle to a variety of problems on the celestial sphere. Prereq: MA 112.

292 *Galactic Astronomy I.* (3)
Consideration of stellar statistics, radio astronomy, galactic rotation, stellar populations, interstellar medium. Prereq: MA 191, 192, or consent of the department.

391 *Celestial Mechanics.* (3)
The mechanics of systems of gravitating particles, with emphasis upon the calculation of orbits, theory of perturbations. Prereq: MA 431.

492 *Galactic Astronomy II.* (3)
Study of the content, organization, and evolution of our own and other galaxies. Prereq: Consent of the department.

591 *Cosmology I.* (3)
Consideration of observational basis of cosmology, cosmological theories of general relativity, the steady state theory, and kinematic relativity. Prereq: MA 113, and MA 211.

592 *Cosmology II.* (3)
A study of the universe as a complete physical unit. Consideration of the various relativistic models and theory evaluation in the light of current observations. Prereq: MA 571.

MICROBIOLOGY

FACULTY

Professors: Morris Scherago (D.V.M., Cornell, 1919), CHAIRMAN. Jack Norman Baldwin (Ph.D., Purdue, 1950), James Charles Humphries (Ph.D., Yale, 1944), James T. McClellan (M.D., Oklahoma, 1942, M.S., Minnesota, 1950), Isaac Ruchman (Ph.D., Cincinnati, 1944), Ralph Holder Weaver (Ph.D., Michigan State, 1944), *Associate Professors:* Ogden Frazelle Edwards (Ph.D., Yale, 1936), Harold Eugene Resinger (M.D., Nebraska, 1954), Ralph Franklin Wiseman (Ph.D., Wisconsin, 1956). *Assistant Professor:* Kingsley Morton Stevens (M.D., Harvard, 1947).

The Department of Microbiology as its contribution to a curriculum devoted to the liberal arts, offers courses for students who wish to learn about microbes, their effects on human and animal health, and their use as tools in many industries, as well as for students who wish to major in microbiology. The student becomes acquainted with many fundamental biological principles through the study of living things seen only with the microscope. The department affords opportunity to gain the A.B. or B.S. degree with microbiology as a major, and it also provides a curriculum in Medical Technology. In addition, the department offers the M.S. degree in the various fields of microbiology, and the

Ph.D. degree in the fields of morphology and physiology of microorganisms, immunology and serology, and medical and public health bacteriology.

The Degree of B.S. in Medical Technology

The University of Kentucky, in affiliation with the Good Samaritan Hospital, and the Lexington Clinic, is registered, through the Department of Microbiology, as an approved school for the training of medical technologists by the Board of Registry and the Board of Approved Schools of the American Society of Clinical Pathologists, and by the Council on Medical Education and Hospitals of the American Medical Association.

The Medical Technology curriculum may function as a pre-medical curriculum since it includes all the requirements of the American Medical Association and the Association of American Medical Colleges for entrance to accredited medical schools, provided the student has a reading knowledge of a foreign language.

CURRICULUM LEADING TO THE DEGREE B.S. IN MEDICAL TECHNOLOGY

Freshman Year

First Semester	Crs.
ENG 101—Freshman Composition	3
CHE 104 or 110—General College Chemistry	4-5
MB 100—Elementary Microbiology	4
MA 111—College Algebra	3
Physical Education	1
	15-16

Second Semester	Crs.
ENG 102—Freshman Composition	3
CHE 106 or 112—General College Chemistry	4-5
MB 102—Elementary Microbiology	4
ZOO 100—General Zoology	4
Physical Education	1
	16-17

Sophomore Year

First Semester	Crs.
ZOO 200—Comparative Anatomy	4
CHE 230—Organic Chemistry	5
MB 210—Bacteria of Foods	4
Humanities	4
	17

Second Semester	Crs.
CHE 226—Analytical Chemistry	4-5
CHE 232—Organic Chemistry	5
MB 220—Bacteria of Water and Sewage	4
BOT 103—Plant Kingdom	3
	16-17

Junior Year

First Semester	Crs.
ZOO 513—General Histology	4
MB 500—Pathogenic Bacteriology	4
Foreign Language	3
MB 510—Laboratory Diagnosis	3
PGY 502—Principles of Physiology	5
	19

Second Semester	Crs.
ZOO 515—Special Histology	3
MB 550—Immunology, Serology	5
Foreign Language	3
MB 511—Laboratory Diagnosis	3
ZOO 506—Embryology	4
*MB 99—Practicum in Medical Technology	0
	18

Senior Year

First Semester	Crs.
PHY 211—General Elementary Physics	5
MB 520—General Pathology	4
MB 350—Seminar	1
MB 300—Hospital Practice	4
Elective (Social Science)	3
	17

Second Semester	Crs.
PHY 213—General Elementary Physics	5
Humanities	2
MB 350—Seminar	1
MB 301—Hospital Practice	6
Elective (Social Science)	3
	17

Total credits 136 exclusive of Military Science and Physical Education credits.

* A student must make a grade of C or better in this course to be eligible for the degree Bachelor of Science in Medical Technology.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the Sciences including the major work.

Requirements for a Major. Prerequisites: Mathematics 111; Chemistry 110 and 112; Physics 211 and 213; Microbiology 102, or 200 and 410; Botany 101 or 103; Zoology 100. *Required:* Chemistry 226 and 230, 232, Microbiology 500, 550, 350 twice, and a minimum of 5 additional credits of advanced work in Microbiology.

Courses 100 and 102 are for majors. Course 200 or 400 is recommended to fulfill the requirements of students in the College of Agriculture and Home Economics, premedical students, and students in sanitary engineering.

Courses 100 and 102 or 200 or 400 are available for students in Education and Commerce, to fulfill the biological sciences group requirement in the College of Arts and Sciences, etc.

Courses 110 and 112 are designed primarily for student nurses but are open to others.

Course Descriptions

99 *Practicum in Medical Technology.* (0) I, II, S

Students are required to spend three months performing under supervision, various clinical laboratory tests in one of the approved clinical laboratories in Lexington. Prereq: MB 510, 511 and 550. *McClellan, Resinger, and others.*

100 *Elementary Microbiology.* (4) I, II

The fundamental nature of bacteria and other microorganisms. Morphology of microorganisms. Lecture, two hours; lab, four hours. *Weaver and Wiseman.*

101 *Laboratory for Microbiology 100.*

102 *Elementary Microbiology.* (4) I, II
Continuation of 100. A cultural study of bacteria. Microbial physiology. Relationship of microorganisms to soil fertility, foods, industrial fermentations, disease, etc. Lecture, two hours; lab, four hours. Prereq: MB 100. *Weaver and Wiseman.*

103 *Laboratory for Microbiology 102.*

110 *Elementary Medical Microbiology.* (4) II, S
A study of the characteristics and habits of microorganisms and of their relation to medicine, surgery, and public health. Lecture and recitation, two hours; lab, four hours. Prereq: PGY 206; CHE 100. *Scherago, Edwards, and others.*

111 *Laboratory for Microbiology 110.*

112 *Elementary Pathology.* (2) II, S
A study of the causes of disease, the nature of disease processes, the securing and preserving of specimens for the laboratory. Lecture and recitation, one hour; lab, two hours. Prereq. or concurrent: MB 110. *Scherago, Edwards, and Hotchkiss.*

113 *Laboratory for Microbiology 112.*

200 *Principles of Bacteriology.* (4) I, II, S
Lecture and recitation, two hours; lab, four hours. (An alternative course for students who do not have the prerequisites for 400.) Prereq. or concurrent: CHE 112 or 104. *Scherago or Edwards and others.*

201 *Laboratory for Microbiology 200.*

210 *Bacteriology of Foods.* (For Sophomores.) (4) I, S
Dairy and miscellaneous food products; food preservation; food poisoning. Standard methods for official food and public health laboratories. Lecture, two hours; lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 112. *Weaver and Humphries.*

211 *Laboratory for Microbiology 210.*

220 *Bacteriology of Water and Sewage.* (4) II, S
Microbiology of water; methods of purification. Sewage disposal methods. Operation of swimming pools. Standard and other methods for examination. Lecture, two hours; lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 112. *Weaver and Humphries.*

221 *Laboratory for Microbiology 220.*

300,301 *Hospital Laboratory Practice.* (4,6) I, II, S
Students are required to carry out, under supervision, the laboratory work in one of the hospitals in Lexington. Lab, twelve hours, and eighteen hours, respectively. Prereq: MB 99. *McClellan, Resigner, and others.*

350 *Seminar.* (1) I, II
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national scientific societies. Required of all seniors. May be repeated to a maximum of 4 credits. Two hours. *Staff.*

395 *Independent Work.* (3) I, II, S
Students are assigned special problems in laboratory work and reference reading. Lab, six hours. May be repeated to a maximum of 18 credits. Prereq: Major and standing of 3.0 in the department. *Staff.*

400 *General Bacteriology.* (4) I, II, S
Microorganisms; their morphology, classification, physiology, relation to certain fermentations, to food, to soil fertility, and to disease. Lecture and recitation, two hours; lab, four hours. Prereq: CHE 112 or 104. *Scherago or Hotchkiss and others.*

401 *Laboratory for Microbiology 400.*

410 *Applied Bacteriology.* (2) I, II, S
A course in bacteriological analysis to supplement Courses 200 and 400. Lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 112. *Hotchkiss and others.*

500 *Pathogenic Bacteriology.* (4) I, S
Human and animal pathogenic microorganisms, especially their morphological, cultural, and pathogenic properties. Lectures, two hours; lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 112. *Scherago or Humphries.*

501 *Laboratory for Microbiology 500.*

510 *Laboratory Diagnosis.* (3) I, S
Laboratory methods employed in diagnostic and public health laboratories. Designed primarily for medical technology students. Examination of sputum, urine, and blood. Lab, six hours. Prereq: Preceded or accompanied by MB 500.

511 *Laboratory Diagnosis.* (3) II, S
Continuation of MB 510. Examination of blood continued. Laboratory diagnosis of parasitism and infectious diseases. Lab, six hours. Prereq: Preceded or accompanied by MB 500.

520 *General Pathology.* (4) I, S
Effects of disease are studied at autopsies and by the examination of fresh and museum specimens and histological sections. Lecture, two hours; lab, four hours. Prereq: PGY 502, ZOO 200, 515 and 506; MB 500. *Scherago, McClellan, and others.*

521 *Laboratory for Microbiology 520.*

550 *Immunology and Serology.* (5) II
The theories and mechanisms of infection and immunity; preparation, standardization, and uses of biological products; serology. Lectures, two hours; lab, six hours. Prereq: MB 500. *Scherago and Humphries.*

551 *Laboratory for Microbiology 550.*

610 *Bacteriology of Foods.* (4) I, S
Dairy and miscellaneous food products; food preservation; food poisoning. Standard methods for official food and public health laboratories. Lecture, two hours; lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 112. *Weaver and Wiseman.*

611 *Laboratory for Microbiology 610.*

620 *Bacteriology of Water and Sewage.* (4) II, S
Microbiology of water; methods of purification. Sewage disposal methods. Operation of swimming pools. Standard and other methods for examination. Lecture, two hours; lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 112. *Weaver and Wiseman.*

621 *Laboratory for Microbiology 620.*

630 *Public Health Bacteriology.* (3) I, S
Public health aspects of bacteriology including the etiology, epidemiology, immunology, and lab. diagnosis of infectious diseases. Lectures, one hour; lab, four hours. Prereq: Open only to physicians and health officers or those with equivalent training. *Scherago and others.*

631 *Laboratory for Microbiology 630.*

632 *Public Health Bacteriology.* (3) II, S
Continuation of 630. Lectures and recitations, one hour; lab, four hours. Prereq: MB 630. *Scherago and others.*

633 *Laboratory for Microbiology 632.*

635 *Clinical Mycology.* (2) I, S
Methods and techniques for isolating and propagating pathogenic actinomycetes and fungi. Laboratory diagnosis of fungous infections. Lab, four hours. Prereq: CHE 432; reading knowledge of one foreign language; MB 550.

640 *Disinfectants and Antibiotics.* (3) II, S
Chemical agents injurious to microorganisms. Practical applications and methods of testing. Conferences, one hour; lab, four hours. Prereq: MB 400 or 200; or 102 and CHE 432. *Hotchkiss.*

641 *Laboratory for Microbiology 640.*

651 *Immunochemistry and Advanced Immunology.* (4) II, S
Chemistry of antigens and antibodies; of the reaction between them in vitro and in vivo; immune and hypersensitive reactions. Lectures and conferences, two hours; lab, four hours. Prereq: MB 550; CHE 432 and 444. *Scherago or Humphries.*

652 *Laboratory for Microbiology 651.*

660 *Electron Microscopy.* (3) I, S
Theory, operation and uses of the magnetic electron microscope and the vacuum unit for metal shadow casting. Lecture, one hour; lab, four hours. Prereq: PHY 232, 242. *Edwards.*

661 *Laboratory for Microbiology 660.*

670 *Viruses and Rickettsiae.* (4) I, S
Natures, activities, and methods of laboratory cultivation of viruses and rickettsiae; their relation to bacteria, plants, and animals. Lectures, two hours; lab, four hours. Prereq: MB 550. *Ruchman.*

671 *Laboratory for Microbiology 670.*

700 *History of Bacteriology.* (2) I, S
Conferences, two hours. Prereq: MB 550. *Weaver.*

712 *Bacterial Anatomy, Taxonomy and Nomenclature.* (3) II
Study of anatomical structure of various groups of bacteria, theories of staining, principles of taxonomy, code of nomenclature of bacteria and viruses. Cytochemical procedures used in laboratory. Lectures and conferences, two hours; lab, two hours. Prereq: MB 550, Chem. 432, recommended MB 660. *Weaver.*

714 *Microbial Genetics.* (4) I
The nature and action of genetic material in microorganisms. Lectures and conferences, two hours; lab, 4 hours. Prereq: Basic courses in Genetics and Microbiology; Chem. 432. *Baldwin.*

720 *Metabolism of Micoorganisms.* (4) I
Chemical changes produced by microorganisms; properties of their enzymes; the physiology of their growth. Lectures or conferences, two hours; lab, four hours. Prereq: CHE 432; reading knowledge of German or French. *Wiseman.*

721 *Laboratory for Micriobiology 720.*

722 *Metabolism of Microorganisms.* (4) II
Continuation of 720. Lectures or conferences, two hours; lab, four hours. Prereq: MB 720. *Wiseman.*

723 *Laboratory for Microbiology 722.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely.

770 *Seminar.* (1) I, II
Review of current literature in microbiology; presentation of papers on work in progress in the department or on assigned topics; reports on meetings of national scientific societies. Required of all graduate students. Two hours. May be repeated to a maximum of 10 credits. *Staff.*

790 *Research in Bacteriology.* (3-6) I, II, S
Lab, ten hours. May be repeated to a maximum of 12 credits. *Senior Staff.*

795 *Research in Bacteriology.* (3-6) I, II, S
Lab, ten hours. May be repeated to a maximum of 24 credits. *Senior Staff.*

MILITARY SCIENCE (ARMY ROTC)

FACULTY

Professor: James Pryse Alcorn (B.S., Kentucky, 1939), CHAIRMAN. *Assistant Professors:* Thomas William Arnold (B.S., Clemson, 1954), Stanley Wayne Campbell (A.B., Eastern Kentucky State College, 1957), Robert James Lester (B.S., The Citadel, 1956), Donald F. Stine (B.S., Washington and Lee, 1956). *Instructors:* Harold N. Haley, Malcolm Hastcoat, William C. Hendricks, Sr., Harry Wertz Jones, Herbert C. Large, Clifford Riddle.

THE U.S. ARMY RESERVE OFFICERS TRAINING CORPS

The University of Kentucky maintains a unit of the senior division of the Reserve Officers' Training Corps in conformity with the provisions of the National Defense Act of 1916, as amended.

Object. The object of the Reserve Officers' Training Corps is to provide systematic military training at civil educational institutions for the purpose of qualifying selected students of such institutions as reserve officers in the Army of the United States. This object is attained by employing methods which fit men physically, mentally, and morally for pursuits of peace as well as for duties as leaders in the defense forces of the nation in an emergency.

Educational Aim. The course of study is designed to give to the student a training which will be as valuable to him in his industrial or professional career as it would be should the nation call upon him to act as a leader in its defense forces.

General Policy. The policy adopted by the Department of Army to carry out the provisions of the act of Congress of June 3, 1916, as amended, is to qualify students for positions of leadership in time of national emergency and to inculcate in them a respect for all lawful authority, and to teach the fundamentals of the military profession.

The primary purpose of all training is the development of character, leadership, and good citizenship; character through high standards of honor and integrity, leadership through the acquisition and use of knowledge, good citizenship through the idea of service as the real measurement of accomplishment and success.

Discipline of Body and Mind. The following characteristics of an officer and a gentleman will be insisted upon: Neatness in dress, the cultivation of the manners and habits of a gentleman, a dignified and military bearing, devotion to duty and consideration of others; the cultivation in the student body of esprit de corps, obedience to orders, acceptance of responsibility, and avoidance of excuses.

Uniform Equipment. Government uniforms and equipment are furnished the University for issue to basic students without cost to the individual. Each basic student is required to make a deposit of $10.00 with the Business Office of the University to cover the cost of any lost or damaged articles. If no clothing is lost or damaged, the entire sum is refunded to the student when he completes the two years' basic course or leaves school.

Advanced students will obtain uniforms through a commutation of uniforms system. The University acts as the

agent of the advanced course student in whose behalf commutation of uniform is drawn, and purchases a uniform for the advanced student with the allowance received. This uniform becomes the property of the student only after fulfillment of the advanced course contract and, as such, is his sole responsibility to maintain and keep. Advanced course students are required to deposit $10.00 with the Controller of the University prior to receipt of the uniform. Refund of this deposit, during the period between academic years, is governed by the same rules as for the basic student.

Retainer Pay. Advanced course enrollees receive retainer pay of $40.00 per month.

Basic Course. The military department offers a two years' basic course in military science and tactics. The basic course may be selected by freshmen and sophomores who are citizens of the United States, and who conform to the physical requirements as prescribed by the Department of Defense for units of the Reserve Officers' Training Corps. Credit for the basic course may be given for service in the United States or allied military, naval, or air forces. This credit will not necessarily admit the student to advanced military science.

Advanced Course. The advanced course of two years, including a six-weeks Summer encampment at the conclusion of the junior (MS 111) year, is offered to students who have successfully completed the basic course, and who have been recommended by the President of the University and the Professor of Military Science for further training, or who have made application, been accepted, and have successfully completed a Summer encampment prior to entering the junior (MS 111) year. Recommendations and acceptance for this course will be limited to those students who have manifested special interest during the basic course or the Summer encampment, and who meet other standards, with a view to qualifying for a commission in the United States Army Reserve. An advanced course student, who makes and maintains a minimum graduation point standing of 2.5 and meets other standards, may be designated a Distinguished Military Student, which makes him eligible to apply for a commission in the Regular Army. A Distinguished Military Student may be designated a Distinguished Military Graduate upon his being awarded a baccalaureate degree, provided he continues to meet the required standards. The Military Science Department offers two programs leading to a Bachelor of Arts or Bachelor of Science degree with a major in Military Science.

Course Descriptions

Branch General

BASIC COURSE

101,102 *Military Science I, ROTC.* (2 ea.)
Introductory course covering broad concepts of military science, including Organization of the Army; American military history; and individual weapons, together with such practical subjects as marksmanship, leadership and drill. *Staff.*

201,202 *Military Science II, ROTC.* (2 ea.)
Course in crew-served weapons and gunnery; map and aerial photograph reading; role of the Army in National Defense; leadership, drill and command. Prereq: MS 101 and 102.

ADVANCED COURSE

Upon successful completion of the Advanced Course (MS 111 and MS IV), commissions may be granted as Second Lieutenants, United States Army Reserve. Each member of the Advanced course will be required to attend Summer Camp.

Prerequisite for the advanced course is the satisfactory completion of the basic course requirements or a Summer encampment, and selection by the President of the University and the head of the Department of Military Science.

301,302 *Military Science III ROTC.*
(Branch General) (3 ea.)
Small unit tactics and communications; organization, function, and mission of the arms and services; military teaching methods; leadership; and school of the soldier and exercise of command. Prereq: MS 201, 202. *Staff.*

341-342 *Military Science IV ROTC.*
(Branch General) (3 ea.)
An advanced study of logistics, operations, military administration, personnel management, military justice, the role of the United States in world affairs, service orientation and leadership, drill and command. Prereq: MS 301, 302. *Staff.*

343 *Army ROTC Flight Training.* (2 ea.)
Approximately 36 hours of aerial flight instruction and 35 hours of ground instruction in principles of flight, aerial navigation, and weather. Prereq: Must be enrolled in MS 341 or 342 and must have completed MS 301 and 302. Must be physically qualified.

11 *Army ROTC Summer Camp.* (0) S
Practical training supplementing theoretical work of the college course. Exercises developing performance technique of tactical, technical, and administrative duties; training in leadership is stressed. Record and familiarization of firing of weapons. Prereq: MS 301, 302.

MODERN FOREIGN LANGUAGES & LITERATURES

FACULTY

Professors: L. Clark Keating (Ph.D., Harvard, 1934), CHAIRMAN. Jean D. Charron (Ph.D., North Carolina, 1956), J. Eduardo Hernandez (Ph.D., Kentucky, 1938), Alberta Wilson Server (Doctorat de l'Universite, Besancon, 1939), Paul Stapf (Ph.D., Berlin, 1937), Thomas Capell Walker (Ph.D., Johns Hopkins, 1941), Paul Knowlton Whitaker (Ph.D., Ohio State, 1942). *Associate Professors:* Norman Henry Binger (Ph.D., Ohio State, 1942), Phillip Aaron Duncan (Ph.D., Indiana, 1958), Eugene K. Grotegut (Ph.D., California, 1959), Jane Haselden (Ph.D., Kentucky, 1941), Walter G. Langlois (Ph.D., Yale, 1956), Gerardo Saenz (Ph.D., Texas, 1959). *Assistant Professors:* William Jones Chambliss (Ph.D., Michigan, 1963). *Instructors:* Mary Wilson Garmon (M.A., Kentucky, 1963), W. Robert Luszczynski (M.A., Wayne State, 1960), Robert Payne Moore (M.A., Harvard, 1959), John A. Rea (A.B., Miami, 1948), Ingeborg Fiehler Riester (M.A., Kentucky, 1952).

The Department of Modern Foreign Languages and Literatures embraces the five major European languages: French, German, Spanish, Italian, Russian and three years of Japanese. Undergraduate students are offered the choice of four specialized curricula leading to the A.B. degree with a major in French, German, or Spanish. The Department offers

advanced work in the literature and philology of each of the three languages (French, German, Spanish), leading at present to the Master of Arts degree; and to the Ph.D. degree in French.

As a branch of the liberal arts curriculum, one of the fundamental aims of language study must be to broaden and deepen our acquaintance with the world about us by presenting new aspects of its culture and a more intimate knowledge of its peoples through the medium of foreign languages and literatures. In addition, the Department provides training for those interested in entering the diplomatic and various other Government services where knowledge of foreign languages is required; it offers specialized preparation to prospective high school and college language teachers; it furnishes graduate and science students with the training necessary to use foreign language books and periodicals for reference and research.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits in the field of Literature, Philosophy, and the Arts, including the Major work, in courses not open to freshmen. With the approval of the head of the department and the dean, courses in related fields may be counted in the field of concentration.

It is inadvisable for a student to begin the study of two foreign languages at the same time.

The student who offers two high school units of a foreign language should register for the first semester of the intermediate course. Students who have had more than 2½ high school units should register for the second semester of the intermediate course.

Course Descriptions

FRENCH LANGUAGE AND LITERATURE

Requirements for a Major. Prerequisites: Junior standing; 12 hours of English, MFL 101, 102, 201, 202; 141, 142 or 191, 192; 203 or 207, 208. *Required:* a minimum of 17 credits of advanced work in French; MFL 513. Comprehensive examination in the senior year.

11 *French for Reading Knowledge.* (0)
This course is designed to meet the needs of upper division and graduate students who are preparing for the graduate reading examination.

101 *Elementary French.* (3) I, II, S
The study of the basic principles of the language through grammar, with emphasis on oral practice through the use of oral exercises. A short reader is introduced. *Staff.*

102 *Elementary French.* (3) I, II, S
A continuation of 101. Several short readers are translated. Prereq: MFL 101 or one year of high school French. *Staff.*

103 *Elementary Aural-Oral Practice in French.* (1)
Two hours a week. A course to improve pronunciation and comprehension of spoken French. Aural-oral drills, diction, and recordings. *Staff.*

104 *Elementary French (oral approach).* (4) I, II, S
The study of the basic principles of the language through grammar, with emphasis on oral practice through the use of oral exercises. A short reader is introduced.

105 *Elementary French (oral approach).* (4) I, II, S
A continuation of 104. Several short readers are translated. Prereq: MFL 104 or permission of instructor.

201 *Intermediate French.* (3) I, II, S
Supplementary reading. A good pronunciation, a thorough knowledge of grammar and verbs, reading and conversation are the aims of the course. Prereq: MFL 101, 102 or two years of high school French. *Staff.*

202 *Intermediate French.* (3) I, II, S
A continuation of MFL 201. Prereq: MFL 201 or three years of high school French. *Staff.*

203 *French Conversation and Composition.* (2) I, II, S
This course is designed to give students a fair amount of fluency in the use of the spoken language. Vocabulary will be built by the use of images rather than by translation, i.e. the direct method. May be repeated for a total of 4 credits. Prereq: MFL 201, 202.

204,205,206 *French Novel and Drama.* (3 ea.) I, II, S
Reading of standard texts in prose, and drama. Verb drill, dictation, composition, conversation drill, based on some text read and memorized. Reports on assigned reading outside of classrooms. Prereq: MFL 201, 202.

207,208 *French Phonetics.* (3 ea.) I, II, S
A scientific study of French sounds based on the International System of Phonetic Symbols. Prereq: MFL 201, 202.

212 *French Civilization.* (2) I, II, S
A history of French literature and the arts will be correlated with the geography and history of France, including events of scientific, political, social and economic significance. No knowledge of French is required.

395 *Independent Work in French.* (3) I, II, S
May be repeated once. Prereq: Major and a standing of 3.0 in the department.

450 *La Civilization Francaise au XXme Siecle.* (3)
A survey of French culture in the XX Century with emphasis on the period following World War II. Conducted in French. Prereq: MFL 202.

501 *Advanced Phonetics.* (3) I, II, S
This course is especially planned for teachers of phonetics both in high school and in college. May be repeated once. Prereq: MFL 207, 208 or equivalent.

502 *French Literature of the XIX Century.* (3) I, II, S
A study of the representative writers of the XIX century and the more important literary movements. Outside reading and written reports on assigned topics. Prereq: MFL 204, 205. *Duncan.*

503 *French Literature of the XIX Century.* (3) I, II, S
A continuation of 502. Prereq: MFL 204, 205. *Duncan.*

504 *French Literature of the XVII Century.* (3) I, II, S
A course in the Classic Drama of the XVII Century. During the year the student is expected to read in class plays from the works of Corneille, Racine, Moliere. Other writers of the XVII century will also be read. Prereq: MFL 204, 205. *Charron.*

505 *French Literature of the XVII Century.* (3) I, II, S
A course in the Classic Drama of the XVII Century. During the year the student is expected to read in class plays from the works of Corneille, Racine, Moliere. Other writers of the XVII century will also be read. Prereq: MFL 204, 205. *Charron.*

506,507 *Advanced French Grammar.* (3 ea.) I, II, S
A study of the finer points of French grammar. Prereq: MFL 204, 205.

508 *French Literature of the XVIII Century.* (3) I, II, S
A study of the representative writers of the period, with special attention given to Montesquieu, Rousseau, Diderot, and Voltaire. Prereq: MFL 204, 205. *Walker.*

509 *French Literature of the XVIII Century.* (3) I, II, S
A continuation of MFL 508. Prereq: MFL 204, 205. *Walker.*

510 *French Literature of the XX Century.* (3) I, II, S
A study of the modern writers starting with the Symbolist Group and continuing up to the present. Prereq: MFL 204, 205.

511 *French Literature of the XX Century.* (3) I, II, S
A continuation of MFL 510. Prereq: MFL 204, 205.

512 *Advanced French Conversation.* (2) I, II, S
A study of intonation and elocution in French. Three minute speeches in French will be prepared for each recitation. Some reading in French poetry will also be practiced. May be repeated for a total of 4 credits. Prereq: MFL 203 or 207, 208.

513 *Tutorial Seminar for Majors in the Romance Languages.* (French) (1) I, II
A survey of French literature. Required of all Majors in French during the senior year. May be repeated for a total of 2 credits. *Staff.*

517 *Introduction to the Linguistic Structure of French.* (3)
An outline of the structure of spoken French along with an introduction to the pertinent concepts of descriptive and contrastive linguistics. Prereq: MFL 203 (two semesters) or equivalent, consent of instructor.

601,602 *French Literature of the Renaissance.* (3 ea.) I, II, S
A course starting with Francois Villon and including such writers as Marot, Rabelais, Calvin, Montaigne, Ronsard, DuBellay, Belleau and Regnier. To be given in French. Prereq: twenty-one semester hours of college French.

603,604 *Old French.* (3 ea.) I, II, S
A study of the historical development of the French language to 1300, with readings in Old French literature. Prereq: three years of college French or equivalent. *Rea.*

606 *Studies in Bibliography and Research Methods.* (2)
Designed to serve the needs of students beginning graduate work in French by acquainting them with the tools of research. Prereq: Consent of instructor.

701 *Studies in French Literature of the Middle Ages.* (3)
A study of the major literary genres in French during the twelfth and thirteenth centuries, with special attention to one major type, work or author, and involving extensive reading in the texts of the period. Prereq: MFL 604.

702 *Seminar in the History of the French Language.* (3)
A thorough presentation of the development of the French language with special attention to morphology and syntax and to developments since the middle ages. Prereq: MFL 604.

704 *Seminar in Classical Drama.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

705 *Seminar in Classical Prose and Poetry.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

708 *Seminar in the Literature of the Enlightenment.* (3)
Intensive study of selected works of one or more representative of the Enlightenment in France. Prereq: Consent of instructor.

709 *Seminar in XVIII Century Noveland Drama.* (3)
Intensive study of one or more authors who made significant contribution in these literary genres during the XVIII century. Prereq: Consent of instructor.

710 *Seminar in Romanticism.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

711 *Seminar in the Realist Novel.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor. May be repeated for a total of 6 credits.

712 *Seminar in Post-Romantic Poetry of the XIX Century.* (2)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

713 *Seminar in the Naturalist Novel.* (2)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

716 *Seminar in Contemporary Drama.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

717 *Seminar in Contemporary Poetry.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

718 *Seminar in the Contemporary Novel.* (3)
Intensive study of a single author or limited group of authors representative of this area of French literature. Prereq: Consent of instructor.

719 *La Littérature engagée: Malraux, Sartre, Camus, etc.* (3)
Intensive study of works selected from the literature of commitment in the XX century. Prereq: Consent of instructor.

770 *Seminar in French Literature.* (3) I, II, S
Prereq: twenty-one semester hours of college French. May be repeated once for a total of 6 credits. *Staff.*

780 *Special Studies in French.* (3) I, II, S
Selected studies and investigations in the French language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated once.

GERMAN LANGUAGE AND LITERATURE

Requirements for a Major. Prerequisites: Junior standing, MFL 121, 122, 221, 222. *Required:* A minimum of 18 credits of work in German, independent of Junior and Senior Tutorial Courses. Comprehensive examination in the senior year.

21 *Elementary German.* (0) I, II, S
The essentials of grammar with practice in reading and writing German. *Staff.*

121 *Elementary German.* (3) I, II, S
The essentials of grammar with practice in reading and writing German. *Staff.*

122 *Simple German Reading and Pronunciation.* (3) I, II, S
Continuation of German MFL 121 with more extended exercise in easy reading, writing and pronunciation. Prereq: MFL 121 or one high school unit. *Staff.*

123 *Elementary Aural-Oral Practice in German.* (1)
A course designed to improve pronunciation and comprehension of spoken German. Aural-oral drills, dictation, recording, etc. Class will be limited to permit individual attention. *Staff.*

221 *German Translation and Rapid Reading.* (3) I, II, S
Certain selected texts are read intensively with emphasis upon translation, while others, particularly in the second semester, are read with emphasis upon the development of rapid reading and comprehension of content. Prereq: MFL 122. *Staff.*

222 *German Translation and Rapid Reading.* (3) I, II, S
Continuation of MFL 221. Prereq: MFL 221. *Staff.*

223 *Readings in Medical German.* (3) I, II, S
This course is designed to meet the needs of Pre-medical and Medical Technology students as well as Microbiology majors. The text used provides reading and builds up a graduated vocabulary in Biological Sciences. Prereq: MFL 122.

224 *Readings in Medical German.* (3) I, II, S
Continuation of MFL 223. Prereq: MFL 223. *Staff.*

225 *Readings in Chemical German.* (3) I, II, S
This course is designed to meet the needs of Industrial Chemists and Chemistry majors. The material provides a vocabulary in Chemistry and an intimate acquaintance with the style which is characteristic of German scientific writing. Prereq: MFL 122.

226 *Readings in Chemical German.* (3) I, II, S
Continuation of MFL 225. Prereq: MFL 225. *Staff.*

227 *Intermediate Aural-Oral Practice in German.* (1) I, II
Continuation of the elementary course on a more advanced level. May be taken only in conjunction with courses on or beyond the second year level. Prereq: MFL 123 or permission of instructor. *Staff.*

228 *Elementary German Conversation and Composition.* (3) I, II, S
This course is conducted mainly in German. The first semester's work will be held to simple every-day terms which any student having had 122 should be able to master without difficulty. Prereq: MFL 122 or approval of the Department.

229 *Elementary German Conversation and Composition.* (3) I, II, S
Continuation of MFL 228. Prereq: MFL 228.

230 *Introduction to Classical and 19th Century German Literature.* (3) I, II, S
The emphasis in this course will be on the development of reading facility and the acquisition of vocabulary through extensive reading. Selections from the less difficult work of authors of this period will be read. Prereq: MFL 222.

231 *Introduction to Modern German Literature.* (3) I, II, S
Readings from some of the less difficult works of Hauptmann, Mann, Schnitzler, and other late 19th and 20th Century writers. Prereq: MFL 222.

232 *Survey of German Literature in English Translation.* (2) I, II, S
More than a thousand years of German literature, from the "Song of Hildebrand" to "The Magic Mountain," are covered in this course. No knowledge of German is required. Lectures and reports on outside reading. *Staff.*

320 *Junior Tutorial for German Majors.* (1) I, II, S
A review of the history of German literature from its beginning. May be repeated once.

321 *Senior Tutorial for German Majors.* (3) I, II, S
The development of the German Epic and Lyric is studied during the first semester and development of the German Drama during the second semester. May be repeated once.

396 *Independent Work in German.* (3) I, II, S
This course is designed for students who wish to do advanced work in German on any subject. Prereq: Major and a standing of 3.0 in the department. May be repeated once.

522,523 *Advanced Scientific German.* (3 ea.) I, II, S
This course is designed for students of the Physical and Biological Sciences. Reading is done in recent German scientific journals and books, the material being selected in line with the student's special interest. Prereq: MFL 224 or 226. *Whitaker.*

Proseminars in 18th, 19th and 20th Century German Literature.
A balanced selection of works from one representative author of each century will be studied in each course, and written reports will be assigned on various subjects related to his writing.
The purpose of the proseminar courses is threefold:
(1) Study of a representative author and certain of his works in their relation to his period;
(2) Acquaintance with basic works of the author;
(3) Training in simple research projects and proper form in the writing of papers. Prerequisites for any Proseminar Course: MFL 230 or 231.

524 *Proseminar in Kleist.* (3) I
Whitaker.

525 *Proseminar in Hauptmann.* (3) II
Binger.

526 *Proseminar in Schiller.* (3) I
Grotegut.

527 *Proseminar in Grillparzer.* (3) II
Whitaker.

528 *Proseminar in 20th Century Prose Narrative.* (3) I
Weiss.

529 *Proseminar in Lessing.* (3) II
Grotegut.

530 *Proseminar in Hebbel.* (3) I
Whitaker.

531 *Proseminar in 20th Century Drama.* (3) II
Whitaker.

532 *The German Lyric.* (3)
An intensive study of the German lyrical poem from the Age of the Baroque to the present. Prereq: six semesters of German.

534,535 *Life and Works of Goethe.* (3 ea.) I, II, S
This course follows the unfolding of Goethe's genius from his first lyrics through Faust. His principal literary works will be read and attention devoted to autobiographical material, letters and diaries. Prereq: six semesters of German.

536 *Origin and Development of the German Language.* (3) I, II
This course in Germanic Philology acquaints the student with the position of German in the European language group and traces the development of the language to the present. Special emphasis is given to the relationship of German and English words. Prereq: six semester of German. *Staff.*

537 *Introduction to Middle High German.* (3) I, II
This is a literary course with a necessary minimum of Middle High German grammar. Selections will be read from epic and lyric poetry of the period and reports will be given on assigned topics. Prereq: six semesters of German. *Staff.*

538 *Advanced German Conversation and Composition.* (3) I, II, S
This course is primarily for German majors. It involves intensive practice in the writing of German prose, with some review of German grammar. Prereq: six semesters of German.

621 *German Drama of the 19th Century.* (3) I, II
This course is a study of the German Drama from Schiller's "Die Braut von Messina" to 1870. Prereq: six semesters of German.

622 *The German Novelle.* (3) I, II
This course traces the origin and development of the German Novelle from Goethe to Thomas Mann. Prereq: six semesters of German.

623,624 *20th Century German Literature.* (3 ea.) I, II
Extensive readings, discussions, and comprehensive reports on the leading literary minds and movements of this Century. Prereq: six semesters of German.

771 *The Age of Goethe.* (3) I, II
A seminar devoted to the investigation of one or more topics in the literature and social development of Germany during the period 1750 to 1825. Prereq: six semesters of German. *Staff.*

781 *Special Studies in German.* (3) I, II, S
Selected studies and investigations in the German language and literature, permitting the student to work in areas of special interest, and providing opportunity for original endeavor. May be repeated once.

SPANISH LANGUAGE AND LITERATURE

Requirements for a Major. Prerequisites: Junior standing, 12 hours of English, MFL 141, 142, 241, 242; 101, 102 or 191, 192; 246. *Required:* A minimum of 17 credits of advanced work in Spanish, MFL 551 (2 credits). Comprehensive examination in the senior year.

141 *Elementary Spanish.* (3) I, II, S
The study of the basic principles of the language through grammar, with emphasis on oral practice through the use of oral exercises. A short reader is introduced. *Staff.*

142 *Elementary Spanish.* (3) I, II, S
A continuation of MFL 141. Selected readings. Prereq: MFL 141 or one year of high school Spanish. *Staff.*

143 *Elementary Aural-Oral Practice in Spanish.* (1) I, II, S
Two hours a week. A course to improve pronunciation and comprehension of spoken Spanish. Aural-oral drills, dictation and recordings. *Staff.*

144 *Elementary Spanish (oral approach).* (4) I, II, S
The study of the basic principles of the language through grammar, with emphasis on oral practice through the use of oral exercises. A short reader is introduced.

145 *Elementary Spanish (oral approach).* (4) I, II, S
A continuation of MFL 144. Selected readings. Prereq: MFL 144 or permission of instructor.

241 *Intermediate Spanish.* (3) I, II, S
Readings of selected Spanish works and rapid review of principles of grammar. Prereq: MFL 144, 145 or two years of high school Spanish.

242 *Intermediate Spanish.* (3) I, II, S
Continuation of MFL 241. Prereq: MFL 241 or three years of high school Spanish. *Staff.*

243,244,245 *Spanish Novel and Drama.* (3 ea.) I, II, S
Reading of standard texts; brief survey of Spanish literature; composition and outside reading. Prereq: MFL 241, 242.

246 *Spanish Conversation and Composition.* (3) I, II, S
This course is designed to give the student a fair amount of fluency in the use of the spoken language. Dictation, vocabulary building, special emphasis on pronunciation. Class conducted entirely in Spanish. May be repeated for a total of 6 credits. Prereq: MFL 241, 242.

247 *Civilization of Spain and Spanish America.* (2) I, II
Spanish traditions and their influence on the cultural development of Spanish America; indigenous civilizations and folklore. Lectures and reports on outside reading. No knowledge of the Spanish language is required.

397 *Independent Work in Spanish.* (3) I, II, S
Prereq: Major and standing of 3.0 in the department. May be repeated once.

541,542 *Advanced Spanish Grammar and Composition.* (3 ea.) I, II, S
A study of the finer points of Spanish grammar. Prereq: MFL 243, 244.

543 *Spanish Literature of the XVII Century.* (3) I, II, S
Selected literature of the Golden Age. Cervantes and the picaresque novel, leading dramatists. Prereq: MFL 243, 244.

544 *Spanish Literature of the XVII Century.* (3) I, II, S
A continuation of MFL 543. Prereq: MFL 243, 244.

545,546 *Spanish Literature of the XX Century.* (3 ea.) I, II, S
A study of the works of the Generation of 1898 and representative works of recent writers. Prereq: MFL 243, 244.

547,548 *Spanish American Literature.* (3 ea.) I, II, S
A study of representative writers and principal literary productions of Spanish America. Outside reading of 1500-2500 pages of selected works. Prereq: MFL 243, 244.

549 *Spanish Literature of the XIX Century.* (3) I, II, S
A study of Spanish Romanticism and the works of the leading Costumbristas. Prereq: MFL 243, 244.

550 *Spanish Literature of the XIX Century.* (3) I, II, S
A study of the novel and drama of the 2nd half of the XIX century. Prereq: MFL 243, 244.

551 *Tutorial Seminars for Majors in the Romance Languages.* (Spanish) (1) I, II
A survey of Spanish literature. Required of all Majors in Spanish during the senior year. May be repeated once for a total of 2 credits. *Staff.*

641 *Old Spanish.* (3) I, II, S
A study of the vocabulary and grammar of Old Spanish, contrasting and comparing it to modern Spanish. Prereq: twenty-one semester hours of college Spanish.

642 *Old Spanish.* (3) I, II, S
Reading of texts in Old Spanish. Prereq: MFL 641.

772 *Seminar in Spanish Literature.* (3) I, II, S
Prereq: twenty-one semester hours of college Spanish. May be repeated once for a total of 6 credits. *Staff.*

782 *Special Studies in Spanish.* (3) I, II, S
Selected studies and investigations in the Spanish language and literature, permitting the student to work in areas of special interest and providing opportunity for original endeavor. May be repeated once.

RUSSIAN

161 *Elementary Russian.* (3) I, II
The study of the basic principles of the language through grammar and reading, with emphasis on oral practice.

162 *Elementary Russian.* (3) I, II
A continuation of 161. Prereq: 161 or one year of high school Russian.

163 *Elementary Aural-Oral Practice in Russian.* (1) I, II
A course designed to improve pronunciation and comprehension of spoken Russian. Aural-oral drills, dictation, recording, etc. Class will be limited to permit individual attention. Two hours per week.

261 *Intermediate Russian.* (3) I, II
Review of grammatical principles, supplementary reading of lighter prose. Increased emphasis on good pronunciation and comprehension of spoken Russian. Conversation and recordings. Prereq: MFL 161, 162.

262 *Intermediate Russian.* (3) I, II
A continuation of MFL 261. Prereq: MFL 261.

263 *Intermediate Aural-Oral Practice in Russian.* (1) I, II
Continuation of MFL 163 on a more advanced level. Prereq: MFL 163 or 161, 162.

264 *Advanced Readings in Russian Literature.* (3) I, II
Readings in Russian in Gogol, Turgenev, Tolstoy, Lermontov, Dostoyevski, and others. Assigned readings in English on Russian history and culture. Review of Russian grammar as necessary. Oral practice. Prereq: MFL 262 or equivalent.

265 *Advanced Readings in Russian Literature.* (3) I, II
A continuation of MFL 264. Prereq: MFL 262 or equivalent and approval of the instructor.

266,267 *Russian Conversation.* (3 ea.)
This course is designed to give students a fair amount of fluency in the use of the spoken language. Dictation, vocabulary building, pronunciation. Class conducted entirely in Russian. Prereq: MFL 261, 262, or permission of the instructor.

561 *Survey of Russian Literature.* (3) I, II
An outline of Russian literature in lecture to be accompanied by representative readings in Russian. A paper on some aspect of Russian literature will also be required. Prereq: eighteen semester hours of college Russian or consent of the instructor.

562 *Survey of Russian Literature.* (3) I, II
A continuation of MFL 561. Prereq: eighteen semester hours of college Russian or consent of the instructor.

JAPANESE

181 *Elementary Japanese.* (3,4) I, II
An introduction to the spoken language through conversational practice, with grammatical principles being explained as an aid to conversation. Written Japanese is introduced gradually. *Chambliss.*

182 *Elementary Japanese.* (3,4) I, II
A continuation of MFL 181. Prereq: MFL 181 or one year of high school Japanese. *Chambliss.*

281 *Intermediate Japanese.* (3) I, II
Reading of texts written in modern colloquial Japanese and continued practice in conversation. Prereq: MFL 181, 182. *Chambliss.*

282 *Intermediate Japanese.* (3) I, II
A continuation of MFL 281. Prereq: MFL 281. *Chambliss.*

284 *Comprehensive Readings in Japanese.* (3) I, II
A course designed to give students a reading knowledge of the standard colloquial form of Japanese used in newspapers and magazines. *Chambliss.*

285 *Comprehensive Readings in Japanese.* (3) I, II
A continuation of MFL 284. This course will increase the student's reading vocabulary and introduce slightly more advanced grammatical forms. Prereq: MFL 284. *Chambliss.*

ITALIAN

191 *Elementary Italian.* (3) I, II
A study of the grammar and composition of Italian.

192 *Elementary Italian.* (3) I, II
A continuation of MFL 191. Prereq: MFL 191 or one year of high school Italian.

291 *Intermediate Italian.* (3) I, II
Review of grammatical principles and readings of selected Italian works. Prereq: MFL 192.

292 *Intermediate Italian.* (3) I, II
A continuation of MFL 291. Prereq: MFL 291.

OTHER DEPARTMENTAL OFFERINGS

248 *Mexican Civilization.* (3) S
A lecture course on the cultural development of Mexico, designed to furnish a working basis for required trips to important centers of Mexican civilization. To be offered only during the summer session in Mexico.

553 *The Teaching of Modern Foreign Languages.* (3)
A course for teachers and prospective teachers of French, Spanish, or German.

610 *Romance Philology.* (3) I, II, S
Study of the historical development of the various Romance languages with reading of texts chiefly from the medieval period. Special attention will be given to historical phonology and morphology. Prereq: MFL 603 or 641 or equivalent. May be repeated once for a total of 6 credits.

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. *Staff.*

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely. *Staff.*

778 *Seminar: Main Currents of Romance and German Literature.* (3)
Studies of the principal works of the French, German and Spanish literatures. Lectures, student reports. Required of all candidates for M.A. degree under Plan B.

MUSIC

FACULTY

Professors: Bryce Jordan (Ph.D., North Carolina, 1956), CHAIRMAN. Arnold Blackburn (M.M., Michigan, 1943), R. Bernard Fitzgerald (M.M., Jordan Conservatory, 1935), Gordon J. Kinney (Ph.D., Florida State, 1962), Aimo Justus Kiviniemi (M.A., Ohio State, 1946), Nathaniel Maxwell Patch (M.M., Rochester, 1941), Kenneth W. Wright (Ph.D., Rochester, 1941). *Associate Professors:* Almonte Charles Howell, Jr. (Ph.D., North Carolina, 1953), Donald W. Ivey (D.M.A., Illinois, 1962), Rey M. Longyear (Ph.D., Cornell, 1957), Ford McRae Montgomery (M.M., Michigan, 1949), Gordon A. Nash (M.A., Kentucky, 1950). *Assistant Professors:* Norman B. Chapman (M.M., Kansas, 1957), Rex Alton Conner (M.M.E., Missouri, 1953), Lewis S. Danfelt (M.M.E., Florida State, 1954), Sara L. Holroyd (M.A., Columbia, 1951), Phyllis Jenness (M.A., Kentucky, 1958), Phillip Miller (M.M.E., Boston U., 1958), Abraham J. Mishkind (M.A., Columbia, 1950), Albert Leroy Schaberg (M.M., Rochester, 1959). *Instructors:* Sarah Baird Fouse (M.M., Kentucky, 1961), Ann K. Huddleston (M.M., Kentucky, 1955), Jack H. Hyatt (M.M., Boston U., 1963).

The Music department provides the opportunity for cultural and professional growth through intensive music study and participation, and presents a varied series of musical programs of cultural value to the entire university community.

A student whose prime interest is music may work toward the Bachelor of Music degree in Applied Music or Music Education, or the Bachelor of Arts degree. The courses of study leading to the Bachelor of Music degree are designed for those who plan to be professional performing musicians or school music teachers, and presume a considerable amount of musical experience on the pre-college level. The Bachelor of Arts degree with a major in music is a general cultural degree with emphasis in music, allowing more time during the Junior and Senior years for the election of courses in related and other subject matter fields. All degrees offered by the Department of Music require the fulfillment of the basic lower division course requirements of the College of Arts and Sciences.

The Department of Music also offers courses leading to the Master of Music degree (in Applied Music, Music Theory, or Music Education) and the Master of Arts degree (in History and Literature of Music, Music Theory, or Music Education).

DEPARTMENTAL FACILITIES

The University provides a modern and well equipped Fine Arts building. The Music facilities include well lighted, sound proofed, air conditioned classrooms, rehearsal halls, teaching studios, listening cubicles, a departmental library, and 44 practice rooms including 4 two-manual practice pipe organs. In the building are two auditoriums seating approximately 500 and 120 persons respectively. Radio, recording, and broadcasting facilities are available for instructional purposes and performances. There is a fine Holtkamp pipe organ in Memorial Hall for teaching and concert purposes.

SCHOLARSHIPS

The department offers a number of grants-in-aid consisting of a waiver of the registration fee each semester. These grants are awarded on the basis of scholastic standing, character, musical ability, and need. Additional scholarships, restricted to Marching Band members are offered by the Athletics Department, amounting to a cash payment of $50 per semester, payable at the end of each semester.

Approximately $750.00 is available each year from the McCracken Music Scholarship Fund for Kentucky students with exceptional musical talent.

The Lexington Junior League each year makes a cash award of approximately $200 to the outstanding Junior or Senior woman majoring in Music Education. This award is given on the basis of scholarship, character, and prospect of success in the field of music teaching.

The Mildred Sinclair Lewis Music Scholarship of $125 is awarded to a student majoring in music education. Recipients are selected on the basis of scholarship, musical talent, character, financial need, and professional promise as a teacher.

Four Junior League Honor Loans of $50 each are available each year to music majors.

For further information or application write to the Chairman of the Department of Music.

UNIVERSITY BANDS

The University has three bands: the Marching 100, the Symphonic Band, and the AFROTC Band. The Marching 100 performs at athletic events and other campus and community activities. The Symphonic Band is a concert organization which performs the finest of concert band literature in a series of programs on campus, and makes one concert tour each year. The Air Force Band is a regular part of the ROTC program at the University and plays at Army and Air Force reviews.

UNIVERSITY CHORAL ENSEMBLES

For those students interested in singing, there are four choral organizations on campus: the Men's Glee Club, the Women's Glee Club, the Choristers (a select mixed choir), and the University Chorus of approximately 150 members. These organizations are open to every University student by permission of the respective directors.

UNIVERSITY SYMPHONY ORCHESTRA

The *University Symphony Orchestra* is a student, faculty, and civic musical organization, and presents standard symphonic literature regularly in concert. Admission to the orchestra is arranged by consultation with the director.

PARTICIPATION IN MUSICAL ORGANIZATIONS

No student is permitted to participate in the orchestra, concert band, glee clubs, or other musical organizations unless all eligibility requirements for extracurricular activities are met.

SPECIAL FEES

Applied Music:

$25.00 per semester for one course for 1 credit (or non-credit)

50.00 per semester for one course for 2 credits (or non-credit)

50.00 for 2 or more courses (credit or non-credit)

5.25 per semester for each half-hour lesson per week for each student in Applied Music who is not regularly enrolled in the University. This is in addition to a separate charge for individual lessons.

BACHELOR OF ARTS DEGREE

Three undergraduate degrees are offered by the Music department: (a) the Bachelor of Arts with a concentration in music; (b) the Bachelor of Music in Music Education; (c) the Bachelor of Music with a concentration in Voice, Piano, Organ, or an instrument. The Bachelor of Arts degree is intended to provide a general cultural background with less emphasis on music than that of the Bachelor of Music degrees. Detailed curricula for each area are available in the Music department.

BACHELOR OF ARTS WITH A MAJOR IN MUSIC

Freshman

	1st Sem. Crs.	2d Sem. Crs.
Applied Music	2	2
Music 170, 171	3	3
Language (2nd yr.)	3	3
English 101, 102—Freshman Comp.	3	3
Social Science	3	—
Humanities 204	—	2
Physical Education	1	1
Ensemble	1	1
Military Science	(2)	(2)
Recital Attendance	0	0
	16	15

Sophomore

	1st Sem. Crs.	2d Sem. Crs.
Applied Music	2	2
Music 270, 271, 272, 273	4	4
Humanities	—	4
Hygiene	2	—
Biological Science	4	3
Music 280, 381	3	3
Ensemble	1	1
Military Science	(2)	(2)
Recital Attendance	0	0
	16	17

Junior

	1st Sem. Crs.	2d Sem. Crs.
Applied Music	1	1
Physical Science	3	3
Directed Music Electives	4	4
Ensemble	1	1
Social Science	3	—
Non-Music Electives	4	7
	16	16

Senior

	1st Sem. Crs.	2d Sem. Crs.
Applied Music	1	1
Directed Music Electives	4	4
Ensemble	1	1
Non-Music Electives	10	10
	16	16

A minimum of 14 hours of non-music electives must be in upper division courses (courses not open to freshmen) in the field of Literature, Philosophy and the Arts.

For all footnotes see page 97.

BACHELOR OF MUSIC IN MUSIC EDUCATION

Freshman

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	2	2
[1]Secondary Applied	1	2
Ensemble	1	1
Music 170, 171	3	3
Foreign Language (Intermediate year)	3	3
English 101, 102	3	3
Social Studies	3	—
[2]Humanities 204	—	2
Physical Education	1	1
Military or Aero. Science or elective	(2)	(2)
[7]Recital Attendance	0	0
	17	17

Sophomore

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	2	2
Secondary Applied	2	2
Ensemble	1	1
[3]Music 270, 271	2	2
Music 272, 273	2	2
Music 280, 281	3	3
Humanities	2	—
Biological Science	3	—
Education 202	—	4
Military or Aero. Science or elective	(2)	(2)
[7]Recital Attendance	0	0
	17	16

Junior

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	2	2
Secondary Applied	1-2	1-2
Music 371, 372	2	3
Education 325	3	—
Ensemble	1	1
Music 562, 563 or 564	2	2
[4]Music 360, 361	2	2
[5]Music 363, 362	2	2
Physical Science	3-4	3-4
Social Science	—	3
[7]Recital Attendance	0	0
	16-18	17-18

Senior

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	1-2	0-1
Secondary Applied	1	—
Education 344	4	—
Education 377	—	9
Music 560	—	1
Hygiene	1	—
Ensemble	1	1
Humanities	2	—
Biological Science	3-4	—
[7]Recital Attendance	0	0
Education 564	—	3
	13-14	14-15

MINIMUM CREDITS—134

For all footnotes see below.

BACHELOR OF MUSIC IN APPLIED MUSIC (PIANO, VOICE, ORGAN, INSTRUMENTS)

Freshman

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	3	3
[6]Secondary Applied	1	1
Music 170, 171	3	3
Ensemble	1	1
English 101, 102	3	3
Foreign Language (intermediate year)	3	3
[9]Social Studies	3	—
[12]Biological Science	3	—
Physical Education	1	1
Military or Aero. Science or elective	(2)	(2)
[2]Humanities 204	—	2
[7]Recital Attendance	0	0
	17-19	16-19

Sophomore

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	3	3
[6]Secondary Applied	1	1
[3]Music 270, 271, 272, 273	4	4
Music 280, 281	3	3
Humanities	2	2

[8]Hygiene	1	—
[6]Biological Science	3	3
[12]Foreign Language	3	3
Ensemble	1	1
Military or Aero. Science or elective	(2)	(2)
[7]Recital Attendance	0	0
	17-19	15-19

Junior

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	3	3
Music 370, 372	2	3
Music 580, 581	2	2
[13]Music 371	2	—
[12]Social Sciences	3	3
[11 & 12]Hygiene 101	1	1
Electives	3-6	3-6
[12]Biological Science	3	—
[8]Physical Sciences	3	3
Ensemble	1	1
[7]Recital Attendance	0	0
	17-19	17-18

Senior

	1st Sem. Crs.	2d Sem. Crs.
Applied Major	3	3
[12]Music 564	2	—
Music 572, 573	2	2
Music 587	—	2
[12]Music 584	—	3
[8]Music 582, 583	2	2
[11]Music 585, 586	2	2
[12]Physical Sciences	3	3
[9]Social Studies	—	3
Electives	4-6	4-6
Ensemble	1	1
[7]Recital Attendance	0	0
	15-16	15-16

MINIMUM CREDITS—133

NOTES

1. A total of 10 credits in secondary applied subjects must be elected
2. With special permission
3. To be taken concurrently: Music 270-271; Music 272-273
4. Required only of Voice majors
5. Required only of Instrumental majors
6. For all applied music majors but Piano majors
7. All students are required during each semester of residence to attend a certain percentage of the departmental recitals
8. For Piano majors only
9. For all Applied music majors but Voice majors
10. Depending on the major
11. For Organ majors only
12. For Voice majors only
13. For Instrumental majors only

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of Literature, Philosophy, and the Arts, including the major work.

Music Prerequisites: Junior standing and the following lower division courses in music: Music 170, 171, 270, 271, 272, 273, 280, 281; Applied Music—8 to 10 semester hours.

Upper Division Music Requirements: A minimum of 20 semester hours of advanced work in music in accordance with the student's particular interest and as directed by the Department of Music. A comprehensive examination or its equivalent is required in the senior year.

MUSIC PERFORMANCE COURSES

Non-Credit Courses

Piano	1	21
Voice	2	22
Organ	3	23
Violin	4	24
Viola	5	25
Cello	6	26
String Bass	7	27
Flute	8	28
Oboe	9	29
Clarinet	10	30
Bassoon	11	31
Trumpet	12	32
French Horn	13	33
Trombone	14	34
Baritone	15	35
Tuba	16	36
Saxophone	17	37
Percussion	18	38

Students enrolled in courses numbered 1-18 receive one half-hour lesson a week.

Students enrolled in courses numbered 21-38 receive two half-hour lessons a week.

MUSIC PERFORMANCE COURSES

Series I—Secondary Courses

Secondary courses in music performances carry 1 hour credit each semester. Registration in these courses is open to students from other divisions of the University desiring elective credit and to music majors electing a secondary instrument. Music majors may not count secondary courses toward the music performance requirement for the major instrument.

Each undergraduate course in this series may be repeated twice for a total of 3 credits.

Each graduate course in this series may be repeated 3 times for a total of 4 credits.

Undergraduate Courses		*Graduate Courses*
Piano	101, 201, 301, 401	501, 601
Voice	102, 202, 302, 402	502, 602
Organ	103, 203, 303, 403	503, 603
Violin	104, 204, 304, 404	504, 604
Viola	105, 205, 305, 405	505, 605
Cello	106, 206, 306, 406	506, 606
String Bass	107, 207, 307, 407	507, 607

Flute	108, 208, 308, 408	508, 608
Oboe	109, 209, 309, 409	509, 609
Clarinet	110, 210, 310, 410	510, 610
Bassoon	111, 211, 311, 411	511, 611
Trumpet	112, 212, 312, 412	512, 612
French horn	113, 213, 313, 413	513, 613
Trombone	114, 214, 314, 414	514, 614
Baritone	115, 215, 315, 415	515, 615
Tuba	116, 216, 316, 416	516, 616
Saxophone	117, 217, 317, 417	517, 617
Percussion	118, 218, 318, 418	518, 618

MUSIC PERFORMANCE COURSES

Series II—Major Courses

Courses in this series carry 2 hours credit each semester. Registration in these courses is open only to music majors.

Each undergraduate course in this series may be repeated twice for a total of 6 credits.

Each graduate course in this series may be repeated 3 times for a total of 8 credits.

All courses in this series carry 1 hour credit if taken in the Summer Session.

Undergraduate Courses		*Graduate Courses*
Piano	121, 221, 321, 421	521, 621
Voice	122, 222, 322, 422	522, 622
Organ	123, 223, 323, 423	523, 623
Violin	124, 224, 324, 424	524, 624
Viola	125, 225, 325, 425	525, 625
Cello	126, 226, 326, 426	526, 626
String Bass	127, 227, 327, 427	527, 627
Flute	128, 228, 328, 428	528, 628
Oboe	129, 229, 329, 429	529, 629
Clarinet	130, 230, 330, 430	530, 630
Bassoon	131, 231, 331, 431	531, 631
Trumpet	132, 232, 332, 432	532, 632
French horn	133, 233, 333, 433	533, 633
Trombone	134, 234, 334, 434	534, 634
Baritone	135, 235, 335, 435	535, 635
Tuba	136, 236, 336, 436	536, 636
Saxophone	137, 237, 337, 437	537, 637
Percussion	138, 238, 338, 438	538, 638

MUSIC PERFORMANCE COURSES

Series III—Major Courses

Courses in this series carry 3 hours credit each semester. Registration in these courses is open only to music majors.

Each undergraduate course in this series may be repeated twice for a total of 9 credits.

Each graduate course in this series may be repeated 3 times for a total of 12 credits.

Courses in this series carry 1 hour credit if taken in the Summer Session.

Undergraduate Courses		*Graduate Courses*
Piano	141, 241, 341, 441	541, 641
Voice	142, 242, 342, 442	542, 642
Organ	143, 243, 343, 443	543, 643
Violin	144, 244, 344, 444	544, 644
Viola	145, 245, 345, 445	545, 645
Cello	146, 246, 346, 446	546, 646
String Bass	147, 247, 347, 447	547, 647
Flute	148, 248, 348, 448	548, 648
Oboe	149, 249, 349, 449	549, 649
Clarinet	150, 250, 350, 450	550, 650
Bassoon	151, 251, 351, 451	551, 651
Trumpet	152, 252, 352, 452	552, 652
French horn	153, 253, 353, 453	553, 653
Trombone	154, 254, 354, 454	554, 654
Baritone	155, 255, 355, 455	555, 655
Tuba	156, 256, 356, 456	
Saxophone	157, 257, 357, 457	
Percussion	158, 258, 358, 458	

Music Performance Courses are taught by the following faculty members:

Piano—Patch, Chapman, Huddleston, Montgomery
Voice—Kiviniemi, Jenness, Ivey
Organ—Blackburn
Violin, Viola—Mishkind, Wright
Cello, String Bass—Kinney
Flute—Fouse
Oboe—Bassoon—Danfelt
Clarinet, Saxophone—Miller
Trumpet—Hyatt
Trombone, Tuba, Percussion—Conner
French Horn, Baritone—Schaberg

Course Descriptions

160 *Class Instruction in Voice.* (1) I, II, S
A beginning course in the fundamentals of singing. Two laboratory hours per week. May be repeated once for a total of 2 credits. *Jenness and Kiviniemi.*

161 *Class Instruction in String Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching violin, viola, cello and string bass. Two laboratory hours per week. May be repeated once for a total of 2 credits. *Mishkind, Kinney.*

162 *Class Instruction in String Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching violin, viola, cello and string bass. Two laboratory hours per week. May be repeated once for a total of 2 credits. *Mishkind, Kinney.*

163 *Class Instruction in Brass and Percussion Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching brass and percussion instruments. Two laboratory hours per week. *Schaberg, Conner.*

164 *Class Instruction in Brass and Percussion Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching brass and percussion instruments. Two laboratory hours per week. *Schaberg, Conner.*

165 *Class Instruction in Woodwind Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching woodwind instruments. *Miller.*

166 *Class Instruction in Woodwind Instruments.* (1) I, II, S
A beginning course in the fundamentals of playing and teaching woodwind instruments. *Miller.*

170 *Theory I—The Elements of Musical Theory.* (3) I
A course in the fundamentals of Musical theory including the elements of sight-singing, dictation, rhythm, keyboard, terminology, notation, corrective listening, and ear training. *Danfelt.*

171 *Theory I—The Elements of Musical Theory.* (3) II
A continuation of MUS 170. Prereq: MUS 170. *Danfelt.*

190 *Band.* (1) I, II
May be repeated 11 times for a total of 12 credits. *Miller.*

191 *Orchestra.* (1) I, II
Students who have demonstrated the required ability are given an opportunity to study standard orchestral literature. Public performances are given at regular intervals. May be repeated 11 times for a total of 12 credits. *Mishkind.*

192 *University Choristers.* (1) I, II
Admission to the University Choristers is through the director. One two-hour meeting per week. May be repeated 11 times for a total of 12 credits. *Kiviniemi.*

193 *Men's Glee Club.* (1) I, II
Any student in the University may be admitted to the glee club after consultation with the director. May be repeated 11 times for a total of 12 credits. *Ivey.*

194 *Women's Glee Club.* (1) I, II
Any student in the University may be admitted to the glee club after consultation with the director. May be repeated 11 times for a total of 12 credits. *Holroyd.*

195 *University Chorus.* (1) I, II, S
Any student in the University may be admitted to the University Chorus after consultation with the director. Two meetings per week. May be repeated 11 times for a total of 12 credits. *Kiviniemi.*

260 *Music Education in the Primary Grades.* (3) I, II, S
Methods and materials for the Primary Grades, stressing care of the child voice; rote song singing, selection, and repertoire; rhythmic development; listening, and experiences of standard music literature; beginning notation; keyboard and autoharp experiences; classroom observations. For non-music majors or classroom teachers. Three meetings each week. *Holroyd, Conner, Nash.*

261 *Music Education in the Intermediate Grades.* (3) I, II, S
Continuation of activities started in MUS 260 with emphasis upon development of part-singing; minor mode; extended work on keyboard and autoharp experiences; study of typical song series for elementary grades; classroom observations. Prereq: MUS 260. For non-Music majors or classroom teachers. Three meetings each week. *Holroyd, Conner, Nash.*

270 *Theory II—Aural Theory.* (2) I
Development of aural responsiveness to the harmonic and melodic elements of music, and of sightsinging techniques as an aid to music comprehension. Prereq: MUS 171. *Wright.*

271 *Theory II—Aural Theory.* (2) II
The continuation of the aural and sightsinging techniques of 270. Prereq: MUS 270. *Wright.*

272 *Theory II—Written Theory.* (2) I
The acquisition of harmonic vocabulary and development of part-writing techniques, elementary counterpoint, free composition, and analysis. This course must be taken concurrently with 270 (51a). Prereq: MUS 171. *Wright.*

273 *Theory II—Written Theory.* (2) II
The continuation of the work of MUS 272. This course must be taken concurrently with 271. Prereq: MUS 272. *Wright.*

280 *History of Music.* (3) I, S
A survey of the history of music from ancient times to the present. Prereq: HUM 204 or consent of the instructor. *Howell.*

281 *History of Music.* (3) II, S
A continuation of MUS 280. Prereq: HUM 204 or consent of the instructor.

282 *Survey of Music Literature.* (2) I, S
This course is intended for non-music majors desiring to acquire an understanding of the literature of music through a study of representative compositions of great composers. Prereq: HUM 204 or consent of instructor. *Longyear, Kinney.*

283 *Survey of Music Literature.* (2) II, S
A continuation of MUS 282. Prereq: HUM 204 or consent of instructor.

290 *Chamber Music Ensembles.* (1) I, II, S
The study of chamber music through performance. Two class hours per week. May be repeated once for a total of 2 credits. *Staff.*

360 *Vocal Methods and Materials in the Elementary Grades.* (2) I, S
A course for music education majors in methods and materials in music education for the first six grades. This includes the care of the child voice, rote-singing and repertoire, rhythmic development, listening experiences, notation, part-singing, and use of accompanying instruments. Three lectures per week. *Holroyd.*

361 *Choral Methods and Materials on the Secondary Level.* (2) II, S
Methods and materials in music education for junior and senior high schools. This includes the study of the adolescent and his voice, general music classes, importance of assembly-singing, organization of choral groups, preparation of integrated units, program production, etc. Prereq: MUS 360. Three lectures per week. *Holroyd.*

362 *Instrumental Methods and Materials in the Elementary School.* (2) I, S
A study of methods and materials, teaching techniques, and the organization of instrumental instruction in the elementary school. Three class hours each week. Prereq: Junior standing in music and MUS 160, 163, 165. *Conner.*

363 *Instrumental Methods and Materials in the Secondary School.* (2) I
A study of the methods, materials and techniques of teaching instrumental music in the secondary school, including the survey and analysis of band and orchestra repertory, rehearsal techniques, marching band techniques. Three class hours each week. Prereq: Junior standing in music and MUS 160, 163, 165, 560, 362. *Conner.*

370 *Theory III—Advanced Harmony and Counterpoint.* (2) I
A study of the 19th Century harmonic idioms through projects in analysis and composition. Three meetings a week. Prereq: MUS 273 *Kinney.*

371 *Instrumentation and Arranging.* (2) I, II, S
A basic course in instrumentation and arranging for typical school instrumental and vocal ensembles. *Fitzgerald and Kinney.*

372 *Musical Analysis.* (3) I, II, S
A study of musical style through structural, harmonic and melodic analyses. *Kinney, Howell.*

390 *Chamber Music Ensembles.* (1) I, II, S
A continuation of MUS 290. Prereq: Junior standing in applied music. May be repeated once for a total of 2 credits. Two hour class per week. *Staff.*

560 *Supervision of Music.* (1) II, S
A study of supervision of the school music program through curriculum planning, supervisory techniques, administrative and community relationships, the use of mechanical aids in the improvement of teaching, etc. Two meetings each week. Prereq: MUS 360, 361, 362 and 363. *Holroyd, Nash.*

561 *Music Activities in the Elementary School.* (2) I, II, S
The study of music and its contribution to child development. An analysis of instructional materials and the development of criteria for the evaluation of these materials. Advanced studies and activities in rhythms, singing, listening, creativity, and reading music to create a musical environment in the classroom. Open to classroom teachers only. Prereq: *MUS* 260 and 261 or equivalent and consent of the instructor. *Nash and Holroyd.*

562 *Conducting.* (2) I
A study of the technique and practice of the fundamentals of conducting. Two meetings a week. *Miller, Mishkind.*

563 *Instrumental Conducting.* (2) II
A continuation of MUS 562. Two meetings a week. Prereq: MUS 562.

564 *Interpretation of Choral Music.* (2) I, II, S
A study of the fundamentals of choral conducting and choral literature, emphasizing materials for the secondary school level. *Kiviniemi, Jenness.*

565 *Vocal Pedagogy.* (2) I, S
For teachers of voice, supervisors of music and choir directors. The study of physical and psychological problems in the teaching of voice production, the study of breath control, diction, resonance, interpretation, and repertoire. *Jenness and Kiviniemi.*

570 *Orchestration.* (2) I, S
This course includes a study of the individual instruments of the orchestra and band with practice in scoring for these instruments. Two meetings a week. Prereq: MUS 371. *Kinney, Longyear.*

571 *Orchestration.* (2) II, S
A continuation of MUS 570. Two meetings a week. Prereq: MUS 570.

572 *Counterpoint.* (2) I, S
A study of Counterpoint based on 16th Century and 18th Century contrapuntal techniques, original compositions and analysis. *Kinney, Wright.*

573 *Counterpoint.* (2) II, S
A continuation of MUS 572. Prereq: MUS 572. *Kinney, Wright.*

574 *Composition and Orchestration.* (2) I, S
A basic course in original composition and orchestration. Prereq: MUS 371. *Wright.*

575 *Composition and Orchestration.* (2) II, S
A continuation of MUS 574. Prereq: MUS 574. *Wright.*

580 *Seventeenth and Eighteenth Century Music.* (2) I, II, S
A survey of music literature composed c. 1600—c. 1800. Prereq: MUS 280, 281. *Howell, Jordan.*

581 *Nineteenth Century Music.* (2) I, II, S
A study of masterworks of music composed in the nineteenth century. Prereq: MUS 280, 281. *Longyear.*

582 *Piano Literature.* (2) I, S
A survey of music written for the piano, emphasizing problems in performance of standard piano literature. Two meetings a week. *Howell, Patch.*

583 *Piano Literature.* (2) II, S
A continuation of MUS 582.

584 *Vocal Literature.* (3) I, S
A study of the development of the Art Song, Opera, Oratorio, and Cantata. Two meetings a week. *Ivey.*

585 *History and Literature of the Organ.* (2) I, S
A course of study designed to give the organ student a practical knowledge of the development of the organ, its construction, the standard literature, and teaching materials. Two meetings a week. *Blackburn.*

586 *History and Literature of the Organ.* (2) II, S
A continuation of MUS 585. Prereq: MUS 585.

587 *Survey of Contemporary Music.* (2) I, S
Kinney, Wright.

588 *History and Literature of Opera.* (3) I, S
The development of opera as an art form, and analysis of representative operas from various areas. *Longyear.*

589 *History of American Music.* (3) II, S
A study of music in America from colonial times to the present. *Jordan.*

590 *Opera Workshop.* (1)
May be repeated twice for a total of 3 credits. *Jenness, Ivey.*

591 *Music Education Workshop: Choral.* (1) S
An intensive study of choral literature and interpretation through lectures, demonstrations, and participation. *Staff.*

592 *Music Education Workshop: General Music.* (1) S
A study of elementary and secondary school methods and materials, class piano techniques, audio-visual aids in Music Education, and the administration of school music. *Staff.*

593 *Music Education Workshop: The School Orchestra.* (1) S
A study of school orchestra methods, materials, and administration, and specific stringed instrument teaching problems. This unit convenes during the annual meeting of the University of Kentucky Summer All-State High School Orchestra. *Staff.*

594 *Music Education Workshop: The School Band.* (1) S
A study of concert and marching band organizations on the secondary school level, with brass, woodwind, percussion, and conducting clinics. *Staff.*

660 *Advanced Instrumental Conducting.* (2) II, S
This course is intended to further develop the ability to interpret and conduct the larger forms written for the symphony orchestra and concert band. Prereq: MUS 562, 564. *Staff.*

661 *Choral Literature and Technique.* (2) I, S
A study of Choral literature and its interpretation. Prereq: MUS 563. *Staff.*

662 *Advanced Band Technique.* (2) II, S
An advanced course in band techniques with concentration on band organization and materials, the technique of band conducting and intensive study in the field of band arranging. *Staff.*

663 *Advanced Instrumental Techniques.* (1) S
An advanced technical study of playing string, brass, and woodwind instruments, designed for the needs of school music teachers. May be repeated twice for a total of 3 credits. *Staff.*

667 *Current Practices in Elementary School Music.* (2) I, II, S
Contemporary philosophies and objectives of music in the elementary school. The in-service training of the classroom teacher; the music specialist as a resource person. Techniques for developing the child's musical interest and capacity for music. The status of music in America's public schools. Open to music teachers only. Prereq: MUS 360 or its equivalent. *Nash, Holroyd.*

670 *Theory Review.* (0) I, S
A review of the fundamentals of music theory. *Wright.*

671 *Advanced Musical Analysis.* (2) I, S
A course designed to show the changing aspects of musical style through analysis of representative compositions from all periods. *Kinney, Jordan.*

672 *Advanced Musical Analysis.* (2) II, S
A continuation of MUS 671. Prereq: MUS 671.

673 *Advanced Composition and Orchestration.* (2) I, II, S
Prereq: MUS 574 and 575. May be repeated 2 times for a total of 6 credits. *Wright.*

674 *Pedagogy of Theory.* (2) I, II, S
The teaching of music theory. *Wright.*

675 *Pedagogy of Theory.* (2) I, II, S
A continuation of MUS 574.

676 *Sixteenth Century Counterpoint.* (2)
The study of sixteenth century contrapuntal techniques through analysis and composition. *Wright, Kinney.*

680 *Medieval and Renaissance Music.* (3) II, S
An advanced study of the musical development during these periods. *Howell.*

681 *Symphonic Literature.* (3) II, S
An intensive study of orchestral literature. *Howell, Jordan.*

682 *Research Methods.* (2) I, S
A course designed to acquaint the student with the basic research techniques and materials in music. *Longyear, Kinney.*

742 *Administration and Supervision of Public School Music.* (3) II, S
A study of current trends in school music, curricula, testing programs, and other supervisory procedures. Same as Education 742. *Holroyd, Nash.*

743 *Advanced Methods and Materials in Music Education.* (2) I, S
Survey and evaluation of new music education methods and materials. Same as EDU 743. *Fitzgerald, Holroyd.*

744 *History and Philosophy of Music Education.* (2) I, S
A course designed to acquaint the student with the historical development and basic philosophy in music education. Same as EDU 744. *Holroyd, Nash.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once.

780 *Independent Work in Music Education.* (1) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

781 *Independent Work in Music Education.* (2) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

782 *Independent Work in Music Education.* (3) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

783 *Independent Work in Music Theory.* (1) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

784 *Independent Work in Music Theory.* (2) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

785 *Independent Work in Music Theory.* (3) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

786 *Independent Work in Musicology.* (1) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

787 *Independent Work in Musicology.* (2) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

788 *Independent Work in Musicology.* (3) I, II, S
Prereq: 4-6 hours of graduate credit in the area of specialization.

PHILOSOPHY

FACULTY

Professors: John Kuiper (M.A., Michigan, 1922), CHAIRMAN. Jesse DeBoer (Ph.D., Harvard, 1942). *Associate Professor:* A. James Gregor (Ph.D., Columbia, 1961); *Assistant Professor:* Roger Jose Chacon (Ph.D., Harvard, 1958). *Instructor:* Alan Jerome Shavzin (M.A., Yale, 1959).

Philosophy is today, as it has been in the past, a pursuit of an understanding of the most basic traits of the universe and of man and his activities. While each of the special sciences examines a limited sphere, philosophy strives for inclusive vision. Also it seeks clear definition of the fundamental meanings that underlie the various fields of human knowledge and practice. Standards present in man's knowing and acting are studied in logic, theory of knowledge, and ethics. Historical courses survey the development of the most general thought patterns of successive epochs. Such systematic courses as metaphysics and philosophy of religion discuss ideas bearing on the nature and organization of the universe.

All the courses offered by the Philosophy Department are designed to provide training which will constitute significant components of a liberal education. The special services of the Department may be listed as follows: (1) Several of its courses provide such training in the broadest ideas and values of civilization as will be useful for students working for a career in education, engineering, commerce, law, agriculture, medicine, and nursing. (2) The Department plans courses with a view to reinforcing and complementing various Arts and Sciences curricula, such as those in the humanities and the social studies, although it offers courses of value to students in the physical and biological sciences as well. In pre-professional programs leading toward medicine and the ministry there are courses that are virtually indispensable. Such courses as logic and ethics, which develop skill in reasoning and a more thorough understanding of the principles of moral conduct, are of special value in all curricula. (3) Finally, it provides a program of study for students who wish to major in philosophy itself, whether these students do or do not plan to pursue philosophy beyond the A.B. degree. The Department offers training as far as the M.A. degree and plans its graduate program with a view to preparing the student for effective study elsewhere toward the Ph.D. degree and a career of teaching philosophy.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in philosophy and allied courses.

Requirements for a Major. Prerequisite: 6 credits in philosophy, including Philosophy 200. *Required:* A minimum of 15 credits in philosophy; Tutorial Work (3 credits); and a comprehensive examination in the senior year.

Course Descriptions

200 *Introduction to Philosophy.* (3) I, II, S
An elementary study of the principal problems of philosophy. *Staff.*

220 *Elementary Logic.* (3) I, II, S
A study of the logical principles underlying valid thought. *Staff.*

230 *Ethics.* (3) I, II
A first course in ethics; study of the nature of moral action; meaning of right and good; moral standards; principal moral theories; organization of individual and social values. *Staff.*

380,381,382 *Tutorial Work in Philosophy.* (1 ea.) I, II, S
Weekly conferences with major students in preparation for the comprehensive examination. Required of all majors in Philosophy. *Staff.*

395 *Independent Work.* (3) I, II, S
Open only to students who have distinguished themselves in philosophy or in allied subjects. Prereq: Major in the department and standing of 3.0 in philosophy courses. May be repeated three times for a total of 12 credits. *Staff.*

500 *History of Philosophy—Ancient and Medieval.* (3) I
A survey of the philosophical thought of ancient Greece and Rome, and of medieval Christendom. *DeBoer.*

502 *Plato and Aristotle.* (3) II
Plato's development of a theory of the world and of practice, studies in selected dialogues. Analysis of passages in Aristotle's major works on natural philosophy, metaphysics, knowledge, ethics, and politics. *DeBoer.*

510 *History of Philosophy—Modern.* (3) II
A survey of modern European and American philosophy from the Renaissance to contemporary times. *Gregor.*

511 *The Making of the Modern Mind.* (3)
A study of the intellectual background of the modern age. Renaissance humanism, 17th and 18th century rationalism, 19th century romanticism and idealism are some of the major tendencies to be stressed. *Kuiper.*

512 *Representative Modern Philosophers.* (3)
A study of the original works of the chief figures in modern philosophy. Special attention will be given to Descartes, Spinoza, Locke, Hume and Kant. *Kuiper.*

515 *Contemporary Philosophy.* (3) I
A study of contemporary philosophical tendencies, notably pragmatism, idealism, the analytic movement (e.g., logical atomism, logical positivism, and philosophical analysis), phenomenology, and existentialism. *Chacon.*

518 *Existentialism.* (3) II
A systematic study of the fundamental concepts and problems of existentialism. Selected readings in Kierkegaard, Marcel, Heidegger, and Sartre. *Chacon.*

520 *Intermediate Logic.* (3) I
A second course in logic including the logic of classes, of relations, of propositions and propositional functions, the theory of deductive systems, and a consideration of the rival schools of contemporary logical theory. *Chacon.*

540 *Great Religions.* (3) I, S
A descriptive survey of several religions as they developed within their culture, for example, Hinduism, Buddhism, Confucianism, Judaism, Christianity. *DeBoer.*

545 *Philosophy of Religion.* (3) II
A philosophical examination of religious ideas, including such topics as the origin of religion, the nature of religion; the various concepts of God, the soul, immortality, and internal and external criticisms of religion. *DeBoer.*

550 *Metaphysics.* (3) II
Study of concepts and problems important for understanding the general or ultimate factors in reality; e.g., space-time change, causality, substance, matter, life, God. *DeBoer.*

555 *Epistemology.* (3) II
A study of the origin, nature, kinds, and validity of knowledge, with a consideration of such topics as faith, intuition, belief, opinion, certainty, and probability. Also some discussion of recent developments in semantics. *Chacon.*

560 *Philosophy of Science.* (3) II
An examination of the logical and epistemological foundations of empirical science, including such topics as the unity and diversity of the sciences, methodology, theory and explanation, and current studies in the language of science. *Morrow.*

580 *Problems of Philosophy.* (3) S
This course is designed for upper division and graduate students who have had little or no formal training in philosophy but wish to study the presuppositions underlying religion, education, art, morality, and government. *Staff.*

592 *Aesthetics.* (3) II
Problems of method in aesthetics; major types of aesthetic theory. Aesthetic materials of the arts in literature, music, and the space arts. Form and types of form. Meaning in the arts. Interrelations of the arts. Lectures, discussions, reports. (Same as ART 592.) *Amyx.*

620 *Types of Logical Theory.* (3)
An intensive study of recent and contemporary contributions to logical theory: Whitehead and Russell, C. I. Lewis, R. Carnap, John Dewey, and others. May be repeated once for a total of 6 credits. *Kuiper.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once.

770 *Seminar in Philosophy.* I, II (2)
One 2-hour meeting a week for discussion of current developments in philosophy as found in books and periodicals. Readings and reports. May be repeated 3 times for a total of 8 credits. *Gregor.*

790 *Research in Philosophy.* (3) I, II, S
This course is primarily intended for advanced students who desire and are prepared to do research in philosophy. May be repeated 3 times for a total of 12 credits. *Staff.*

PHYSICAL EDUCATION

FACULTY

Professors: Don Cash Seaton (Ed.D., New York University, 1947), CHAIRMAN. Martha G. Carr (Ed.D., Indiana, 1944), Charles William Hackensmith (Ph.D., Ohio State, 1948), Ernst Jokl (M.D., Breslau, 1931), Earl Kauffman (Ed.D., New York University, 1949). *Associate Professors:* Maurice A. Clay (Ed.D., Kentucky, 1955), Milo Gist Karsner (Ph.D., Iowa, 1953). *Assistant Professors:* Stella Spicer Gilb (M.A., Kentucky, 1942), Bernard Mason Johnson (M.A., Kentucky, 1949), Bernard Joseph Kuhn (H.S.D., Indiana, 1962), Lovaine Carol Lewis (Ph.D., Kentucky, 1958), Alfred Marion Reece (M.A., Kentucky, 1946), Peggy Stanaland (M.S., Florida State, 1954). *Instructors:* Judith Lynne DuBonn (B.A., Butler, 1964), Ada Mary Jobert (M.A., Kentucky, 1959).

REQUIRED PHYSICAL EDUCATION

All students, except those in the College of Commerce, must successfully complete two semesters of physical education. The courses offer one hour credit for each semester successfully completed.

Incoming freshmen (and sophomores) are given screening tests for (1) physical fitness including swimming, and (2) sports achievement. Those who pass both categories are permitted to by-pass the two-semester requirement by their college dean. Those who fail in both categories will be enrolled in a physical fitness class their first semester and in a sports skills (of their choice) their second semester. Those who fail in only one category will be required to enroll during their first semester in the one failed, and be permitted to by-pass the other semester of the requirement.

The required (service) program is designed to:

1. Provide students with a means of regulated and supervised exercise to improve their physical fitness.
2. Teach the students those activities which may serve as a recreational pursuit during leisure time.
3. Develop a sane and intelligent attitude toward the need for and benefits of well-regulated physical activity.

A standard uniform is required in most all physical education classes. The cost of such uniform ranges from $5.00 to $12.00. A locker fee of $1.00 to $3.00 per semester, depending upon the activities included in the class in which enrolled is charged each student. This fee includes towel service, soap, locker rental and the privilege of using the equipment and facilities of the Department during non-class periods. The locker and towel fee for swimming is $4.00 per semester. Students must furnish their own swim suits.

Although neither locker nor uniform is required in ice skating, bowling or equitation classes, students enrolling in these activities must pay small additional fees since the facilities are not available in the physical education department. The fee for equitation classes is $28.00, for bowling is 25¢ for each class attended, and the fee for ice skating classes is $10.00.

INTRAMURALS

A second phase of the Department's program is its intramural sports for men and women students and the Women's Athletic Association for women students. Through the intramural and W.A.A. programs and such organizations as the U.K. Troupers, Tau Sigma (Modern Dance), and Blue Marlin (Swim Club) numerous activities are sponsored which provide opportunity for all students to participate in competitive sports and recreational activities.

PROFESSIONAL PHYSICAL EDUCATION

The majority of students selecting Physical Education as a major do so because they expect to enter this field as teachers or as coaches. Since our students come from widely different backgrounds inside the state and from outside of Kentucky an effort is made to gear the program to their individual needs, backgrounds, and future requirements. To this end opportunities for varying extents of concentration in the major field and in minor fields within limitations of University and College policy are offered for the guidance of and selection by the student. Requirements in the fields of English, the Basic Sciences, Social Studies, Nutrition, Psychology and (for the teacher) in Education are outlined to accompany work in the major field. The student may receive the degree through the College of Arts and Sciences or through the College of Education. All physical education majors are required to enroll in Physical Education 281, Camp Leadership, offered at Camp Robinson at the end of the Sophomore year, and in Physical Education 61, Field Trip, scheduled in the spring of the Junior year.

PROFESSIONAL EDUCATION FOR RECREATION

The Topical Major in Recreation provides opportunities for students to prepare for positions of leadership and administration in public and private agencies, institutions, and special assignments. The fundamental base of the major is the undergraduate program of the College of Arts and Sciences. When these requirements are met, usually by the end of the sophomore year (providing the student has earned a 2.5 average), the remaining work is hand-tailored to suit the individual life plans of each student.

TOPICAL FIELDS

Topical fields are offered in Recreation, Horsemanship and Dance. A student enrolling in one of the fields will have an individual curriculum prescribed to prepare him for his life's work.

SERVICE COURSES (FOR MEN AND WOMEN)

Note: At present all students except those excused from Physical Education and those enrolled in the College of Commerce are required to satisfactorily complete two Physical Education Service Courses prior to graduation. Students may elect to enroll in a maximum of four additional Service Courses after they have completed their requirement. Only two of the Service Courses may count in the minimum degree requirements of 130 credits.

Physical Education 100-125. (1 ea.) I, II, S
May be repeated for a maximum of six credits.

Upper Division Requirements

PROFESSIONAL COURSES

Requirements in the Field of Concentration: Forty credits of advanced work in the field of Biological Sciences, including the major work.

Requirements for a Major. Prerequisites: For Men and Women—Zoology 100 or Anthropology 100 and 101, Sociology 220 or 240, English 181 or 291, Physical Education 150, 151, 250, 251. For Men—Physical Education 141, 142, 143, 144.

Required: For Men and Women— Anatomy 206 and Physiology 206; Home Economics 401; Hygiene 510; Physical Education 061, 152, 280, 281, 343, 360, 370, 520, 540, 545, 572. For Women: Physical Education 491.

(For Teaching Certificate: Education 98, 101, 202, 340 or 344, 369, 370, 444, Physical Education 344, 360. Only 6 hours of Education count in Field of Concentration in A. & S. It is recommended that the student seeking a teaching certificate elect a second teaching field in addition to Physical Education and that he consult with his advisor early in the Freshman year.)

Course Descriptions

COURSES FOR MEN AND WOMEN

061 *Field Trip.* (0) II
Required the spring semester of all Juniors majoring in physical education. Visitation and inspection of physical education programs. *Carr and Clay.*

140 *Professional Orientation.* (2) I
Introduction to the fields of health, physical education, and recreation. Two hours per week. Required of all students the first fall semester enrolled in the University in Physical Education.

141 *Basketball Coaching Fundamentals.* (2) I
Theory and practice in coaching fundamentals involved in basketball. Four hours lab per week. *Lancaster.*

142 *Football Coaching Fundamentals.* (2) II
Theory and practice in coaching fundamentals of football.

143 *Track and Field Coaching Fundamentals.* (2) II
The theory and practice of coaching. Four hours lab per week. *Seaton.*

144 *Baseball and Softball Coaching Fundamentals.* (2) II, S
Theory and practice in coaching fundamentals involved in baseball and softball. Four hours lab per week.

150,151 *Physical Education and Recreation Activities.* (2 ea.) I, II

Theory and practice of activities recommended for physical education and recreation programs. Six hours per week lab required of all freshman physical education and recreation majors.

152 *Techniques of Swimming.* (2) I, alternate S

A basic course in swimming and diving skills beginning with the intermediate level. To include survival, lifesaving, synchronized and skin diving skills. Four hours lab per week. Prereq: Special Skill Test. *Reece.*

185 *Jumping (Horseback.)* (1)

Practice in jumping over different obstacles for show and hunting. Prereq: Horsemanship or consent of instructor. *Ryen.*

250,251 *Physical Education and Recreation Activities.* (2 ea.) I, II

Theory and practice of activities recommended for physical education and recreation programs. Six hours lab per week required of all sophomore physical education and recreation majors.

252 *Water Safety Leadership.* (2) II, alternate S

Leadership training in the teaching of swimming, lifesaving, diving, synchronized swimming, competitive swimming, camp waterfront, beach and pool operation and exhibition. Four hours lab per week. Prereq: Senior Lifesaving Certificate and Special Skill Test. *Reece.*

280 *Recreation Leadership.* (2) I, II

Practice in arts and crafts, dance, music, nature, and sports. This course is suitable for recreation workers, playground directors, church leaders, parents, teachers and others. Lecture, two hours; lab, two hours. *Kauffman.*

281 *Camp Leadership.* (2) II

Designed for the training of camp administrators and counselors. Offered at Camp Robinson or on campus with field experiences at Camp Robinson. Lecture, one hour; lab, two hours.

286 *Equestrian Dressage.* (2)

The technique of training dressage. One hour lecture and two hours laboratory. Prereq: Horsemanship or equivalent. *Ryen.*

290 *History and Survey of the Dance.* (3) I, S

The study of the evolution of dance through the cultural periods of history and the correlation of social structure and dance forms. Open to male students. Three hours per week. *DuBonn.*

343 *History and Principles of Physical Education.* (3) I

Study of the historical development of physical education and an interpretation of the biological, psychological, and sociological principles of physical education. Three hours per week. *Hackensmith and Carr.*

344 *Physical Education in the Secondary School.* (3) II, S

Required for teacher certification in physical education. Theory and practice in methods of teaching physical education activities and supervising programs in the secondary school. One hour per week of lecture, and four hours lab. May be repeated by women for a maximum of six credits. *Carr and Clay.*

356 *Sports Officiating for Men.* (1) I, S

The theory and practice of officiating football, volleyball, basketball, swimming, and other sports. Officiating in college intramurals and high school athletics will be required. One hour lecture, two hours lab. *Johnson.*

357 *Sports Officiating for Men.* (1) II, S

The theory and practice of officiating basketball, track, baseball, tennis, and other sports. Officiating in college intramurals and high school athletics will be required. One hour lecture, two hours lab. *Johnson.*

358 *Sports Officiating for Women.* (1) I, S

Instruction, interpretation of rules, and practice in officiating field hockey, volleyball, and other sports. Preparation for Women's National Official's rating in athletics. One hour lecture, two hours lab.

359 *Sports Officiating for Women.* (1) II, S

Instruction, interpretation of rules, and practice in officiating basketball, softball, tennis, and other sports. Preparation for Women's National Official's rating in athletics. One hour lecture, two hours lab.

360 *Physical Education in the Elementary School.* (2) I, II, S

Required of all physical education majors and others who wish to qualify for a teaching certificate. Materials and techniques in physical education activities suitable for elementary school children. Prereq: Eight hours in PE or consent of instructor. *Gilb.*

362 *Tutorial Work in Physical Education.* (1) I, II

This work is to be given in preparation for the comprehensive examination. For Arts & Sciences majors only. One hour per week. May be repeated for maximum of two hours credit. *Carr and Seaton.*

370 *Safety, Training, and First Aid.* (2) I, II

Prevention and care of injuries common to physical education and recreation activities. Standard A.R.C. certificate in First Aid may be earned. One hour lecture and three hours lab. *Kuhn.*

386 *Applied Dressage.* (1)

The principles and practice of dressage movements in training for position and collection. Prereq: PE 286. Two hours lab. *Ryen.*

388 *Equitation Teaching.* (3)

The techniques of horsemanship and methods of instruction. One hour lecture and two hours lab. Prereq: Horsemanship and ASC 102.

395 *Independent Work in Physical Education.* (3) I, II, S

Prereq: Major and 3.0 standing in the Department. May be repeated for a maximum of 12 hours credit. *Staff.*

481 *Camping in Education.* (2) I, S

Purpose, history, organization, and conduct of camps of various types. Prereq: PE 281 or permission of instructor. *Kauffman.*

482 *Intramural Sports.* (2) II, S

A study of the development of intramural sports; lecture, recitation, and practice in methods of organizing and administering intramural sports. Three hours per week. One hour lecture and two hours, lab.

486 *Advanced Dressage.* (2)

The advanced techniques in equestrian dressage leading up to the fundamentals of haute l'ecole (high school) riding. Prereq: PE 386. One hour lecture, two hours lab. *Ryen.*

491 *Dance in Education.* (4) II

An introduction to the creative approach to dance for elementary, secondary and college levels. The principles of kinesthetics and rhythmical forms applied to the practice of fundamental movement techniques. Two hours lecture and four hours lab. *DuBonn.*

520 *Physiology of Exercise.* (3) S

A comprehensive survey of the physiological and clinical aspects of exercise. Lectures and demonstrations, three hours. Prereq: ANA 206 and PGY 206, 207; PSY 100; and consent of instructor. *Jokl.*

540 *Organization and Administration of Physical Education.* (3) I, S

Policies and procedures of administration on the secondary school and collegiate levels. Special emphasis on construction and care of facilities, equipment, and supervision of personnel. Three hours per week. *Carr and Clay.*

541 *Coaching Advanced Basketball.* (2) I, S

Lecture and recitation on the theory and practice of team play in basketball. Special emphasis is placed upon systems of offense and defense. Two hours per week. Prereq: PE 141 or consent of instructor. *Lancaster.*

542 *Coaching Advanced Football.* (2) II, S

Lecture and recitation on the theory of football. Special emphasis is placed on generalship, signal systems, scouting and conditioning of players. Two hours per week. For men. Prereq: PE 142 or consent of instructor. *Rice.*

545 *Introduction to Tests and Measurements.* (3) II

The construction and grading of essay and objective tests; construction and analysis of achievement tests; and testing and measuring in health and physical education. Lecture two hours and lab two hours per week. *Clay.*

572 *Kinesiology and Its Application.* (4) I

A study of basic principles of bodily movement and their application to sports, rhythmical activities and the correction of functional defects. Three hours lecture and two hours lab. Prereq: ANA 206 and PGY 206, 207. *Hackensmith.*

580 *Administration and Organization of Recreation.* (3) II, S

This course is designed to equip students and community workers with procedures for developing and operating recreation programs in communities of various sizes and with varying political and social structures.

583 *Interpretations of Leisure and Recreation.* (3) I, S

Designed to provide students interested in recreation as a profession as an adjunct to other work, or as informed citizens with a basic understanding of the significance of leisure and the objectives of recreation. *Kauffman.*

592 *Dance Composition.* (4) II

Dance choreography, program planning, directing, staging and costuming. Formal program required of all students. Open to male students. Two hours lecture and recitation; four hours lab per week. Prereq: PE 491. *DuBonn.*

595 *Folk Dance Leadership for School and Community.* (2) I, II, S

Philosophy, background, and methods of folk dance for schools and communities. Leadership, participation, and program planning with special emphasis upon field work with community groups.

GRADUATE COURSES FOR MEN AND WOMEN

644 *Research and Its Application.* (3) I, S

The theory and practice of tests and measurements in the field of health and physical education. Two hours lecture and two hours lab. *Hackensmith.*

650 *Curriculum and Program Development.* (3) I, S (even years)

A study of fundamental principles basic to the development of the overall curriculum in physical education with special emphasis upon the proper selection and organization of physical education activities to meet the educational and recreational needs of all students. Prereq: PE 343, 344, 540. *Carr.*

651 *Facilities, Construction, and Equipment.* (2) S

Principles and standards for maintaining facilities, and planning construction; purchase and care of equipment. Prereq: PE 540. *Seaton.*

685 *Administrative Practices in Recreation.* (3) I, S

A study of administrative functions concerned with policy determination, public relations, personnel practices, and routine details confronting the chief recreation officer and his staff associates. Prereq: PE 580 or consent of instructor. Three hours per week. *Kauffman.*

690 *Organization and Administration of Dance in Education.* (3) II, S (odd years)

Special emphasis will be placed upon the organization and administrative program in dance to meet the needs of students from elementary through college levels. Some attention will be given to dance production, festivals and social dance functions in schools. Prereq: PE 491, 592, 595, or consent of instructor.

720 *Sports Medicine.* (3) II, S

A study of the basic areas covered in sports medicine with readings and discussions of current international trends in the research and practice in this field. Prereq: Twelve semester hours credit in the field of biological science and consent of instructor. *Jokl.*

741 *Current Studies and Trends in Health and Physical Education.* (3) I, S

A study of modern trends in health and physical education and standards of evaluation in relation to the history of the various systems, including a review of the principles and objectives (even years). *Seaton.*

768 *Residence Credit for Master's Degree.* (0)

770 *Seminar.* (2) I, II, S

A review of current literature in the field. Guidance in thesis writing. Two hours lab per week. May be repeated once.

780 *Problems in Recreation.* (2) II, S

Current problems in recreation are identified and analyzed by the application of appropriate recreation technique. The course is designed for recreationists, school people and community workers. *Kauffman.*

782 *Problems in Physical Education.* (3) I, S

For school administrators and directors of physical education. Students work on individual problems applicable to their situation and interests, as well as upon general school problems. *Hackensmith.*

783 *Problems in the Administration of Athletics.* (2) II, S

For athletic directors, supervisors, and athletic coaches. A study of representative athletic administration procedures for colleges and public school systems. Business management is also stressed. Two hours per week. *Clay.*

PHYSICS

FACULTY

Professors: Francis Lorraine Yost (Ph.D., Wisconsin, 1936), CHAIRMAN. Lewis Wellington Cochran (Ph.D., Kentucky, 1952), Wendell Carden DeMarcus (Ph.D., Yale, 1951), Richard Hanau (Ph.D., Michigan, 1947), Bernard Donald Kern (Ph.D., Indiana, 1949). *Associate Professors:* Roy Fletcher Gabbard (Ph.D., Rice, 1959), Lee William Gildart (Ph.D., Northwestern, 1950), Marcus Thomas McEllistrem (Ph.D., Wisconsin, 1956). *Assistant Professors:* Jerry Duke Brandenberger (Ph.D., Texas, 1962), Hugh Patrick Kennedy (Ph.D., Virginia, 1964), Robert Pat Ryan (Ph.D., Brown, 1963), Rudolph Schrils (Ph.D., Colorado, 1963), Jesse Leo Weil (Ph.D., Columbia, 1959).

The objectives of the Department of Physics are:

to provide instruction to the end that a student, regardless of his special interests, may acquire a general understanding and appreciation of physics;

to provide a complete undergraduate curriculum with sufficient elasticity so that a graduate with a major in physics may teach in secondary schools, go on to greater specialization in physics, or use his major as a strong foundation for vocations;

to provide graduate instruction and modern facilities for research in physics leading to advanced degrees; to provide time and facilities needed for the research activities of the staff of the Department of Physics.

SUGGESTED OUTLINE OF A CURRICULUM IN THE PHYSICAL SCIENCES WITH PHYSICS AS A MAJOR:

Freshman Year

First Semester	Crs.
Military or Aeronautic Science or elective	2
Physical Education	1
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
CHE 110—General Chemistry	5
	16

Second Semester	Crs.
Military or Aeronautic Science or elective	2
Physical Education	1
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General Chemistry	5
PHY 111—General Elementary Physics	3
	18

Sophomore Year

First Semester	Crs.
Military or Aeronautic Science or elective	2
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Laboratory	2
Biological Science	3
*Foreign Language	3
	17

Second Semester	Crs.
Military or Aeronautic Science or elective	2
MA 212—Analytics and Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Laboratory	2
Biological Science	3
*Foreign Language	3
Hygiene	1
	18

Junior Year

First Semester	Crs.
MA 431—Differential Equations	3
PHY 504—Theoretical Mechanics	3
PHY 516—Electricity and Magnetism	3
Humanities	2
Social Studies	3
Field or Free Elective	3
	17

Second Semester	Crs.
MA 531—Partial Differential Equations	3
PHY 508—Optics	3
PHY 512—Experimental Physics: Electricity and Magnetism	2
PHY 517—Electricity and Magnetism	3
Humanities	2
Social Studies	3
	16

Senior Year

First Semester	Crs.
MA 432—Applied Calculus	3
PHY 522—Heat & Thermodynamics	3
PHY 538—Experimental Physics: Light	2
PHY 554—Fundamental Atomic and Nuclear Physics	3
Humanities	2
Field or Free Electives	6
	19

Second Semester	Crs.
MA 433—Applied Calculus	3
PHY 535—Experimental Physics: Atomic and Nuclear	2
PHY 555—Fundamental Atomic and Nuclear Physics	3
PHY 598—Introduction to Quantum Mechanics	3
Field or Free Electives	8
	19

* One to four semesters of foreign language depending on amount taken in high school.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of physical science, including the major work.

Requirements for a Major. Prerequisite: Physics 231 and 232; Mathematics 111, 112, and 113. *Required:* Mathematics 211 and 212; a minimum of 19 credits of advanced work in Physics, including at least two advanced laboratory courses.

Course Descriptions

111 *General Elementary Physics.* (3) I, II, S
An elementary course covering the mechanics of solids, liquids, and gases; and heat. Lectures and recitations, four hours. Prereq: High School or College Algebra, Plane Geometry. (Open only to Physics majors.)

151 *Introduction to Physics.* (3) I
A lecture demonstration course covering the mechanics of solids, liquids, and gases; heat; and sound. *Yost.*

152 *Introduction to Physics.* (3) II
A lecture demonstration course covering magnetism and electricity, and light. *Yost.*

211 *General Elementary Physics.* (5) I, II, S
An elementary course covering the mechanics of solids, liquids, and gases; and heat. Lectures and recitations, four hours; lab, two hours. Duplicated by PHY 231, 241. Prereq: High School or College Algebra, Plane Geometry. *Staff.*

212 *Laboratory for Physics 211.* (0)

213 *General Elementary Physics.* (5) I, II
Continuation of Physics 211, covering magnetism and electricity, sound, and light. Lectures and recitations, four hours; lab, two hours. Duplicated by PHY 232, 242. Prereq: PHY 211 or equivalent. *Staff.*

214 *Laboratory for Physics 213.* (0)

231 *General College Physics.* (3) I, II, S
An advanced general course covering the mechanics of solids, liquids, and gases; heat and sound. Lecture and recitations, four hours. Prereq: MA 111, 112, and 113; CHE 110 and 112; or equivalents; MA 211, concurrent. *Staff.*

232 *General College Physics.* (3) I, II
An advanced general course covering magnetism and electricity, light and modern physics. Lecture and recitations, four hours. Prereq: PHY 231, or equivalent; MA 212 or concurrent. *Staff.*

241 *General College Physics Laboratory.* (2) I, II, S
An advanced general laboratory course involving experiments on the mechanics of solids, liquids, and gases; and heat. Laboratory, four hours. Prereq: PHY 231, or concurrent. *Staff.*

242 *General College Physics Laboratory.* (2) I, II, S
An advanced general laboratory course involving experiments on magnetism and electricity, sound, and light. Laboratory, four hours. Prereq: PHY 241; PHY 232, or concurrent. *Staff.*

281 *General Physics for Students in Agriculture and Home Economics.* (4) I, II
A general elementary course summarizing in one semester the main features of a two-semester course in Physics. Recitations, three hours; lab, two hours. Prereq: MA 111 or equivalent (Open only to students in the College of Agriculture and Home Economics). *Staff.*

301 *Principles of Mechanics and Electrostatics.* (4) S
A lecture and laboratory course designed to present the principles of mechanics and electrostatics in such a manner as to take advantage of the comparison between gravitational and electric systems. Lectures and recitations, five hours; lab, four hours. Prereq: Employment as a high school science teacher. *Staff.*

302 *Laboratory for Physics 301.* (0)

332 *Radioisotopes Techniques.* (3)
An introductory course designed primarily for students in the biological sciences, geology, engineering and agriculture. Includes fundamental principles of radioactive decay, interaction of radiation with matter, techniques of measurements and applications. Lectures and recitations, two hours; lab, three hours. Prereq: Consent of instructor. *Staff.*

395 *Independent Work in Physics.* (3)
Prereq: Major and a standing of 3.0 in the department. May be repeated three times for a total of 12 credits. *Staff.*

401 *Structure of Physical Systems.* (3) S
A lecture and problem course introducing the mechanical and electromagnetic principles upon which the analyses of many physical systems rest, and specific discussions of the properties of the following: the atom, crystal structure, the atomic nucleus, and nucleons. Lectures, five hours. Prereq: Employment as a high school science teacher. *Staff.*

501 *Orientation in Modern Physics for Teachers.* (3) S
Review of fundamentals of physics. Discussion of problems associated with high school physics teacher. Recent developments in physics. Prereq: Employment as high school science teacher. *Staff.*

502 *Orientation in Modern Physics for Teachers.* (3) S
Review of fundamentals of classical physics: treatment of atomic and nuclear physics, solid state, and other topics of current interest. Prereq: Employment as high school science teacher. *Staff.*

504 *Theoretical Mechanics.* (3) I
A lecture and problem course covering the fundamental laws of mechanics. Topics include kinematics of a particle, statics and dynamics of particles and rigid bodies, constrained motion, and oscillatory motion. Prereq: PHY 232, 242; and MA 212. *Brandenberger.*

508 *Optics.* (3)
A lecture and problem course covering the basic phenomena of optics. Topics include thick lenses, apertures, wave motion, interference, diffraction, polarization, and the theory of selected optical instruments. Prereq: PHY 232, 242; and MA 212. *Hanau.*

510 *Spectroscopy.* (3)
A lecture and problem course dealing with the production, recording measuring, and interpretation of atomic and molecular spectra. Topics include basic principles of atomic structure, spectrographs, photometry, and spectrographic analysis. Prereq: PHY 232, 242; and MA 212. *Hanau.*

512 *Experimental Physics: Electricity and Magnetism.* (2)
An advanced laboratory course in electrical measurements. It includes calibration and use of the quadrant electrometer, the d'Arsonval galvanometer and the Type K Potentiometer; absolute determinations of electrical quantities. Prereq or coreq: PHY 516 or equivalent. *Gabbard.*

514 *Vacuum Tubes and Circuit Theory.* (3)
A lecture and problem course covering the theory of vacuum tubes and associated circuits. It includes the solution of selected electronic circuits by the method of the Laplace transform. Prereq: PHY 232, 242; MA 212. *Kern.*

515 *Theory of Measurements.* (3)
A lecture and problem course in the analysis of experimental data. Topics include finding an empirical equation to fit a set of data, approximations, probability distributions, errors and deviations. Prereq: PHY 504 and MA 212. *Hanau.*

516 *Electricity and Magnetism.* (3)
A lecture and problem course covering the theory of electrostatic fields, conductors, dielectrics, and steady currents. Prereq: PHY 232, 242; and MA 212. *Weil.*

517 *Electricity and Magnetism.* (3)
A continuation of PHY 516. A lecture and problem course covering electromagnetic induction, magnetic fields, magnetic materials, alternating currents, and electromagnetic radiation. Prereq: PHY 516. *Weil.*

519 *X-rays and Crystal Structure.* (3)
A lecture and problem course dealing with the production and properties of X-rays. Topics include absorption, scattering, polarization, etc.; wave length measurement; the Compton effect and related quantum phenomena. Prereq: PHY 232, 242; and MA 212.

522 *Heat and Thermodynamics.* (3)
A lecture and problem course stressing some of the fundamental principles of heat phenomena, the laws of thermodynamics, equations of state for ideal and real gases, continuity, derivation of thermodynamic relations. Prereq: PHY 232, 242; and MA 212.

523 *Heat and Thermodynamics.* (3)
A continuation of PHY 522, dealing with thermodynamic functions, thermodynamic equilibrium, the phase equilibria, ionic equilibrium, electromotive force and free energy, surface phenomena, radiation. Prereq: PHY 522 or equivalent. *Ryan.*

524 *Solid State Physics.* (3)
Structure of solids and the physical basis of the properties of materials bonding, solid types, lattice energy; thermal, dielectric and magnetic properties; electrons in metals and semi-conductors; theory of rectifiers, transistors and solid state devices. Prereq: PHY 232, 242; MA 212. *Mowat.*

525 *Experimental Physics: Heat.* (2)
Thermal and electrical conductance in solids, photoelectric effect, photoresistive effect, rectification, transistor action, diffusion, Hayne's experiment. Prereq: PHY 524. *Staff.*

530 *Experimental Physics: Spectroscopy.* (2)
An advanced laboratory course in the use and properties of various light sources, spectrographs, photographic materials, and photometric methods; analysis of unknown materials by spectrographic methods. Prereq: PHY 510 or 508. *Hanau.*

534 *Experimental Physics: Vacuum Tubes.* (2)
An advanced laboratory course dealing with the measurements of circuit and vacuum tube constants, and the experimental study of amplifiers, oscillators, pulse generators, saw-tooth generators, etc. Prereq or concur: PHY 514 or equivalent. *Staff.*

535 *Experimental Physics: Atomic and Nuclear.* (2)
Measurement of e, e/m, h/e, resonance potentials, x-ray absorption, half-lives, beta-ray and gamma-ray absorption, gamma spectra, specific activity, alpha-particle ranges, and radiation dosage. Prereq: PHY 555 or concurrent. *Gabbard.*

538 *Experimental Physics: Light.* (2)
An advanced laboratory course dealing with the properties of lenses, mirrors, prisms, gratings, and combinations of these elements in optical systems. The important phenomena of optics are studied experimentally. Prereq: PHY 508. *Hanau.*

554 *Fundamental Atomic and Nuclear Physics.* (3)
Atomic models, electromagnetic radiation, special theory of relativity, x-rays and crystal structure, Compton effect, wave nature of matter, atomic spectra, vector model, Zeeman effect. Prereq: PHY 232, 242; MA 212. *Cochran.*

555 *Fundamental Atomic and Nuclear Physics.* (3)
A continuation of PHY 554. Prereq: PHY 554. *Brandenberger.*

556 *Nuclear Reactor Physics.* (3)
A lecture and problem course covering nuclear fission and neutron diffusion as they enter into reactor theory; physical principles of reactor design; time behavior of reactors. Prereq: PHY 555. *Staff.*

598,599 *Introduction to Quantum Mechanics.* (3 ea.)
A lecture and problem course providing an introduction to quantum mechanics at the undergraduate level. Primary emphasis is on one-dimensional problems so that fundamental ideas can be assimilated without complications of purely mathematical nature. Basic postulates, Schrodinger's wave equation and its applications. Prereq: PHY 232, 242; MA 431. *Staff.*

604 *Classical Mechanics.* (3)
A lecture and problems course covering the methods of Lagrange and Hamilton and their application to particles, systems of particles, and continuous media; variational principles; transformation theory. Prereq: PHY 504; MA 431. *McEllistrem.*

605 *Kinetic Theory of Matter.* (3)
A course of lectures covering the classical kinetic theory of gases. Topics include the theorems of Clausius, Joule, Maxwell and Boltzmann; Brownian movements, development of equations of change of state. Prereq: Two 500 courses in PHY and MA 431. *DeMarcus.*

608 *Microwaves.* (3)
A lecture and problem course reviewing electromagnetic wave theory with emphasis on solutions of Maxwell's wave equations and their applications to the modern problems of microwave transmission. Prereq: PHY 516; MA 431. *Staff.*

612 *Conduction of Electricity Through Gases.* (3)
Considers basic phenomena of electrical discharge in gases, including ionic formation, mobility, diffusion, and recombination; representative discharges such as the arc, glow, spark, corona. Prereq: PHY 511, 510 or 554; MA 431. *Cochran.*

613 *Electromagnetic Theory.* (3)
A lecture course dealing with the application of classical electromagnetic theory to the optical phenomena of reflection, refraction, polarization, and absorption. Prereq: PHY 516 and 508; MA 431. *Staff.*

614 *Transient Electric and Vacuum Tube Phenomena.* (3)
A lecture course dealing with transient currents in circuits containing variable amounts of inductance, capacitance, and resistance. Both the methods of differential equations and of the Laplace transform are used. Prereq: PHY 514 or 516; and MA 431. *Staff.*

616 *Theoretical Physics.* (3)
A lecture and problem course presenting the basic aspects of theoretical physics in a unified way. Representative topics; advanced dynamics, hydrodynamics, elasticity. Prereq: Two 500 courses in PHY; and MA 431. *DeMarcus.*

617 *Theoretical Physics.* (3)
A continuation of 616. Prereq: PHY 616 or equivalent. *DeMarcus.*

618 *Thermodynamics.* (3)
Review of the two classical laws of thermodynamics and their dynamical and statistical mechanical support; Nernst's heat theorem; applications of classical thermodynamics to important problems, relativity thermodynamics. Prereq: PHY 522; MA 431. *Kern.*

624 *Theory of the Solid State.* (3)
A lecture and problem course covering the fundamental theory of the structure and properties of complex atoms, molecules, liquids and solids. Topics include mechanical, chemical, and thermal properties of matter. Prereq: PHY 714 or equivalent. *Staff.*

629 *Nuclear Physics.* (3)
A lecture and problem course dealing with advanced experimental nuclear physics. Topics include properties of nuclei, nuclear transformations, observational methods, radioactivity and interaction of radiation with matter. Prereq: PHY 616. *McEllistrem.*

630 *Nuclear Physics.* (3)
A lecture and problem course concerned with the theories of the structure of atomic nuclei. Topics include nuclear shell structure, internuclear forces, nuclear binding energies, and theory of nuclear reactions. Prereq: PHY 616 or 714 or equivalent. *McEllistrem.*

631 *Atomic Structure.* (3)
A lecture and problem course treating the theory of atomic structure. Topics include atomic and molecular spectra, multiplet structure, interatomic and intermolecular forces, and quantum mechanical treatment of the vector model. Prereq: PHY 714 or equivalent. *McEllistrem.*

632 *Statistical Mechanics.* (3)
A lecture and problem course dealing with the thermal properties of matter from the standpoint of statistical mechanics. Topics include thermodynamic properties, perfect gases, and Fermi-Dirac statistics. Prereq: PHY 522 and 616. *DeMarcus.*

639,640 *Theoretical Astrophysics.* (3 ea.)
A study of those branches of physics which have thus far proved most useful in astronomical applications and a thorough treatment of several major astronomical problems which have been elucidated by these methods. Prereq: PHY 617, 554, or equivalent. *DeMarcus.*

650 *Cosmic Rays and Relativistic Phenomena.* (3)
A lecture and problem course dealing with the field of cosmic rays. Topics include relativity theory, interaction of cosmic rays with matter, shower theory, properties and production of mesons. Prereq: PHY 617 or equivalent. *Staff.*

651 *Physics of Elementary Particles.* (3)
A lecture and problem course treating the subjects of fundamental particle classification schemes, high energy accelerators and detectors, introduction to meson field theory, pion nucleon interactions, and strange particles. Prereq: PHY 555, 617. *Staff.*

652 *Theory of Elementary Particles.* (3)
A lecture and problem course dealing with the application of modern theoretical concepts to elementary particle systems. Prereq: PHY 714. *Staff.*

706 *Methods of Mathematical Physics.* (3)
Solution of physical problems systematized according to the equations they satisfy. Variational methods, boundary conditions, eigenfunctions. Green's function, integral representations, approximation procedures, with applications from electromagnetic theory, quantum mechanics, acoustics. Prereq: Consent of instructor. *Staff.*

714 *Quantum Mechanics.* (3)
A lecture course covering a brief review of the origin of quantum theories, mathematical techniques of quantum mechanics, the general aspects of wave mechanics and matrix mechanics, the uncertainty principle. Prereq: PHY 616 or equivalent. *Kern.*

715 *Quantum Mechanics.* (3)
A continuation of PHY 714 with extensions into special methods of solving problems in the theory, problems in more than one dimension, and the Pauli and Dirac theories of the electron. Prereq: PHY 714 or equivalent. *Kern.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely.

770 *Seminar.* (1)
A weekly meeting of the staff and advanced students for the discussion of recent developments in physics and of work in progress in the department. Credit is given to those who satisfactorily present papers. May be repeated to a maximum of 8 credits. *Staff.*

781 *Independent Work in Physics.* (3)
May be repeated three times for a total of 12 credits. *Staff.*

790 *Research.* (3)
May be repeated once for a total of 6 credits. *Senior Staff.*

791 Research. (5)
May be repeated once for a total of 10 credits. *Senior Staff.*

PHYSIOLOGY

See listing under College of Medicine.

POLITICAL SCIENCE

FACULTY

Professors: S. Sidney Ulmer (Ph.D., Duke, 1956), CHAIRMAN. Ernest Greene Trimble (Ph.D., Yale, 1927), Amry Vandenbosch (Ph.D., Chicago, 1926), Distinguished Professor. *Associate Professors:* David A. B. Booth (Ph.D., Virginia, 1957), Herbert Neal Drennon (Ph.D., Duke, 1951), Malcolm Edwin Jewell (Ph.D., Pennsylvania State, 1958), John Estill Reeves (M.A., Kentucky, 1938), Kenneth Earl Vanlandingham (Ph.D., Illinois, 1950). *Assistant Professors:* Eugene Emerson Evans (Ph.D., Illinois, 1963), Max Milam (Ph.D., Oklahoma, 1962). *Instructors:* William Harrison Hunt (B.A., Hanover, 1956), Robert Michael Rodes (M.A., Johns Hopkins, 1957).

The courses and facilities of the Department of Political Science are designed to serve a number of purposes. Among these purposes are: (1) To provide orientation and training in the problems of citizenship for undergraduate students. (2) Provide further special background for students majoring in journalism or preparing for admission to professional courses such as law. (3) To train social science teachers for the primary and secondary schools. (4) To provide special training for students preparing for governmental or quasi-governmental work conducted by non-governmental agencies. (5) To provide research training in the problems of government. (6) To give graduate training in Political Science and related fields in preparation for college and university teaching.

PUBLIC SERVICE COURSES

Government service is offering an ever widening field of opportunity for the college trained man and woman. The last years have seen a tremendous increase in the number of civil employees. The complexity of our public problems and the rising demand for an efficient public service have led to the demand for people qualified and trained for government positions.

Students interested in entering the Federal Civil Service through the usual channel of the Federal Service Entrance Examination find a variety of types of preparation acceptable. If a career in public administration is the student's goal a course in public administration is most advantageous. For the general part of this examination, a broad background in political science and the related fields of social sciences will be helpful. For those desiring to enter specialized fields of the public service in federal, state, or local government, combinations of courses across departmental lines can be arranged to supply the technical training required.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of Social Studies, including the major work.

Requirements for a Major. Prerequisites: Political Science 151 and Economics 251. *Required:* At least one course in each of four fields of Political Science, including one course each in Constitutional Development and Political Theory; Political Science 390; minimum of fifteen credits of advanced work in Political Science.

Course Descriptions

151 *American Government.* (3) I, II, S
A survey of federal, state, and local governments in the United States, with comparisons with government on the same levels in Canada and Great Britain. *Staff.*

311 *Current Public Affairs.* (2) I, II
An analysis and discussion of the most significant contemporary problems affecting public policy. *Staff.*

390 *Seminar in Political Science.* (3) I, II
Open to major students. *Staff.*

395 *Independent Work.* (3) I, II, S
Honors course for seniors who are majors or minors in the department. Consent of the department required for admission. May be repeated three times for a total of 12 credits. Prereq: Major and standing of 3.0 in department. *Staff.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely.

795 *Special Problems in Political Science.* (3) I, II, S
May be repeated to a maximum of six credits.

I. THE POLITICAL PROCESS

570 *Political Parties.* (3) I, II
An analysis of pressure groups; organization, methods, and functions of political parties in the United States. *Jewell.*

573 *Public Opinion.* (3) II
A study of the nature of public opinion and its influence on government, the role of the press, and other media, propaganda techniques, and voting behavior. *Hunt.*

576 *Legislative Process.* (3) II
A study of Congress and the state legislatures, covering the legislative power structure, the selection of legislators and the roles they play, decision-making, and the relations of the legislative and executive branches. *Jewell.*

779 *Political Behavior.* (3) I
A study of recent research in the field of political behavior, with particular emphasis on voting and legislative behavior studies. Prereq: A course in Political Parties or Public Opinion. *Jewell.*

RELATED COURSES IN OTHER DEPARTMENTS

Psychology 544, Social Psychology.

II. PUBLIC ADMINISTRATION

577 *Introduction to Public Administration.* (3) I, S
A study of theories of administration and organization, problems of line management and control, the principal staff and auxiliary functions and agencies, and the problem of administrative responsibility under democratic government. *Evans.*

578 *Public Personnel Administration.* (3) II
A study of the history of the merit system in public administration, recruitment, position classification, pay policies, employee relations and morale, tenure, promotion, transfer, and training in the public service; the role of the personnel officer. *Evans.*

579 *Public Policy for Private Enterprise.* (3) II
A study of the development and implementation of government regulatory policy with major emphasis in the fields of anti-trust and public utilities. *Evans.*

763 *National and Regional Planning.* (3) II, S
A study of the theories and principles of planning with a detailed investigation of the regional life of selected areas.

790 *Special Problems in Public Administration.* (3) I
A research course in selected problems of public administration. The problems will be chosen in accordance with the needs and desires of students registered for the course. *Evans.*

RELATED COURSES IN OTHER DEPARTMENTS

Economics 402. Labor Economics.
Economics 504. Public Finance.
Economics 524. State and Local Taxation.
Economics 530. Labor Legislation.
Law 542. Administrative Law.
Social Work 500. Public Welfare Administration.
Social Work 530, Community Organization.
Social Work 551. Public Assistance Programs.

III. THEORY

571 *Early Political Theory.* (3) I, II
Political theories of classical Greece and Rome, the Middle Ages, the Reformation, and the emergence of the modern national state. *Milam.*

572 *Modern Political Theory.* (3) I, II
Political theories of the modern age, including the national state and nationalism, individualism, conservatism, idealism, utilitarianism, and revolutionary socialism. *Milam.*

575 *Contemporary American Political Thought.* (3) I
Analysis of American political ideas with particular emphasis upon varied conceptions of government's role in and relation to the larger society, and its individual and group components. *Milam.*

770 *Seminar in Contemporary Political Theory.* (3) II, S
An intensive study of contemporary political ideologies. May be repeated once. *Milam.*

RELATED COURSES IN OTHER DEPARTMENTS

Philosophy 500 and 510. History of Philosophy.

IV. COMPARATIVE GOVERNMENT

530 *The Conduct of American Foreign Relations.* (3)
The formulation conduct, and control of American foreign policy, basic principles, comparison with other countries. Prereq: PS 151.

540 *Governments and Politics of South Asia.* (3)
A study of the political institutions of India, Indonesia and the smaller countries of South Asia and their position in world politics.

541 *The Soviet Union in World Affairs.* (3)
A factual survey of the Soviet record in foreign affairs and an introduction to the guiding concepts and principal techniques of Soviet foreign policy; the role of Communist ideology. Prereq: PS 556 or permission of instructor.

555 *Comparative Government—Parliamentary Democracies.* (3) I, S
A study of the governments of Great Britain and the Dominions, France, and Scandinavia. *Drennon.*

556 *Comparative Government—Contemporary Dictatorships.* (3) II, S
A study of the totalitarian states of Europe and Asia. *Rodes.*

568 *The Governments and Politics of Eastern Asia.* (3) I, S
An introductory study of the political institutions of China and Japan. *Chambliss.*

600 *Problems of Soviet Foreign Relations.* (3)
Subjects assigned for investigation will include such topics as the attitude of the Soviet Union toward international organizations, the relative roles of ideology and power in Soviet foreign policy. Prereq: PS 556, 541 or consent of instructor.

757 *Seminar in Comparative Democratic Political Systems.* (3)
An analysis of democratic political systems with emphasis upon the comparative approach as a method of political analysis. Prereq: PS 555 or consent of instructor.

V. PUBLIC LAW AND JUDICIAL BEHAVIOR

559 *American Constitutional Development.* (3) I, S
Chronological survey of the making of the constitution and its interpretation through principal statutes and judicial decisions; some emphasis upon the economic and social interests which influenced this growth. *Trimble.*

560 *American Constitutional Development.* (3) II
From the adoption of the Civil War Amendments to the present time. Congressional policies embodied in social-economic legislation; doctrines developed by the Supreme Court; analysis and criticism of chief cases. *Trimble.*

563 *The American Judicial Process.* (3)
A study from the standpoint of the social sciences, of the judicial process at the state and national levels, dealing with the organization of course, the making of judicial decisions, and the exercising of judicial power. *Ulmer.*

761 *The Constitution and Civil Rights.* (3) I, S
The American conception of civil rights as expounded by the Constitutional Fathers and as interpreted by the courts. The social, economic, and political aspects and implications of these rights. *Trimble.*

762 *Federal Centralization.* (3) II
A study of the shifting of power and control from the states to the federal government as a result of the economic and social development of the country and the resulting alteration of our constitutional system. *Trimble.*

764 *Seminar in Judicial Behavior.* (3)
A survey of published research in judicial behavior and a study of the methodological innovations in this field. Prereq: Permission of instructor. *Ulmer.*

RELATED COURSES IN OTHER DEPARTMENTS

History 561, 562. English Constitutional History.
Law 529. Constitutional Law.
Psychology 544. Social Psychology.
Psychology 610. Psychometrics.
Psychology 545. Small Group Behavior.

VI. INTERNATIONAL LAW AND DIPLOMACY

265 *World Politics.* (3) I, II, S
A study of the most significant problems of world politics, including the fundamental factors governing international relations, the techniques and instruments of power politics, and the conflicting interests in organizing world peace. *Drennon.*

501 *Latin American Relations.* (3) II, S
The relations between the United States and the Latin American counties, with emphasis on the Monroe Doctrine and Pan-Americanism. *Drennon.*

550 *International Law.* (3) II
Sources and sanctions of international law, recognition, intervention, jurisdiction; nationality; protection of citizens abroad; diplomatic intercourse of states; the making, termination, and interpretation of treaties; treatment of aliens. *Vandenbosch.*

566 *The United Nations.* (3) II, S
Background of the United Nations. Problems and issues at the San Francisco Conference; analysis of charter and comparison with League of Nations Covenant; nature, structure, and functions. *Vandenbosch.*

774 *International Relations and Organization.* (3) II
Social and economic factors leading to the establishment of international administrative organs, the International Labor Organization, the League of Nations; the United Nations and related organizations. *Vandenbosch.*

775 *Contemporary American Diplomatic Problems.* (3) I, S

An examination of the more important and basic current problems of American foreign policy. *Vandenbosch.*

RELATED COURSES IN OTHER DEPARTMENTS

Economics 527. International Economics.
History 500, 501. The Diplomacy and Foreign Policy of the United States.
History 565, 566. The British Empire.
History 583. Europe since 1919.
History 584, 587. Russian Revolutions and the Soviet System.
History 589. History of Russian Social and Political Thought, 1789-1914.
History 591, 594. Political and Diplomatic History of East Central Europe from the French Revolution.
History 595, 596. The Far East.
Law 540. Conflict of Laws.
Diplomacy 530. The Conduct of American Foreign Relations.
Diplomacy 541. The Soviet Union in World Affairs.
Diplomacy 600. Problems of Soviet Foreign Relations.

VII. STATE AND LOCAL GOVERNMENT

280 *State Government.* (3) I, II, S

A study of the forms and functions of government in operation in the states of the United States. *Reeves.*

540 *Rural Local Government.* (3) I, S

A study of the organization and functioning of units of local government, with primary emphasis on government in Kentucky counties. *Vanlandingham.*

552 *Municipal Government.* (3) I

An introductory course in the study of the structure and functions of modern city governments with some attention to other forms of local government. *Vanlandingham.*

574 *Kentucky Government and Constitution.* (3) II

An intensive study of government and administration in Kentucky. The course is intended primarily for teachers of civics in the secondary schools, and for teachers of government in colleges. *Reeves.*

752 *Problems in State and Local Government.* (3) II

An intensive study of the basic problems of state and local government. May be repeated once. *Reeves and Booth.*

RELATED COURSES IN OTHER DEPARTMENTS

Economics 524. State and Local Taxation.
Sociology 220. The Community.
Sociology 519. Sociology of Urban Life.

PSYCHOLOGY

FACULTY

Professors: Jesse Graham Harris, Jr. (Ph.D., Duke, 1955), CHAIRMAN. James S. Calvin (Ph.D., Yale, 1939), Charles F. Diehl (Ph.D., Penn State, 1949), Graham B. Dimmick (Ph.D., North Carolina, 1930), Betsy Worth Estes (Ph.D., Kentucky, 1950), Frank Acklen Pattie (Ph.D., Princeton, 1925), Martin Marshall White (Ph.D., Chicago, 1930). *Associate Professors:* John William Donahoe (Ph.D., Kentucky, 1958), Charles Fowler Elton (Ph.D., Ohio State, 1951), David Lee Horton (Ph.D., Minnesota, 1959), Melvin J. Lerner (Ph.D., New York University, 1957), Albert John Lott (Ph.D., Colorado, 1958, Edward Lee Newbury (Ph.D., Princeton, 1961), Charles B. Truax (Ph.D., Wisconsin, 1960). *Assistant Professors:* Carol B. Currier (Ph.D., Florida, 1963), Joan F. Dixon (Ph.D., Washington University, 1962), Theodore R. Dixon (Ph.D., Washington University, 1962).

The Department's undergraduate program includes courses in general, social, experimental, animal, abnormal, and child psychology; in psychological testing, in the applications of psychology to business and industry, and in theory and techniques of speech and hearing therapy.

The Department's graduate program includes work leading to the master's degree in general psychology and to the Ph.D. degree in the field of clinical or general psychology, the latter with concentration in any of the various areas represented in the department. In cooperation with the Department of Psychiatry in the University of Kentucky Medical Center, The U.S. Public Health Service Hospital, Veterans Administration and the Kentucky Department of Mental Health, the Psychology Department offers graduate training in clinical psychology leading to the Ph.D. degree. Students in these programs usually have part-time assignments in hospitals or clinics conducted by the organizations. Various other means of securing practical training in clinical psychology are afforded by other hospitals and clinics in the locality.

The Department operates a speech clinic and an audiology clinic. Diagnosis and corrective therapy are provided for children and adults with speech and hearing disorders, and training is offered in the techniques of speech correction and clinical audiology.

Upper Division Requirements

Requirements for a Major. Prerequisite: Psychology 100 and 201, or their equivalent. *Required:* The student may choose as his field of concentration either the Biological Sciences or the Social Studies group of subjects, or both. In either case approximately 20 of the 40 credits in the field must be courses in Psychology not open to freshmen. In addition, students majoring in the Department must pass a comprehensive examination in the senior year.

Course Descriptions

100 *Introduction to Psychology.* (4) I, II, S

An introduction to the study of problems of human behavior. Among the topics covered are: heredity; development of the individual, motivation, emotion, learning, the senses, perception, and personality. Lecture-Recitation, three hours; lab, two hours. *Staff.*

101 *Laboratory for Psychology 100.* (0)

102 *Applied Psychology.* (3) I

Practical application of psychology to business, industry, law, medicine, and everyday living. The student is led to see how he can employ psychology efficiently and how psychology in turn affects him. Prereq: PSY 100.

200 *Psychology of the Child.* (3) I, II, S

The development of behavior from birth to maturity. The problems of conduct arising during infancy, childhood, and adolescence in relation to child care and training. Prereq: PSY 100. *Staff.*

201 *Individual Differences.* (3) I, II, S

An introduction to the study of individual differences in relation to measurement in psychology. Effects on behavior of race, sex, heredity, physical constitution, and training will be considered. Prereq: PSY 100. *Newbury.*

336 *Applications of Statistics in Psychology.* (3) II
An introduction to statistical procedures used in making decisions based on psychological data. Not available for credit to students who have had a previous statistics course. Prereq: PSY 100. *Calvin.*

395 *Independent Work in Psychology.* (2) I, II, S
Designed for advanced students who undertake minor research problems to be conducted in regular consultation with the instructor. Prereq: Major in the Department with a standing of 3.0 in psychology courses. May be repeated to a maximum of 8 credits. *Staff.*

505 *Experimental Psychology.* (4) I
An experimental study of the nature of sensation and perception—of the processes by which we know the world through our senses: vision, hearing, taste and smell, the skin senses. Prereq: PSY 100. *Donahoe.*

506 *Laboratory for Psychology 505.* (0)

507 *Psychology of Learning.* (4) II
An experimental study of the learning process with an analysis of various types of learning—verbal learning, form learning, conditioned-response learning, acquisition of skills, memory, problem solving, thinking. Prereq: PSY 100. *Donahoe.*

508 *Laboratory for Psychology 507.* (0)

509 *Animal Behavior.* (4) I
Experimental techniques used in investigations of animal behavior. Topics include: heredity and environemnt, activity, instinct, motivation, learning, sensory discrimination, and personality in subhuman species. Prereq: PSY 100. *Newbury.*

510 *Laboratory for Psychology 509.* (0)

511 *Experimental Child Study.* (3) II
An advanced course in the psychology of the normal child. The scientific background of experimental and observational method. Opportunities are provided to work with children. Prereq: PSY 200. *Estes.*

520 *Mental Hygiene.* (3) I, S
A general orientation to the subject of mental hygiene, its historical development, its scope and relation to various sciences. The individual and cultural determinants of behavior will be discussed. Prereq: PSY 100. Same as HYG 520.

521 *Abnormal Psychology.* (3) I, II, S
Disturbed conduct and thinking studied from both the theoretical and the practical points of view. The major psychoses and neuroses are given special consideration. Some opportunity for clinical observation. Prereq: PSY 100. *Pattie.*

522 *Counseling Psychology.* (3) II
The methods of dealing with problems in counseling psychology in college and high school, including the problems of selection, classification, grading, personal adjustment, motivation, academic, vocational and personal counseling. Prereq: PSY 520 or 521. *Elton.*

523 *Psychology of the Criminal.* (2) I
A study of psychological factors involved in criminality with special emphasis on the emotional and personality patterns underlying the life of the criminal, and the problems brought about by incarceration. Prereq: PSY 100. *Watson.*

530 *Biology of Motivation.* (2) I
Fundamental activating and goal-seeking processes of living organisms, biologically considered, including experimental and theoretical studies on such topics as instincts, drives, motives, and taste perferences. Prereq: PSY 100. *Newbury.*

531 *Genetic Psychology.* (3) II
Influence of hereditary factors in the development of human behavior, a critical survey of the evidence regarding psychological traits such as musical and other special abilities, intelligence, interest, insanity. Prereq: PSY 100. *Newbury.*

535 *Psychological Testing.* (3) I
A general orientation to the field of psychological testing. Introduction to the principles and methods of psychological testing, and a survey of the various kinds of psychological tests. Prereq: PSY 100, 201.

540 *Introduction to Industrial Psychology.* (3) I
Review of the functions and findings of psychology applicable to business and industry. Topics covered are: employment procedures, personnel testing, attitude analysis, motivation, and morale. Prereq: PSY 100. *Corder.*

541 *Psychology of Industrial Personnel Procedure.* (3) II
A practical course for those preparing for personnel administration and for psychology in industry and business. A study is made of the theory and methods of position classification, job analysis, job evaluation, merit rating, supervisor selection and training, and collective bargaining. Prereq: PSY 100. *Corder.*

544 *Social Psychology.* (3) I, S
Description and explanation of social phenomena in terms of the original and acquired reaction systems of the individual. Topics given special consideration: crowds, mob behavior, propaganda, and nationalism. Prereq: PSY 100. Same as SOC 544. *Lott.*

545 *Small Group Behavior.* (3) II
Detailed theoretical and empirical analysis of small groups. The course systematically covers properties of groups and how these properties have been manipulated experimentally. Prereq: One introductory course in Psychology, one introductory course in Sociology. *Lott.*

550 *Speech Pathology: A Survey.* (3) I, S
An introduction to the nature, causes, and treatment of the major disorders of speech: articulation, stuttering, voice, cleft palate, hearing, cerebral palsy and aphasia. Prereq: PSY 100. *Diehl.*

551 *Speech Pathology: An Introduction to Therapy.* (3) II, S
Observation and discussion of and limited supervised experience with therapeutic techniques and procedures of speech therapy. Prereq: PSY 550, or concurrent. *Diehl.*

552 *Stuttering and Its Correction.* (3) II
The nature, causes, and treatment of stuttering, with emphasis on therapeutic procedures. Prereq: PSY 550. *Diehl.*

553 *Speech Mechanisms.* (3) I
A detailed investigation of the speech musculature: respiration, phonation, resonation, and articulation. Voice disorders and cleft palate will be given special emphasis. Prereq: PSY 550. *Diehl.*

560 *Introduction to Clinical Audiology.* (3) I
Topics covered are the auditory stimulus, air and bone conduction thresholds, masking, speech audiometry and auditory rehabilitation. Prereq: PSY 550. *Kodman.*

561 *Audiometry.* (3) II, S
Methods and techniques for evaluating the hearing of large samples (school children, industry). Study of test instruments, calibration and variables in testing procedures. Essentials of hearing conservation. Prereq: PSY 550 or consent of instructor. *Kodman.*

562 *Introduction to Hearing Disorders.* (3) I
Types of hearing loss. Classification of organic hearing disorders. Non-organic hearing disorders. Psychological effects of impaired hearing. Differential diagnosis. Prereq: PSY 560. *Kodman.*

563 *Advanced Clinical Methods for the Aurally Handicapped.* (3) II, S
Principles and methods of speech and hearing therapy including speech reading, auditory training, speech conservation and hearing aid counseling for children and adults. Prereq: PSY 562 or equivalent. *Kodman.*

600 *Systems of Psychology and Their History.* (3) I
A survey of the history of Psychology and an intensive study of current systems of psychology. *Pattie.*

601 *Theories of Learning and Perception.* (3) I
An examination of theories of learning and perception. The relation of these theories to psychological research will be examined. Prereq: PSY 505, 507 or equivalent and 600. *Horton.*

602 *Theories of Personality.* (3) II
An examination of current theories of personality. The relation of these theories to psychological research will be examined. Prereq: PSY 505, 507 or equivalent, and 600.

603 *Psychopathology.* (4) II
Problems of differentiation between the various neuroses and psychoses with emphasis upon the affective and conative factors. Prereq: PSY 521, 602. *Dimmick.*

606,607 *Proseminar in General Psychology.* (3 ea.) I, II
An intensive treatment of concepts, methodology, and current developments in several areas of general psychology. 607 may be taken before 606. Prereq: undergraduate major in psychology or equivalent.

610 *Psychometrics.* (3) I
Analysis and interpretation of human measurements. The course deals with the computation and interpretation of simple, partial, and multiple correlations, regression equations, and reliability of measures. Prereq: A course in statistics. *Calvin.*

611 *Psychological Research.* (3) II
A study of the application of experimental methods in the major areas of psychology, including sensation and perception, learning, motivation, emotion, and personality. The design of research studies will be emphasized. Prereq: PSY 505, 507. *Donahoe.*

615 *Mental Work and Fatigue.* (3) I
A laboratory course. Two hours devoted to experiments and two hours discussion each week. Prereq: An advanced course in Experimental Psychology and Elementary Statistics or their equivalent.

616 *Laboratory for Psychology 615.* (0)

617 *The Emotions.* (3) II
An experimental study of feeling and emotion. The following aspects of emotional behavior are considered: the conscious experience of emotion; behavior in emotional situations; physiological changes accompanying emotion. Prereq: PSY 505 or equivalent.

618 *Experimental Psychopathology.* (4) I
A consideration of the research evidence of several problems in psychopathology. Prereq: One course each in abnormal psychology, statistics, and experimental psychology. Permission of instructor required.

630 *Clinical Psychology.* (4) I
A survey of clinical work on the diagnosis and adjustment of problem children and adults. The course gives practical training and experience with representative cases. *Harris.*

631 *Psychology of Language.* (2) II
A survey of semantic uses of language as related to human behavior. Special attention will be given to language problems of the brain injured: aphasic, cerebral palsied, and mentally disordered. *Diehl.*

640 *Practice in Testing: Intelligence Tests.* (3) I
This course provides advanced laboratory practice in the measurement of intelligence by individual techniques. Six hours a week. Prereq: PSY 535 or equivalent. *Estes.*

641 *Psychological Measuring Instruments.* (3) II
A study is made of a wide variety of psychological tests including group intelligence tests, personality and interest inventories, area aptitude tests, and special aptitude tests. Prereq: PSY 201.

642 *Principles of Test Construction.* (3) I
A survey of the principles involved in different types of standardized tests, followed by the construction and item analysis of an original test by the student. Prereq: PSY 610.

643 *Test Standardization.* (3) II
A continuation of 642. The student will administer a revised form of his preliminary test to an adequate sampling of the appropriate population and will determine its reliability and validity. Prereq: PSY 642.

644 *Projective Techniques I.* (3) I
Projective tests as instruments in obtaining information concerning thought content, attitudes, and feelings; their use in clinical diagnosis and therapy. Practice in administering, scoring, and interpretation. Prereq: PSY 630 and 640.

645 *Projective Techniques II.* (3) II
A continuation of PSY 644. *Dimmick.*

646 *Clinical Testing.* (2) I
Practical experience in the application of clinical diagnostic techniques to a variety of pathological subjects. Prereq: PSY 640. *Harris.*

650 *Diagnosis and Counseling in Counseling Psychology.* (3) I, II
An advanced course in diagnosis and application of theories, techniques and tools in counseling psychology. Prereq: A graduate major in psychology or education.

651 *Psychotherapy.* (3) I
Theories and techniques of psychotherapeutic procedures including directive, non-directive, and play therapies. Demonstration and supervised experience in these techniques. Prereq: Completion of one year of graduate study in psychology. *Dimmick.*

652 *Medical Therapeutic Procedures I.* (1) I
Rationale, procedures, and results of four important psychiatric therapeutic methods: (1) electrical and pharmacological shock, (2) narcohypnosis of drug-analytic methods, (3) malaria and other types of fever therapy, and (4) prefrontal lobotomy.

653 *Medical Therapeutic Procedures II.* (1) II
This course presents the history, rationale, indications, procedures, and results of psycho-therapeutic methods.

661 *Practicum in Clinical Psychology.* (3) I, II
Supervised case experience in clinical psychology. Students rotate among various institutions, including neuropsychiatric hospitals, institutes for mental defectives, and child guidance clinics. Prereq: PSY 630, 640. May be repeated to a maximum of 12 credits.

662 *Practicum in Child Psychology.* (3) I, II
Nine hours of supervised work each week. May be repeated to a maximum of 12 credits. *Dimmick and Estes.*

663 *Practicum in Industrial Psychology.* (3) I, II, S
Nine hours of supervised work each week. May be repeated to a maximum of 12 credits.

664 *Practicum in Speech Therapy.* (3) I, II, S
Practical case work in speech therapy in speech clinic, hospitals, and public schools. Training in diagnostic examination, case history methods, and group therapy. Prereq: PSY 550 and 551. May be repeated once. *Diehl.*

665 *Practicum in Counseling Psychology.* (3) I, II
Supervised experience in application of diagnostic and interviewing techniques in a counseling service. Same as EDU 665. May be repeated to a maximum of 12 credits.

768 *Residence Credit for the Master's Degree.* (1 to 9 wks. residence) (0)
May be repeated once. Maximum of nine weeks can be applied toward master's degree with thesis.

769 *Residence Credit for the Doctor's Degree.* (1 to 18 weeks residence) (0)
May be repeated indefinitely.

770 *Seminar in Psychology I.* (0) I
One two-hour discussion each week of some current systematic concepts and of research underway by graduate students and members of the staff. May be repeated indefinitely. *Staff.*

771 *Seminar in Psychology II.* (0) II
One two-hour discussion each week of some current systematic concepts and of research underway by a graduate student or staff member. For Ph.D. candidates. May be repeated indefinitely. *Staff.*

779 *Seminar in Social Psychology.* (3) II
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. Same as SOC 779. May be repeated to a maximum of 6 credits. *Lott.*

780 *Problems in Psychology.* (2) I, II, S
Shorter research problems are registered under this number. A minimum of six hours a week is required in consultation with the instructor. May be repeated to a maximum of 12 credits. *Staff.*

790 *Research in Psychology.* (3) I, II, S
Research or thesis work may be registered under this number. A minimum of nine hours a week is required on research conducted in consultation with the instructor. May be repeated to a maximum of 12 credits. *Staff.*

RADIO, TELEVISION & FILMS

FACULTY

Assistant Professors: Stuart W. Hallock (M.S., Syracuse, 1952), CHAIRMAN. Elizabeth Ellis Taylor (M.A., Kentucky, 1952). *Instructors:* Allan MacLeod (M.A., Bob Jones, 1962), John L. Reilly (M.A., New York, 1964), Kent Replogle (M.S., Syracuse, 1963).

The Department of Radio, Television and Films provides active on-the-air experience as well as a rounded educational curriculum for the student who aspires to a position in the radio-television profession. Courses and actual experience also are available for students majoring in other fields who want to learn something about broadcasting . . . and practically every field of endeavor today utilizes this medium in one way or another. Provision is made for contributing to the knowledge of the student seeking a balanced liberal education.

The radio facilities, located on the top floor of McVey Hall, are among the most extensive of college operations in the country. They include two broadcasting studios with control rooms, record library, staff room, master control, transmitter room, and a full complement of professional broadcasting equipment. Students broadcast over the facilities of the University's own FM station, WBKY, which is operated by the Radio, Television and Films Department and covers a listening area of 40 miles around Lexington. In addition, many programs produced by students of the department go out over regular commercial stations throughout the state.

Television training, both classroom and on-the-air, is an integral part of the curriculum. Each summer a selected group of RTF majors are permitted to enroll in an eight-weeks' internship in television at WHAS-TV, Louisville, for which credit is given under Radio 525. Training in this special television course includes work in film editing, script-writing, and floor-directing.

Motion picture photography is a course and an activity of the department. Motion picture films, sound and silent, are produced for other departments of the University . . . for research, for public relations, for specialized training. Complete 16 mm equipment includes cameras and lighting systems, a sound recording studio, animation stand, an editing room and a complete motion picture processing center.

COURSES FOR MAJORING IN RADIO, TELEVISION AND FILMS

Open to Freshmen

	Crs.
RTF 101, 105—Broadcasting Today	6

Open to Sophomores

RTF 201—Radio and Television Announcing	2
RTF 205—Studio Operations	2

Open to Juniors and Seniors

RTF 501—Radio and Television Regulations	2
RTF 505—Advanced Radio and Television Announcing	2
RTF 510—Radio and Television Advertising	2
RTF 515—Radio and Television Script Writing	2
RTF 520—Radio and Television Production	2
RTF 525—Advanced Radio and Television Production	2
RTF 530—Pro-Seminar in Radio and Television	1
RTF 535—Cinematography	2

Note: RTF majors must take RTF 101 and 105 as prerequisites for all other Radio courses.

Upper Division Requirements

Requirements in Field of Concentration: Forty semester hours in the major and related fields in courses chosen in consultation with the advisor.

Requirements for a Major. Prerequisites: Radio 101, 105. *Required:* Radio 201, 205, 501, 505, 510, 515, 520, 530, and 535. Comprehensive examination.

Course Descriptions

101 *Broadcasting Today.* (3) I, S
A familiarization of the set-ups of radio-television stations and networks, their relationship with the Federal body regulating them and many of the various tools used by them in presenting radio programs. Lecture and recitation, three hours.

105 *Broadcasting Today.* (3) II
Radio and television in public service; broadcasts to schools; building the radio schedule; serving the sponsor; listener problems; the newer radio arts (FM, Facsimile, Television). Lecture and recitation, three hours.

201 *Radio and Television Announcing.* (2) I, II, S
The study and practice of radio announcing, with emphasis on studio and microphone techniques, pronunciation, inflection. Workshop on WBKY. Lecture and recitation, one hour; lab, two hours. No prerequisite.

202 *Laboratory for Radio, Television and Films 201.*

205 *Studio Operations.* (2) II
Basic study of function of broadcasting equipment and practice in fundamental operating techniques.

206 *Laboratory for Radio, Television and Films 205.*

327 *Television Production.* (3)
Eight weeks of concentrated instruction through supervised laboratory participation in every phase of commercial TV production. Offered only during the summer term following junior year for selected students. Prereq: Consent of instructor and department head.

501 *Radio and Television Regulations.* (2) I
A study of the Rules and Regulations of the Federal Communications Commission; music licensing regulations; libel and slander; copyrights as applied to broadcasting. Lecture and recitation, two hours.

505 *Advanced Radio and Television Announcing.* (2)
Practice in the disciplines of the announcing profession to improve oral reading ability, speech habits, and power of communication, to develop the art of speaking the broadcasting language and develop the ability to speak effectively extemporaneously. Closed circuit on-the-air training. Prereq: RTF 201.

510 *Radio and Television Advertising.* (2) II
The data and techniques of radio and television advertising, including problems of coverage and circulation, spot campaigns, testing, time buying, the agency, measuring broadcast effectiveness, merchandising radio and television advertising, and time selling. Lecture and recitation, two hours.

515 *Radio and Television Script Writing.* (2) I, S
Practice in script writing in the various short forms; commercials, interview, talks, with special emphasis on the writing tools of radio. Lecture and recitation, one hour; lab, two hours.

520 *Radio and Television Production.* (2) I, S
The tools of Production Directing. General procedures, application of procedure, including program building, studio problems and projects; casting, rehearsing and acting, on-the-air practice. Lecture and recitation, one hour; lab, two hours.

521 *Laboratory for Radio, Television, and Films* 520.

525 *Advanced Radio and Television Production.* (2)
A continuation of 520. Advanced practice in radio or television production involving individual research on assigned projects. Final project must be air-worthy. Conferences and lab. Prereq: RTF 515 and 520 or consent of instructor.

526 *Laboratory for Radio, Television and Films* 525.

530 *Pro-Seminar in Radio and Television.* (1) II
Discussion and reports on current broadcasting highlights and problems. Required of all seniors in preparation for the comprehensive examination. Lecture and recitation, one hour.

535 *Cinematography.* (2) I
The art of making films for television, including the mechanics of motion picture photography. A study of equipment, lenses, lighting, color, editing and set design. Lecture, two hours; lab, two hours. Prereq: Consent of instructor.

536 *Laboratory for Radio, Television and Films* 535.

SOCIAL WORK

FACULTY

Professor: Harold E. Wetzel (M.A., Ohio State, 1937), CHAIRMAN. *Assistant Professor:* Constance Popeo Wilson (M.S., Boston, 1951). *Visiting Lecturers:* Irving A. Gail (M.D., Cincinnati), Beulah Theobald (M.A., Cincinnati).

Social Work consists of a network of services designed to meet a wide range of human needs. A career in social work offers a choice of interesting and varied activities, the challenge of community leadership, and the satisfaction of service to others as well as the security of an expanding profession.

The Department of Social Work is a member of the national Council on Social Work Education. Its curriculum, based upon the national standards in the field, leads to a degree of Bachelor of Arts with a major in Social Work. Students, upon its completion, are encouraged to continue their technical preparation in graduate professional schools of social work. However, our graduates are currently holding responsible positions in the public social services, group work activities, and in other social agencies at the level for which they are qualified. Students majoring in social work are guided in the selection of courses giving a broad liberal arts background, an understanding of human behavior, and the social, economic, and political forces shaping our society.

Courses in the Department cover the organization, operation, and history of public and private welfare services, including the developing Social Security program. Principles of relief and rehabilitation in family and children's work and the growing range of group work and leisure time activities are studied, as well as community organization and research in social work. Personal experience with agency programs in the field is planned for each student.

Early consultation with department members is urged for students considering a major in this field. Students from other departments are eligible to take many of the courses offered; SW 124, 222, 530 and 540 are especially recommended for all students interested in social welfare.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of social studies, including the major work in the department.

Requirements for a Major. Prerequisite: Social Work 124 and 222. A basic minimum of twenty credits in social work including 500, 513, 516, 530 and 540 plus additional courses depending on the student's area of specialization, including specified courses in sociology, psychology, hygiene and economics. Tutorial courses in the senior year.

Course Descriptions

124 *Orientation to Social Welfare Practice.* (3) I, II
An introduction to the organization and function of selected social work agencies in the community. Lectures, discussions, and observational visits. This course is the prerequisite for all majors in the department. *Wilson.*

222 *Field of Social Work.* (3) I, II, S
Function, method, and philosophy of contemporary social work. The divisions of the field (case work, group work, community organization, institutional work, social action and research) and professional status of social work will be considered. *Wetzel.*

327 *Tutorial Work in Social Work.* (2) I
For senior majors in the department. *Wetzel.*

328 *Tutorial Work in Social Work.* (2) II
For senior majors in the department. *Wetzel.*

344,345 *Field Participation in Social Agency Programs.* (2 ea.) I, II
Supervised experience in a local social agency for senior majors in social work. Prereq: SW 513, 530, and 540, and consent of the instructor. *Wilson.*

346,347 *Field Participation in Case Work.* (2 ea.) I, II
Experience under supervision in a local case work setting. For senior majors in case work. Prereq or concur: SW 513, and consent of the instructor. *Wilson.*

348,349 *Field Practice in Community Organization.* (2 ea.) I, II
Experience, under supervision in a local community welfare setting. For senior majors in community organization. Prereq or concur: SW 530 and consent of the instructor. *Wetzel.*

395 *Independent Work.*
(1) May be repeated to four credits. I, II, S
Conferences, assigned readings, reports on minor research problems. Prereq: Major and a standing of 3.0 in the department. *Staff.*

500 *Public Welfare Administration.* (3) II
Philosophy, background, and methods of tax-supported social work. Interrelationship of federal, state and local services; standards and supervision as influenced by federal welfare legislation. Prereq: two courses in social work. *Wetzel.*

505 *Child Welfare Services.* (2-3) I, S
A study of community and national programs for child care and protection, including aid to dependent children and other social security services. *Theobald.*

510 *Psychiatric Information for Social Workers.* (2) I
An analysis of personality development and behavior patterns with special reference to psychiatric interpretations and their implications for social case work. For majors in the department. Prereq: two courses in social work. *Gail.*

513 *Introduction to Social Case Work.* (2) II
An introductory course in the generic principles of social case work. Discussions based on selected readings and case records. For majors in the department. Prereq: two courses in social work. *Theobald.*

516 *Social Work Research and Statistics.* (3) I
A consideration of statistical and other types of research in social work problems with illustrations drawn from current studies of government and private welfare agencies. Prereq: two courses in social work. *Wetzel.*

530 *Community Organization for Social Welfare.* (3) II
Methods and techniques of social welfare planning. Analysis of needs and resources, coordination of agencies, financing and developing chest and council programs and interpretation of social work. *Wilson.*

531 *Community Organization for Social Welfare.* (3) II
A continuation of SW 530 with emphasis on the organization and function of social welfare agencies at the national and international level. Prereq: SW 530 or permission of the instructor. *Wetzel.*

540 *Principles of Social Group Work.* (3) I, II
A critical study of the theories and practices of social group work with reference to the work of public and private agencies in this field. *Wilson.*

541 *Administration and Supervision of Group Work Agency Programs.* (3) II
The group work process as applied to agency administration, supervision of staff and volunteers, statistical and process recording, evaluation of program, personnel and committee relationships. Prereq: SW 540 or consent of the instructor. *Wilson.*

551 *Public Assistance Programs.* (3) II
The current function of public assistance upon the federal, state, and local level with emphasis on the public assistance provisions of the Social Security Act, general relief, and work relief policies. *Wetzel.*

617 *Generic Social Case Work.* (2) I
An introductory course for graduate students with emphasis upon the application of case work principles in problems of increasing complexity. Prereq: SW 513, or special permission. *Theobald.*

625 *Social Insurance.* (2) II
A study of social insurance in Europe and the United States. Emphasis will be given to the problems in administration, financing, and coverage. *Wetzel.*

SOCIOLOGY

FACULTY

Professors: A. Lee Coleman (Ph.D., Cornell, 1950), CHAIRMAN. Melvin L. DeFleur (Ph.D., Washington, 1954), Thomas Robert Ford (Ph.D., Vanderbilt, 1951), James Walter Gladden (Ph.D., Pittsburgh, 1945), Robert Straus (Ph.D., Yale, 1947). *Associate Professors:* John Charles Ball (Ph.D., Vanderbilt, 1955), George A. Hillery, Jr. (Ph.D., Louisiana State, 1954), Jiri Thomas Kolaja (Ph.Dr., Masaryk, 1947; Ph.D., Cornell, 1959), Willis Anderson Sutton, Jr. (Ph.D., North Carolina, 1952). *Assistant Professors:* Eugene B. Gallagher (Ph.D., Harvard, 1958), Joseph J. Mangalam (Ph.D., Cornell, 1957), Richard Quinney (Ph.D., Wisconsin, 1962), Cyrus M. Johnson (Ph.D., Duke University, 1963). (See also Rural Sociology faculty.)

The courses and other training offered in Sociology supplement the work of the allied social sciences and have an important part in a broad liberal education. Basic courses dealing with the fundamental processes of group relationships, social organization, and social behavior are the foundation for more advanced courses in social analysis and research. Training is offered in recognized specialties, including criminology, the family, community organization, medical sociology, demography, intergroup relations, social psychology, and rural sociology.

An undergraduate major in Sociology is particularly useful to persons planning to enter such fields as law, social work, industrial relations, the ministry, planning and zoning, high school social science teaching, and various positions in public and governmental agencies. Every effort is made to guide students toward a broad training in the social sciences and general education. Persons who aspire to professional positions in Sociology and applied fields may expect to take post-graduate training. The graduate training program in Sociology and Rural Sociology offers the M.A. and Ph.D. degrees and prepares students for college teaching, social science analyst positions in government agencies and research organizations, and positions in community development, human relations agencies, criminology and delinquency control, and the like.

The department's Bureau of Community Service conducts research and offers advisory service and survey assistance to local communities of the state. Through the activities of the Bureau students are provided field experience in research. The Social Research Service is the major research arm of the Department of Sociology and conducts a wide variety of sociological studies. Through the activities of both agencies, students are provided opportunities for research experience.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of Social Studies, including the major work.

Requirements for a Major. Prerequisites: Sociology 151 and 153 or 154, or equivalent. *Required:* Minimum of 15 credits of advanced work in Sociology, including Sociology 240, 265, 551, 571, 581 and a course in introductory statistics. To be considered for graduation with honors, majors must take Independent Work and must pass a comprehensive examination.

Course Descriptions

(For course descriptions of R.S. courses, see College of Agriculture and Home Economics, Department of Rural Sociology.)

I. INTRODUCTORY AND GENERAL SOCIOLOGY

151 *Introductory Sociology.* (3) I, II, S
Introduction to the concepts and methods of sociology. Investigation of socialization, group processes, social institutions and social change. *Staff.*

152 *Modern Social Problems.* (3) I, II
An introductory course involving an examination of selected social problems of the present day. Topics discussed are family, poverty, crime, race, housing, population, industrial development, etc. Not open to seniors in Arts and Sciences College. *Staff.*

153 *Societies Around the World.* (3) I, II

Meets Social Studies requirements. Comparative study of the Eskimo, Navajo, and Baganda as preliterate, primitive societies in difficult environments. (Same as ANT and GEO 153.) *Staff.*

154 *Societies Around the World.* (3) I, II

Meets Social Studies requirements. Comparative study of the Chinese Peasant, Cotton South, and British Midlands as more highly developed societies living in more moderate environments. (Same as GEO 154.) *Staff.*

R.S. 156 *Introduction to Rural Sociology.* (3) I, II

Brown.

265 *History of Sociology.* (3) II

A survey of the development of the science of man in society in the Western world during the last four centuries, with emphasis on the growth of sociology as a discipline. *Kolaja.*

395 *Independent Work.* (1-3) I, II, S

Study of some special topic by duly authorized students. May be repeated for a total of 4 credits. Prereq: Major and a standing of 3.0 in the department.

551 *Principles of Sociology.* (3) I, II, S

A survey of the basic elements of culture, collective behavior, communities, social institutions, and social change. Basic concepts required for the analysis of sociological data are systematically considered. *Mangalam.*

561 *Comparative Sociology.* (3) I, II

Two or more societies are analyzed and compared sociologically. The specific societies considered may vary from time to time; for example, Soviet and American society; the middle Eastern countries; Latin American societies, etc.

R.S.565 *Special Problems in Rural Life.* (1-3) I, II, S

Staff.

768 *Residence Credit for the Master's Degree.* (0) I, II, S

May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S

May be repeated indefinitely. *Staff.*

II. THEORY AND METHODOLOGY

571 *Contemporary Sociological Theory.* (3) I, II

A study of the leading developments in sociological theory and methodology from Comte to the present time. Prereq: two sociology courses. *Coleman.*

581 *Techniques of Social Investigation.* (3) I, II

A study of the practical applications of sociology in organizing, conducting, and interpreting social surveys and other forms of sociological research. Prereq: one sociology course. *Ford.*

582 *Measurement of Attitudes and Public Opinion.* (3) II

Attention is focused upon measurement procedures in the study of public opinion and attitudes. Prereq: Introductory Statistics or SOC 581. *DeFleur.*

651 *Systematic Sociology.* (3) I (alternate years)

An intensive study of certain selected sociological theorists such as Weber, Durkheim, Simmel, Pareto, and others. *Kolaja.*

681 *Research Design and Analysis.* (3) I

Problem definition and delimitation, design appropriate to problem and data, and selection of appropriate analysis techniques; critical examination of representative research studies and students' designs. Prereq: Elementary Statistics and SOC 581 or equivalents.

685 *Integration of Theory and Research.* (3) I

Systematic analysis of problems related to the verification of sociological theory through empirical research. Prereq: SOC 681. *DeFleur.*

770 *Sociology Seminar.* (3) II

Consideration mainly of methods of research and of current sociological literature. May be repeated to a maximum of 6 credits. *Kolaja.*

772 *Topical Seminar in Sociology.* (3) I, II, S

Advanced study of topics of current importance in sociology, such as structural strain and social change, game theory, decision processes, communication and power structures. May be repeated to a maximum of 6 credits. Prereq: At least 9 hours in the social sciences, preferably in sociology. *Staff.*

R.S.773 *Topical Seminar.* (3) I, II, S

Staff.

780 *Special Problems in Sociology.* (1-6) I, II, S

May be repeated to a maximum of 10 hours. *Staff.*

R.S.790 *Research in Rural Sociology.* (1-3) I, II, S

792 *Research in Sociology.* (1-6)

Individual research and reading in particular fields of sociology, under staff supervision. Open to advanced graduate students who are prepared for intensive study beyond that offered in regular classes in each field. May be repeated to a maximum of 10 hours.

III. SOCIAL ORGANIZATION AND PROCESS

220 *The Community.* (3) I, II

Social organization and process in modern communities; social techniques of community improvement. *Hillery, Sutton and Kolaja.*

501 *Population Analysis.* (3) II

Distribution and composition, fertility and mortality, migration, ecological relationships and growth of population. *Ford and Hillery.*

502 *Laboratory in Methods of Demographic Analysis.* (1) II

Application of statistical techniques employed in the analysis of census and vital statistics data, including methods of population standardization, life table construction, and preparation of population estimates. Three hours weekly. Prereq: an introductory statistics course and SOC 501.

503 *Social Classes.* (3) I

A systematic treatment of the factors underlying social differentiation and stratification, with particular attention to class and caste; social mobility in American society. Prereq: one sociology course. *Kolaja.*

509 *The Family.* (3) I, II, S

A study of the institutions of marriage and the family and an analysis of the various factors and forces at work in our time which are affecting the individual marital relationship. Prereq: one sociology course. *Gladden.*

510 *The Family.* (3) II, S

A study of the various social situations in which children grow to early adolescence with emphasis on the primary group relationships in home, neighborhood, play group, and school. Prereq: SOC 509 or permission of instructor. *Gladden and Johnson.*

R.S.513 *Rural Community Analysis.* (3) I

Ford.

R.S.514 *Rural Movements and Social Policy.* (3)

Brown.

R.S.517 *Advanced Rural Sociology.* (3) II

Staff.

519 *Sociology of Urban Life.* (3) I

This course is a study of the sociology of city life. The major emphasis is upon the ecological and social characteristics of urban life in contrast to rural community life. Prereq: an introductory sociology course or approval of instructor. *Sutton.*

520 *The Sociology of the South.* (3)

Analysis of the population and social organization of the south and of the factors influencing the development and utilization of the human resources of the region. Prereq: senior standing of social science majors; others by arrangement. *Staff.*

521 *Industrial Sociology.* (3) II

A sociological analysis of the division of labor, the characteristics of occupational groupings; principal socio-economic movements, and group relationships in modern industry. *Kolaja.*

525 *Religion and Culture.* (3) I
An analysis of the structure, function, and process of religion, using the development of the Hebrew and Christian religions to show social origins of the two faiths and the effect of cultural change on their growth. *Gladden.*

527 *Health and Society.* (3) II
Historical and cross-cultural analysis of human behavior in illness; medicine as a behavior system. Relates components of contemporary medicine to pertinent concepts of social process. Prereq: Permission of instructor. *Straus.*

531 *Sociological Analysis of American Society.* (3)
A study of the contemporary U.S.A. with emphasis upon the changing relations among various aspects of American society and culture. Prereq: one sociology course. *Staff.*

532 *Intergroup Relations.* (3) S
Analysis of relationships between groups which differ in religious, ethnic, or sociocultural backgrounds; the development of educational and social techniques for reduction of tensions. (Same as EDU 532.) May be repeated to a maximum of 6 credits. *Johnson.*

536 *Sociology of Deviant Behavior.* (3) I
A systematic examination of the various types of social disorganization, with particular emphasis upon the sociological explanation of underlying factors. Prereq: one sociology course. *Staff.*

537 *Criminology.* (3) I, II
A study of general conditions as to crime and delinquency, of measures of punishment and reform of offenders, of criminal procedure and its possible reform, and of measures for the prevention of crime. *Quinney.*

538 *Juvenile Delinquency.* (3) I, II
Study of the extent, ecological distribution, and etiology of delinquency in contemporary American society, including a critical examination of trends and methods of treatment. *Staff.*

548 *The Sociology of Public Opinion.* (3) I (alternate years)
Introduction to the study of public opinion and mass communication in American society. The formation of public opinion and the effects of mass media are analyzed. *DeFleur.*

549 *Sociological Aspects of Mass Communication.* (3) I
The relationship between the organization of modern society and its communication media: Special emphasis is given the way in which cultural processes and social change have an impact upon the mass media, and upon the way in which the mass media influence cultural processes and social change. The social-psychological bases of communication are studied within a context of theory and research. Prereq: six hours of sociology. (Same as EDU 549.) *DeFleur.*

R.S.615 *Rural-Urban Relations.* (3)
Brown.

625 *Sociology of Religion.* (3) II (alternate years)
Critical study of reciprocal relation of religion and culture, the function of religion in society, social sources of religious concepts, religious differentiation and institutionalization, the problem of church and state. *Gladden.*

632 *Minority Groups.* (3) I
A sociological scheme of analysis is applied to the special problems of adjustment arising from ethnic group relations and culture contacts. *Coleman.*

661 *Educational Sociology.* (3) II, S
A course in the sociological foundations of education. (Same as EDU 661.) *Staff.*

731 *Seminar in Comparative Social Organization.* (2)
A seminar for advanced students. Emphasizes principles in the comparative study of social systems; the role of kinship, age, sex, locality, and voluntary associations in determining relationships between individuals and between groups in nonliterate and literate societies. May be repeated once. (Same as ANT 731.)

750 *Problems in Educational Sociology.* (3) S
An advanced course in the application of sociological findings to education, including consideration of southern regional problems and potentialities. Prereq: 12 semester hours of graduate work including EDU 661 or equivalent. (Same as EDU 750.) *Staff.*

775 *Seminar in the Family.* (2) (alternate years)
A seminar for advanced students interested in family research, family counseling, or dealing with family relationships in some other professional capacity. *Gladden.*

R.S.776 *Seminar in Rural Organization.* (3)
Staff.

IV. PERSONALITY AND THE GROUP

240 *Collective Behavior.* (3) I, II
A sociological interpretation of group life and of certain aspects of social life, including the building up or shaping of public opinion or social control. *Johnson.*

526 *Culture and Personality.* (3)
The cultural basis of personality. Personal character considered as the result of culturally fostered patterns. The ideal personality in several selected societies. (Same as ANT 526.) *Staff.*

533 *Social Anthropology.* (3) II
History and theory of social anthropology with special emphasis on the comparative approach to analysis of structure, function, and change in social and cultural systems. Prereq: consent of Instructor. (Same as ANT 533.) *Pearsall.*

R.S.541 *Group Organization and Leadership.* (3) II
Coughenour.

542 *Human Relations in Administration.* (3) S
Analysis of the role of social structure, leadership, authority, power, and psychological stress in the administration of large-scale organizations in the United States. *Staff.*

544 *Social Psychology.* (3) I, II
Description and explanation of social phenomena in terms of the original and acquired reaction systems of the individual. Topics given special consideration: crowds, mob behavior, propaganda, and nationalism. Prereq: PSY 100. (Same as Psychology 544.)

546 *Social Factors in Mental Health.* (3) I
The significance of social and cultural factors in the recognition, course, and management of mental health problems; social organization of the mental hospital and cultural alternatives to hospitalization. Prereq: prior course work in sociology, anthropology, or psychology or permission of instructor. *Gallagher.*

547 *The Sociology of Aging.* (3)
Analysis of demographic and institutional patterns, social roles, psychological and physiological changes, and rehabilitative and educational programs associated with aging. *Staff.*

R.S.778 *Seminar in Rural Attitudes.* (3)
Staff.

779 *Seminar in Social Psychology.* (3) II
Each semester some topic in the field of social psychology, such as attitudes and beliefs, structure and function of social groups, social determinants of behavior, leadership, and morale will be studied intensively. (Same as PSY 779.) May be repeated to a maximum of 6 credits. *Lott and DeFleur.*

ZOOLOGY

FACULTY

Professors: John Melvin Carpenter (Ph.D., Texas, 1946), CHAIRMAN. Alfred Charles Brauer (Ph.D., Chicago, 1932). *Associate Professor*: Roger William Barbour (Ph.D., Cornell, 1949). *Assistant Professors*: Thomas

Calhoun Barr, Jr. (Ph.D., Vanderbilt, 1959), Wayne Harry Davis (Ph.D., Illinois, 1957), James Marion Edney (M.S., Iowa, 1934), Robert Andrew Kuehne (Ph.D., Michigan, 1958).

Courses given in this Department are designed to offer the general student opportunity to obtain a cultural background in this field of biology and to give the student interested in this field as a livelihood the proper basic principles and training.

Students interested in careers in medicine, medical technology, wild life management, conservation, governmental work, research, teaching at the elementary, high school, and college level, as well as in many other areas, will find zoology courses which offer them the necessary training.

Courses are offered which lead to a major in zoology with emphasis in such sub-divisions of zoology as ecology, entomology, evolution, genetics, limnology, parasitology, embryology and vertebrate zoology. The proper combination of these courses enables a student to obtain the A.B. or B.S. degree with zoology as a major. The department also offers the M.S., the M.A., and the Ph.D. degrees in these various fields of zoology.

RECOMMENDED CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE WITH ZOOLOGY AS A MAJOR

Freshman Year

First Semester	Crs.
ENG 101—English Composition	3
CHE 110—General Chemistry	5
ZOO 100—General Zoology	4
MA 111—College Algebra	3
Military or Aerospace Science or elective	2
Physical Education	1
	16 or 18

Second Semester	Crs.
ENG 102—English Composition	3
CHE 112—General Chemistry	5
MA 112—Trigonometry	2
BOT 101—General Botany	4
Military or Aerospace Science or elective	2
Physical Education	1
HYG 109—Hygiene	2
	17 or 19

Sophomore Year

First Semester	Crs.
CHE 430—Organic Chemistry	3
CHE 431—Organic Chemistry Lab	2
ZOO 200—Comparative Anatomy or ZOO 208—Vertebrate Zoology	4
Social Studies	3
Humanities (200, 201 or 202)	2
Military or Aerospace Science (optional)	2
Russian, French or German	3
	17 or 19

Second Semester	Crs.
CHE 432—Organic Chemistry	3
CHE 433—Organic Chemistry Lab	2
ZOO 206—Invertebrate Zoology	4
Social Studies	3
Humanities (200, 201 or 202)	2
Military or Aerospace Science (optional)	2
Russian, French or German	3
	17 or 19

Junior Year

First Semester	Crs.
PHY 211—General Elementary Physics	5
MA 113—Analytics and Calculus I	4
Russian, French or German	3
ZOO 504—Heredity	4
Humanities (203 or 204)	2
	18

Second Semester	Crs.
PHY 213—General Elementary Physics	5
ZOO—Elective	4
Russian, French or German	3
CHE 226—Analytical Chemistry	5
	17

Senior Year

First Semester	Crs.
ZOO 509—Zoology Seminar	1
ZOO—Elective	4
Elective	6
PGY 502—Principles of Physiology	5
	16

Second Semester	Crs.
MB 400—General Bacteriology	4
ZOO 509—Zoology Seminar	1
Elective	11
	16

Recommended electives:

AG EC 530—Agricultural Statistics
BCH 400—Biochemistry
BSC 421—Biological Statistics I, II
BOT 103—Plant Kingdom
BOT 201—Local Flora
BOT 501—Plant Physiology
BOT 528—Plant Cytology
BOT 532—Genes and Their Action
BOT 534—Cytogenetics
CHE 550—Physiological Chemistry
MA 211, 212—Analytics and Calculus II, III
MB 410—Applied Bacteriology
PGY 512—Cellular Physiology
ZOO 502—Animal Ecology
ZOO 506—Embryology
ZOO 508—Evolution
ZOO 513—General Histology
ZOO 515—Special Histology
ZOO 534—Parasitology

The teaching and research staff of the Department of Zoology is at the service of those students interested in careers in zoology and urges that such students confer early with the department chairman or another staff member in regard to training and opportunities for such careers.

Upper Division Requirements

Requirements in the Field of Concentration: Forty credits of advanced work in the field of Biological Sciences, including the major.

Requirements for a Major. Prerequisites: Junior standing; Zoology, 6 credits in biology; 3 hrs. in College Algebra; 2 hrs. in Trigonometry. *Required:* Zoology 200 or 208; 206, 504, 509 (2 hrs.) electives in Zoology, 7 hrs.; Physiology 502, Chemistry 430, 431, 432, 433; or Chemistry 226, 236; and Physics 211, 213; a minimum of 15 credits of advanced work and pass a comprehensive examination before graduation.

Courses Recommended for Special Curricula: Medical Sciences: 100, 200, 504, 506, 513, 532, 534, 536, 538. Teacher Training: 100, 200, 202, 206, 502, 504, 506, 508. Pre-Conservation Training: 100, 208, 502, 518, 520, 522, 524, 526, 534.

Course Descriptions

100 *General Zoology.* (4) I, II, S
General studies on cell structure, division, gametogenesis, ontogeny, histology, physiology, homology, ecology, taxonomy, heredity, and phylogeny. Laboratory studies of typical animal types. Two lectures and two lab periods per week for one semester.

101 *Laboratory for Zoology 100.*

200 *Comparative Anatomy.* (4) I, II
Systematic consideration of chordates with emphasis on vertebrates. Comparative studies of chordate morphology, phylogeny, ontogeny, organology, physiology, and homology. Laboratory studies on typical prochordates, cyclostomes, and gnathostomes, and the cat. Prereq: ZOO 100. *Edney.*

201 *Laboratory for Zoology 200.*

202 *Nature Study.* (4) II, S
Get acquainted studies of animals and plants and their relationships to human culture. Elementary materials for use of schools, Nature Clubs, Scouts, etc. Lectures, lab, field work. Prereq: ZOO 100 or BOT 101. *Davis.*

203 *Laboratory for Zoology 202.*

206 *Invertebrate Zoology.* (4) I, S
A treatment of the main characters of the principal invertebrate phyla, including general trends in the development of body systems, and ecological and anatomical adaptations to particular modes of life. Two lectures and two laboratory periods per wee. Prereq: ZOO 100. *Barr.*

207 *Laboratory for Invertebrate Zoology.*

208 *Vertebrate Zoology.* (4) II, S
Taxonomy, anatomy, and economics of the vertebrates. Laboratory studies of a fish, amphibian, reptile, and bird. Two lectures and two laboratory periods per week. Prereq: ZOO 100. *Barbour.*

209 *Laboratory for Vertebrate Zoology.*

300 *Animal Cytology.* (4) I
A study of recent concepts of the organization of protoplasm and correlated activities in animal cells. Two lectures, four hours lab. Prereq: ZOO 100, 513, 515, or satisfactory equivalents.

301 *Laboratory for Zoology 300.*

400 *Fundamentals of Biology for Secondary School Teachers.* (4)
A course designed to aid the teacher in the selection of subject matter and in the presentation of modern biology to high school students. Lectures, discussions, laboratories, ten hours (600 minutes) per week. Prereq: Employment as high school teacher. Same as BOT 400. *Staff.*

401 *Laboratory for Zoology 400.*

402 *Advanced Topics in Biology for Secondary School Teachers.* (4) S
A treatment of selected topics from the point of view of modern developments designed to aid the high school teacher to keep abreast of changes in theory and practice; to increase his knowledge of subject matter, and to provide better motivation for his students. Lectures, discussions, and demonstrations, eight hours (400 minutes) per week. Prereq: Employment as high school teacher and consent of instructor. Same as BOT 402. *Staff.*

502 *Animal Ecology.* (3) I
An analysis of the environment and the respective adjustments of animal life to the environmental complex. Habitats, food, respiratory needs and mechanisms, life-histories, animal associations, adaptations. Prereq: ZOO 100 or consent of instructor. *Kuehne.*

504 *Heredity.* (4) I, S
Lectures and laboratory on principles of heredity, variation and eugenics. Prereq: ZOO 100. *Carpenter.*

505 *Laboratory in Heredity.*

506 *Embryology.* (4) II, S
A general course in ontogeny. Studies in maturation, fertilization, cleavage, organogenesis and anomalies of development with laboratory work based on the chick and pig. Prereq: ZOO 100. *Brauer.*

507 *Laboratory for Zoology 506.*

508 *Evolution.* (3) II, S
An advanced lecture course on some of the fundamental principles of organic evolution. Prereq: ZOO 100. *Carpenter.*

509 *Zoology Seminar.* (1) I, II
Reports on: technical papers in scientific journals, book reviews, recent developments in Zoology, scientific meetings. Required of all majors in Zoology. May be repeated to a maximum of 4 credits. *Staff.*

510 *Independent Work.* (3) I, II, S
Special problems for individual students who are capable of pursuing independent investigations. May be repeated to a maximum of 12 credits Prereq: Major and a standing of 3.0 in the department. *Staff.*

512 *Physiology of Development.* (3) I
A review of theories of differentiation and a consideration of the genetic environment, and correlative physiological factors in differentiation. Lectures, assigned readings and literature reports. Prereq: ZOO 200 or 506. *Brauer.*

513 *General Histology.* (4) I
A course in the technique of preparation of animal tissues for microscopic study. Practice in imbedding, staining, sectioning, mounting, and identification of tissues. Lectures, laboratories. Prereq: ZOO 100. *Brauer.*

514 *Laboratory for Zoology 513.*

515 *Special Histology.* (3) II
Histology of the organs. A continuation of ZOO 513 in which the studies are based on the organs. Lectures, laboratories. Prereq: ZOO 513. *Brauer.*

516 *Laboratory for Zoology 515.*

518 *Ornithology.* (4) II
A study of the life-histories, habits, identification, structure, adaptations, and physiology of birds. Special emphasis upon migrations, songs, nests and economic importance of our native birds. Lecture; field excursions; lab studies. Prereq: ZOO 100. *Barbour.*

519 *Laboratory for Zoology 518.*

520 *Mammalogy.* (4) I
Designed to acquaint the student with the mammals of eastern North America, their classification, adaptations and natural history. Lecture, two hours; lab, four hours per week. Prereq: ZOO 100. *Barbour.*

521 *Laboratory for Zoology 520.*

522 *Herpetology.* (4) II
Designed to acquaint the student with the amphibians and reptiles of eastern North America, their classification, adaptations and natural history. Lecture, two hours; lab, four hours per week. Prereq: ZOO 100. *Barbour.*

523 *Laboratory for Zoology 522.*

524 *Ichthyology.* (4) II
Taxonomy of the fishes with life-histories and biology of types. Fish structure and physiology, habits, ecology. Fish-culture and economic Ichthyology; care of fishes, aquaria, etc. Elements of fresh-water fishery administration. Lectures, laboratories. Prereq: ZOO 100. *Kuehne.*

525 *Laboratory for Zoology 524.*

526 *Limnology.* (4) II
Detailed analysis of fresh water environment with special emphasis upon biological productivity. Two hours lecture, four hours field and laboratory. Prereq: ZOO 100, CHE 110, 112; PHY 211, 213; consent of instructor. *Kuehne.*

527 *Laboratory for Zoology 526.*

528 *General Entomology.* (4) I
Introduction to the Class Insecta. Morphology, physiology, developments, systematics, and ecology of insects; procedures and techniques of insect identification; preparation of insect collections for research purposes. Lecture, 2 hrs.; lab, 4 hrs. per week. Prereq: ZOO 100 and 3 additional credits in ZOO 206 or 502. *Barr.*

529 *Laboratory for Zoology 528.*

532 *Medical Entomology.* (4) I, S
Study of Arthropod vectors of disease. Structure, collection, identification, control measures and life history studies. Given alternate years. Prereq: ZOO 534 or consent of instructor. *Edney.*

533 *Laboratory for Zoology 532.*

534 *Parasitology.* (4) I, S
Protozoan, helminth and arthropod parasites of man and domestic animals, emphasis on etiology, epidemiology, methods of diagnosis, control measures, and life histories. Techniques for host examination and preparation of material for study. Lectures, laboratories. Prereq: ZOO 100. *Edney.*

535 *Laboratory for Zoology 534.*

536 *Medical Protozoology.* (4) II, S
The etiology, epidemiology, pathology, diagnosis, prophylaxis and control of parasitic protozoa, with special emphasis on life cycles and detailed studies of the protozoan parasites of man. Given alternate years. Lectures, laboratories. Prereq: ZOO 534 or consent of instructor. *Edney.*

537 *Laboratory for Zoology 536.*

538 *Helminthology.* (4) II, S
The etiology, epidemiology, pathology, diagnosis, prophylaxis and control of trematode, cestode and nematode parasites of vertebrates, with special emphasis on those of veterinary and medical importance. Given alternate years. Lectures, laboratories. Prereq: ZOO 534 or consent of instructor. *Edney.*

539 *Laboratory for Zoology 538.*

540 *General Radiation Biology.* (4) I, II, S
A basic course devoted to a study of radiation techniques and research and their application in the various fields of biology. Lectures devoted to basic background and health hazard aspects followed by more comprehensive treatment of biological aspects. Lab devoted to use of radioisotopes and techniques of their measurement using various radiation detectors and counters. Lectures, 2 hours per week; laboratory, 4 hours. Prereq: 2 years of biological sciences, 1 year of chemistry, and consent of instructor. *Carpenter, Kuehne.*

541 *Laboratory for Zoology 540.*

600 *Advanced Invertebrate Anatomy.* (4) I
A detailed treatment of the organization of the invertebrate body, including the origin and development of organ systems. Practical work includes laboratory and field studies involving collection, identification, culturing, and preservation of invertebrate animals. Prereq: ZOO 206, 502. *Barr.*

601 *Laboratory for Zoology 600.*

611 *Speciation.* (3) I
Mechanisms of Evolution. A discussion of modern theories and problems concerning the formation of animal and plant species. Three hours per week. Prereq: ZOO 508. *Carpenter and Barr.*

617 *Advanced Microtechnique.* (3) II
Special methods in histological technique for students of Zoology, Pathology or Anatomy. Prereq: ZOO 513, 515. *Brauer.*

642 *Vertebrate Natural History.* (4) I
Behavior of vertebrate animals in their natural habitate as related to shelter, food, reproduction, and other aspects of survival. Adaptations contributing to behavioral patterns will be considered. Two lectures and two laboratory periods per week. Given in alternate years. Prereq: ZOO 208, 502. *Barbour.*

643 *Laboratory for Zoology 642.*

768 *Residence Credit for Master's Degree.* (0)
May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely.

790 *Research in Zoology.* (1-6) I, II, S
Independent research work under direction, with conferences on objectives, principles, materials, methods, analysis of data and conclusion. Progress reports required at intervals. May be repeated indefinitely, at discretion of department. Type of research to be enclosed in parentheses, e.g. (Genetics), (Ecology), (Embryology).

SCHOOL OF JOURNALISM

FACULTY

Professor: Leonard Niel Plummer (Ph.D., Wisconsin, 1940), DIRECTOR. *Associate Professors:* J. Ardery McCauley (M.A., Kentucky, 1948), William M. Moore (Ph.D., Wisconsin, 1946), Raymond W. Wild (Ph.M., Wisconsin, 1939). *Assistant Professor:* Robert Kent Thorp (Ph.D., Iowa, 1963). *Instructors:* Perry J. Ashley (A.B.J., Kentucky, 1956), Robert Lewis Donohew Ph.D., Iowa, 1965).

The School of Journalism is one of the 47 members of The American Association of Schools and Departments of Journalism. Since 1931 the school has been accredited and has been a member of the Association which is composed of the leading schools of journalism in the United States.

General reference materials, representative daily newspapers, and recognized trade journals of the publishing industry are available in the school. In the general library are hundreds of volumes dealing with all phases of the communications industry.

A daily 10-hour teletype service of the Associated Press supplies latest news dispatches for students and provides laboratory materials for news editing and radio news writing.

Various campus-based publications, such as the Kentucky Kernel (campus daily newspaper), The Kentuckian (student

yearbook), and The Kentucky Press (official publication of The Kentucky Press Association, which maintains its state headquarters in the school), present opportunities for student practice in the publication field.

THE DEGREE OF A.B. IN JOURNALISM

The professional curriculum leading to the degree of Bachelor of Arts in Journalism is divided into four sequences to facilitate specialization by the student in the junior and senior years. These sequences are: The General Editorial, The Community-Publishing, Advertising, and Radio-Journalism. All sequences, providing a wide range of elective courses to be chosen under the guidance of a professional advisor, have as their aim a liberal education joined with professional training for men and women seeking careers in the various phases of journalism, advertising, publishing, and radio-journalism.

Pre-Journalism Requirements: Satisfaction of lower division requirements of the College of Arts and Sciences, and Journalism 203, Principles of News Writing, or its equivalent.

In the process of completing the Arts and Sciences requirements, the pre-journalism student should consider carefully with his advisor the selection of courses which may be prerequisite for upper division courses to be taken in combination with classes in the School of Journalism in the junior and senior years. Psychology 100 should be included in the biological sciences group, and particular attention should be given to introductory courses in Political Science, History, Sociology, English literature, and others. A recommended elective in the School of Journalism for pre-journalism freshmen is Journalism 101, and for sophomores, Journalism 201.

Core curriculum for all A.B.J. sequences for Junior and Senior years:

Journalism 241-246	Communications Practicum (4)
Journalism 501	News Reporting (3)
Journalism 503	Copyreading and Editing (3)
Journalism 561	Newspaper and Magazine Advertising (3)

GENERAL EDITORIAL SEQUENCE
(A.C.E.J. approved)

Election of a minimum of eight credit hours from the following courses:

Journalism 531 (2)	Journalism 535 (3)
Journalism 533 (3)	Journalism 507 or 509 (3)
Journalism 511 (2)	Journalism 539 (3)

Election of a minimum of eight credit hours in advanced English courses.

Election of a minimum of eight credit hours in advanced Social Studies courses.

In completing the requirements for the General Editorial Sequence, the student will, with his advisor, prepare a junior-senior program which combines strong background courses in at least one area with School of Journalism requirements. A student may, for example, arrange a program to stress Journalism with Political Science, with History, with Sociology, with Economics, with English, or others.

Minimum required for the degree, 128 credit hours, exclusive of physical education.

COMMUNITY-PUBLISHING SEQUENCE

Election of a minimum of eight credit hours from the following courses:

Journalism 571 (3)	Journalism 533 (3)
Journalism 573 (3)	Journalism 575 (2)
Journalism 531 (2)	Journalism 507 (3)
Journalism 511 (2)	Journalism 539 (3)

Election of a minimum of eight credit hours in advanced English courses.

Election of a minimum of eight credit hours in advanced Social Studies courses.

Minimum required for the degree, 128 credit hours, exclusive of physical education.

ADVERTISING SEQUENCE

Election of a minimum of eight credit hours from the following courses:

Journalism 573 (3)	Journalism 575 (2)
Journalism 531 (2)	Journalism 563 (3)
Journalism 533 (3)	Journalism 541 (3)

Election of a minimum of eight credit hours in advanced Economics and Commerce courses.

Election of a minimum of six credit hours in advanced Psychology courses.

Election of a minimum of four credit hours in advanced Art courses.

Minimum required for the degree, 128 credit hours, exclusive of physical education.

RADIO-JOURNALISM SEQUENCE

Election of a minimum of twelve credit hours from the following courses:

RTF 201 (2)	RTF 520 (2)
RTF 501 (2)	RTF 525 (2)
RTF 505 (2)	RTF 530 (1)
RTF 515 (2)	RTF 535 (2)
RTF 510 (2)	Journalism 591 (2)

Election of a minimum of six credit hours in advanced English courses.

Election of a minimum of six credit hours in advanced Social Studies courses.

Minimum required for the degree, 128 credit hours, exclusive of physical education.

Electives taken in freshman and sophomore years cannot be used to satisfy electives required in the junior and senior years.

All electives in junior and senior years must be in courses not open to freshmen.

Upper Division Requirements

Requirements for the Degree of A.B. in Journalism: Prerequisite: Journalism 203 or its equivalent. Academic standing: minimum of 2.3. *Required:* Core curriculum for all sequences: four credits hours in Journalism 241-246; Journalism 501, 503, 504, and 561. Four sequences—General Editorial, Advertising, Community Publishing and Radio-Journalism—are offered, which lead to the A.B. in Journalism Degree.

Comprehensive Examinations. Majors and candidates for the degree in journalism are required to pass a final comprehensive examination at the end of the senior year.

Requirements for the Degree of Bachelor of Arts: See Director of School of Journalism.

Course Descriptions

101 *Introduction to Journalism.* (2) I, II
A course of lectures and readings designed to introduce prejournalism students to the opportunities in journalism and advertising, the qualifications and training implicit in journalism as a profession. *Thorp.*

201 *Etymology.* (3) I, II
A study of words and their fundamental values with reference to development of a writing vocabulary. *Plummer.*

203 *Principles of News Writing.* (3) I, II
Lectures and readings on the development of the modern news style. Practice in effective writing. *Staff.*

241-246 *Communications Practicum.* (1 ea.) I, II
Supervised laboratory work in the media of mass communications, with meetings for evaluation of work, study of techniques, analyses of problems, and reports. *Staff.*

501 *News Reporting.* (3) I, II
A reporting course which emphasizes special fields of information, news gathering, and news evaluation. *Thorp.*

503 *Copyreading and Editing.* (3) I, II
Instruction and practice in newspaper deskwork. Preparation of local, state, telegraph, and radio news and features; picture editing, and page make-up. Lecture, one hour; lab, four hours. Prereq: JOU 501. *McCauley.*

504 *Laboratory for Journalism 503.*

507 *Feature Writing.* (3) I, II
Instruction and practice in writing features. Lectures, readings, and reports directed toward discovering, gathering, organizing, writing, and marketing feature articles. Prereq: Senior standing or consent of instructor. *Moore.*

509 *Magazine Article Writing.* (3) II, S
Lectures, personal conferences, and practice in writing and submitting material for publication in magazines; study of the markets for this material; free-lance article writing. Prereq: Senior or graduate standing, or consent of instructor. *Moore.*

511 *Editorial Writing.* (2) I
A study of editorials, editorial columns, and editorial pages. Publication of copy encouraged. *McCauley.*

513 *Supervision of High School Publications.* (1-3) S
A study of the problems that confront the adviser of the high school newspaper or magazine. Open to advisors or prospective advisors with consent of the instructor. *Ashley.*

531 *Law of the Press.* (2) I, II
A study of the special laws of libel, copyright, and regulatory provisions that pertain to the press. *Plummer.*

533 *Influence of the Newspaper.* (3) I
A course devoted to the examination of criticism of the modern press and an evaluation of the influence of the press in the twentieth century. Prereq: Senior standing. *Donohew.*

535 *History of Journalism.* (3) II
A study of the rise and development of American journalism and newspapers. Prereq: Senior standing. *Thorp.*

537 *Seminar in Public Opinion.* (3)
A detailed examination of techniques developed and used by the press in influencing public opinion. Specific cases studied. Latter part of course devoted to the preparation of newspaper campaigns dealing with current problems of society. Prereq: Senior or graduate standing. *Moore.*

539 *Reporting Public Affairs.* (3) II
Instruction and practice in reporting the news originating in courts and other public institutions. Prereq: JOU 501 and senior standing. *McCauley.*

541 *Public Relations.* (3) II, S
Lectures and practice dealing with the aims and methods of writing news and special articles for public relations programs of business, schools, colleges, libraries, and of social service organizations. *McCauley.*

561 *Newspaper and Magazine Advertising.* (3) I, II, S
Relation of newspapers and magazines with advertisers with emphasis upon the preparation of local display and national advertising. *Wild.*

563 *Advertising Typography and Layout.* (3) II
A study of the principles of typographic families and illustrations and decorations that pertain to layout in modern advertising. Practical work with merchants included in the latter part of the course. Lecture, one hour; lab, four hours.

564 *Laboratory for Journalism 563.*

571 *Community Journalism.* (3) I, S
A study of the problems which confront the community weekly and the small city daily. *Wild.*

573 *Newspaper Administration.* (3) II
A study of the business, circulation, advertising, and accounting divisions of the newspaper with special emphasis on the community newspaper. *Ashley.*

575 *Typography.* (2) I
Instruction and practice in typographic composition. Use of type faces in news editing. Study of typography in the make-up of American newspapers. Lab, four hours. *Ashley.*

581 *Introduction to Press Photography.* (3) I, II, S
Use of cameras, printers, enlargers, and laboratory equipment in modern press photography, and a study of selected readings on photographic methods and skills. *Ware.*

591 *Radio News Scripts.* (2) I, II
Instruction and practice in writing news and feature material for radio presentation. *Moore.*

WILLIAM ANDREW PATTERSON SCHOOL OF DIPLOMACY & INTERNATIONAL COMMERCE

FACULTY

Professors: Richard Butwell (D.Phil., Oxford, 1954), DIRECTOR; Max Judd Wasserman (Doctorate in Economics, Lyons, 1925), Visiting. *Distinguished Professor:* Amry Vandenbosch (Ph.D., Chicago, 1926). *Associate Professors:* Herbert Neal Drennon (Ph.D., Duke, 1951), William Adriance Withington (Ph.D., Northwestern, 1955), Charles William Hultman (Ph.D., Iowa, 1960). *Assistant Professors:* William Jones Chambliss (Ph.D., Michigan, 1963), Arthur F. Corwin (Ph.D., Chicago, 1958), Gerard E. Silberstein (Ph.D., Harvard, 1962). *Instructor:* Robert Michael Rodes (M.A., Johns Hopkins, 1957).

This school has been established in pursuance of the bequest of the late James K. Patterson, president of the University from 1869-1910, as a memorial to his son. The courses and facilities of the school are designed, 1) to prepare young men and women for service in the United Nations, the De-

partment of State and other governmental agencies with overseas activities or a career in foreign trade or business 2) to provide training in these fields in preparation for teaching and 3) to carry on research and to provide research training in these areas.

The school offers a curriculum leading to graduate work for the master's and doctor's degree in the following fields: International Relations, Diplomacy, Comparative Government, International Economics, Finance, Trade and Commercial Policies, Area Studies.

Course Descriptions

520 *International Investment.* (3)
The long-term capital accounts in the balance of payments; investment as a means of financing surpluses and deficits on the current trading accounts. Prereq: ECO 527, or permission of instructor.

521 *International Finance.* (3)
The short-term capital accounts on the balance of payments; short-term capital as a "checking account"; financing international transactions—imports and exports of goods and services. Prereq: ECO 527, or permission of instructor.

522 *Underdeveloped Areas and Economic Policy.* (3)
Description and definitions of underdeveloped areas; income, resources and productivity in underdeveloped areas; capital, demographic, social and cultural factors in economic development. Prereq: ECO 252 and 527, or permission of instructor.

523 *International and Commercial Policy.* (3)
America's position in the world economy and its international accounts; United States financial policies, war debts, financial cooperation and investment policy. Prereq: ECO 527 or permission of instructor.

524 *Exporting and Importing Techniques.* (3)
A study of the methods and procedures involved in the import and export of goods. Prereq: ECO 527, or permission of instructor.

530 *The Conduct of American Foreign Relations.* (3)
The formulation, conduct, and control of American foreign policy, basic principles, comparison with other countries. Prereq: PS 115, or permission of instructor.

540 *Governments and Politics of South Asia.* (3)
A study of the political institutions of India, Indonesia and the smaller countries of South Asia and their position in world politics.

541 *The Soviet Union in World Affairs.* (3)
A factual survey of the Soviet record in foreign affairs and an introduction to the guiding concepts and principal techniques of Soviet foreign policy; the role of Communist ideology. Prereq: PS 556, or permission of instructor.

542 *Soviet Area Economics.* (3)
The course is designed to provide an intensive study of the economic principles, institutions, and policies which provide direction and coordination for the economic processes in the Soviet Union and Eastern European countries.

600 *Problems of Soviet Foreign Relations.* (3)
Subjects assigned for investigation will include such topics as the attitude of the Soviet Union toward international organizations, the relative roles of ideology and power in Soviet foreign policy, Prereq: PS 556, DIP 541, or permission of instructor.

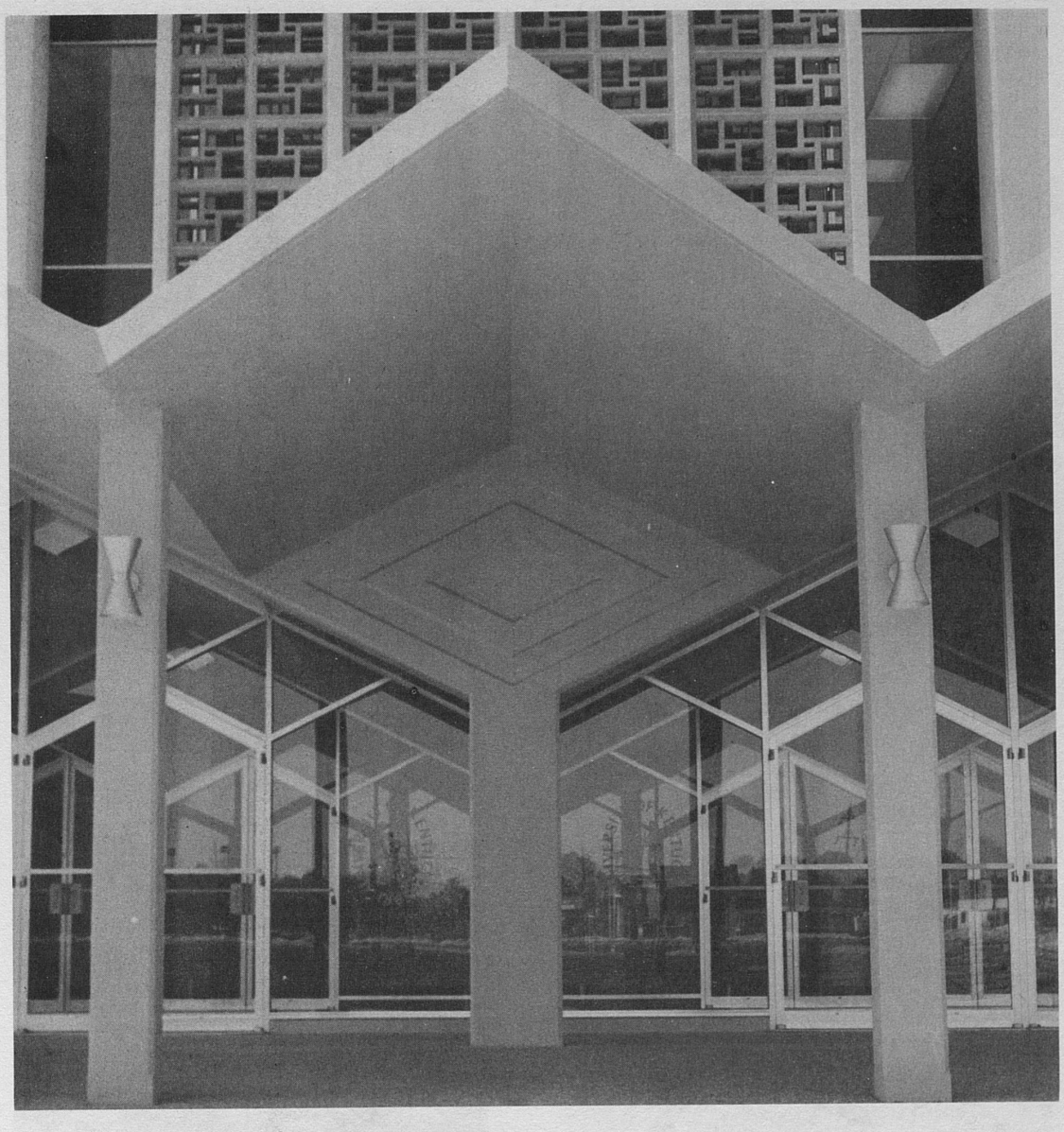
601 *Theory of International Trade.* (3)
History of theories of international trade; theories of international equilibrium and the mechanism of equilibrium adjustments; tariff and other trade barriers; customs union, For graduate study only. Prereq: ECO 527, or permission of instructor.

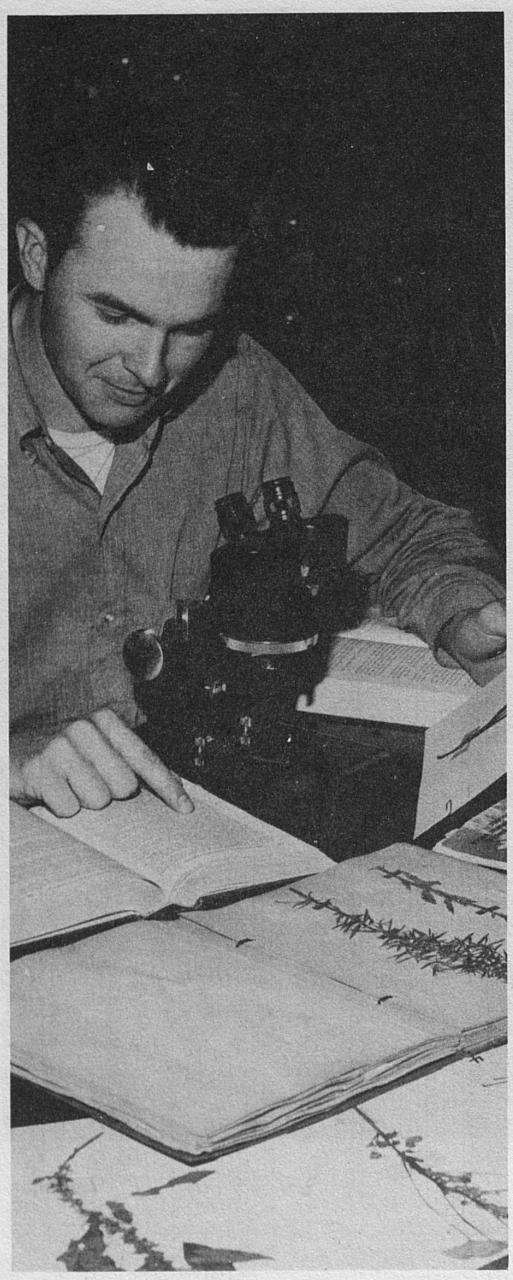
602 *Analysis of International Trade.* (3)
The balance of payments and its analysis; determination of international payments equilibrium; analysis of world trade in merchandise; patterns of world trade; the computation and analysis of the terms of trade. Prereq: ECO 527; DIP 601.

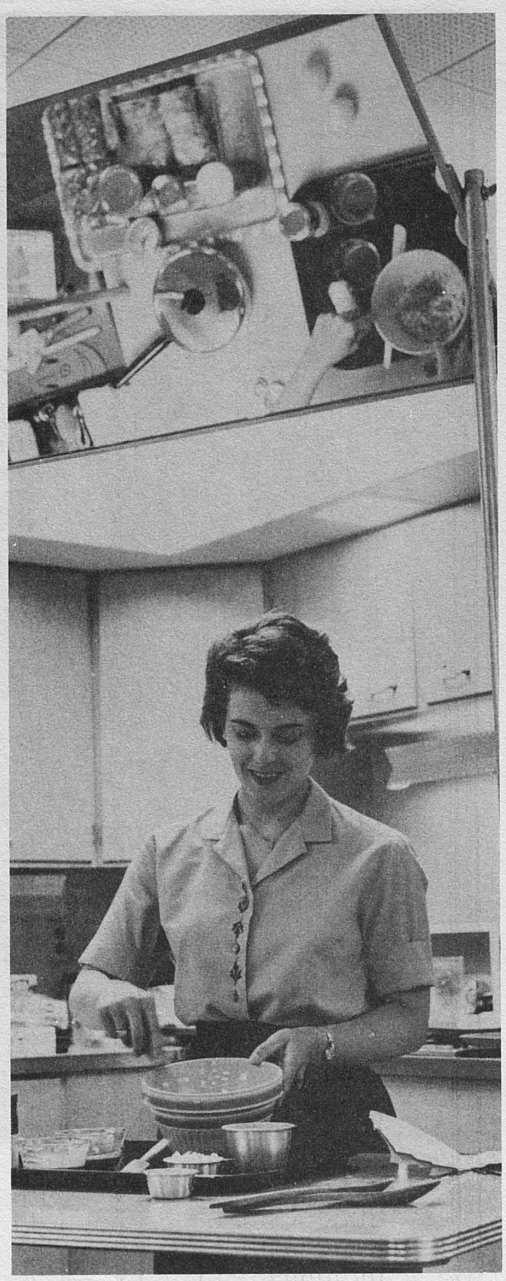
603 *Balance of Payments: Construction and Analysis.* (3)
This course studies the balance of payments as tools used in the analysis of international economics; the measurement of its trends and patterns; the significance of the balance of payments for both the domestic and international economics; the balance of payments and economic planning and control. The several methods of construction of balances of payments, the several types of balances of payments, methods of empirical analysis of balance of payments patterns, trends, deficits and surpluses, methods of the theoretical analysis of balances of payments will be studied.

768 *Residence Credit for Master's Degree.* (0)
One to nine weeks residence. Maximum of nine weeks can be applied toward master's degree with thesis. May be repeated once.

769 *Residence Credit for Doctor's Degree.* (0)
May be repeated indefinitely.







Agriculture & Home Economics

AGRICULTURE WAS ONE OF THE FIRST subjects taught in the Agricultural and Mechanical College of Kentucky. The Department of Botany, Horticulture, and Agriculture was organized in 1878 and existed as such until 1908 when it became the College of Agriculture. The Department of Domestic Economy was organized in 1906 and in 1918 became the Department of Home Economics in the College of Agriculture. In 1941 the name of the College of Agriculture was changed to the College of Agriculture and Home Economics. In 1953 the Department of Home Economics was changed to School of Home Economics. The first class in agriculture was graduated in 1898 and the first class in home economics was graduated in 1913.

The College of Agriculture occupies a unique position in public education in Kentucky. It serves the entire state. Its overall program includes research, extension, and resident teaching. The close relationship between these three programs affords educational opportunities not available from other institutions in the state. As a part of the University, the College of Agriculture has access to facilities available through other colleges of the University.

The fundamental aim or purpose of the resident teaching program of the College is to provide instruction of both a scientific and practical character which will develop individuals who are technically competent in agriculture and who are capable of assuming leadership in an increasingly complex society. This will involve the attainment of such objectives as:

1. Developing the students' ability to solve technical, economic, civic, community, and personal problems.
2. Developing the students' ability to communicate orally and in writing.
3. Advancing the students' competence within agriculture and related fields.
4. Increasing the ability of the students to live a useful and satisfying life and to contribute to others.

To accomplish these objectives, curricula have been arranged, courses planned, and teaching methods used that will accomplish the following:

1. Develop students' ability to think effectively.
2. Enable students' to acquire a knowledge and understanding of basic principles and to develop an effective ability to apply principles to real-life situations.
3. Develop students' ability to recognize factual relationships and to use facts in problem solving.
4. Encourage students to use the skills of communication.
5. Stimulate students' desire and enthusiasm for solving problems in agriculture or home economics and related fields.
6. Develop the students' understanding of the technical, economic, and social aspects of agriculture or home economics and a concept of how these are related in the solution of problems.

Faculty. To accomplish these aims and purposes the College of Agriculture and Home Economics has built up a scholarly, able, and forward looking faculty. The men and women who compose the faculty are selected because they are good teachers, have a thorough knowledge of their chosen fields, and have the ability to guide and inspire others in their study of these fields. Some devote part of their time to the Experiment Station or to the Extension Division. Many have national and international reputations in their respective fields. Some have brought distinction to themselves and to the College by their discoveries and investigations, others through books that they have written, and still others by their work on state and national problems of many kinds. The privilege of associating with and studying under men and women who know how to teach and who have the ability to contribute to the solution of current problems in agriculture and home economics is an important point to consider in the selection of a college.

Buildings and Equipment. Adequate, modern buildings and equipment are essential for good instruction in agriculture and home economics. In addition to the general University buildings the College of Agriculture and Home Economics has several buildings devoted specifically to the work of the various departments.

The Home Economics Building is modern and equipped with classroom and laboratory fixtures of the latest design. In addition to offices and classrooms the building contains laboratories for foods, clothing, nutrition, dietetics, experimental cookery, costume design, and interior decoration. Two home management houses,

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William A. Seay, M.S., Ph.D., is Dean of the college; Stanley Wall, M.S., Ed.D., is Associate Dean.

and a child-care center are located near the Home Economics Building.

The Agricultural Engineering Building provides specialized laboratories for both research and teaching in farm structures, tractors and machinery, electrification, soil and water conservation and processing of agricultural products.

On the livestock farms are a modern dairy center, a service center, and barns for all kinds of livestock. Representatives of several of the more important types and breeds are kept for instructional purposes. These include Shorthorn, Hereford, Aberdeen Angus, Jersey, and Holstein cattle; Southdown and Hampshire sheep; Duroc Jersey and Hampshire hogs; poultry flocks. A modern dairy processing plant serves for instruction in the field of dairy manufacturing. Near Lexington are many large livestock and horse farms and the owners very generously permit the use of their animals for instruction.

The horticulture farms have extensive ornamental, fruit and vegetable plantings for the student to study and gain experience. Greenhouses, both plastic and glass, are also available for student use and study.

Field and greenhouse plantings of agronomic crops are used for instructional purposes. The Agronomy greenhouses are equipped to conduct crop and soil investigations.

Admission. Requirements for admission to the College of Agriculture and Home Economics, as a freshman, or with advanced standing, or as a special student, are the same as those outlined on the preceding pages for admission to the University.

Faculty Advisors. Every student entering the college is assigned a faculty advisor. The Faculty Advisor, who is a member of the teaching staff, helps the students in planning their educational goals and in planning a course of study to attain these goals. The fact that many students arrive at the University with undefined educational goals is not a serious handicap, but it can become serious if they do not begin to set up early defined goals in line with their capacities and interests soon after they arrive. As soon as a student decides on his major area of study, he is assigned an advisor in that area.

Requirements for Graduation in Agriculture

To receive the degree Bachelor of Science in Agriculture a student is required to gain a total of 140 semester credits and 280 points. These represent the minimum requirements for graduation. In all cases the student is responsible for meeting the requirements for graduation.

Transfer students, except those transferring from Eastern Kentucky State College, are required to take in the University a minimum of 68 credits, including 43 in agriculture. The College of Agriculture and Home Economics and Eastern Kentucky State College now have in operation a cooperative plan which recognizes courses in agriculture taught at Eastern as carrying course and residence credit toward the degree, Bachelor of Science in Agriculture, awarded by the University of Kentucky. Acceptance of transfer credit for courses in agriculture is limited to courses numbered 100 to 299 in the University of Kentucky catalogue and all prerequisites required by the University must have been satisfied. Similar arrangements have been made with Kentucky State College whereby students may complete 2 years of work at Kentucky State prior to transferring to the University.

Certain courses are required of all students in the various curricula; others are elective.

Changes in a curriculum to meet specific needs may be made if approved in accordance with the rules of the University Faculty. The normal academic load is 17 or 18 credits per semester; the maximum load is 22 credits; the minimum load for a full-time student is 12 credits.

Curricula & Majors in Agriculture

In order to attain the aim and objectives of the college the agricultural curricula are organized in three program areas; Agricultural Technology, Agricultural Science, and Agricultural Business. In addition, there are also pre-professional programs in Veterinary Medicine, Forestry, Theology, and a four-year professional program in Agricultural Engineering.

1. *Agricultural Technology*—The curricular program in Agricultural Technology provides an opportunity for training designed to serve those students primarily interested in such fields as agricultural extension, teaching vocational agriculture, farm operation, certain U.S.D.A. services, and various other positions requiring technical proficiency in agriculture. It is expected that students electing this program would take fewer courses in the sciences and mathematics than those following the agricultural science program. However, these students would have more courses in technical agriculture and an equal number in the humanities, communications, and social sciences.
2. *Agricultural Science*—The curricular program in Agricultural Science is primarily for students interested in graduate work in their chosen subject matter fields or professions or for those interested in scientific phases of agriculture. While providing a minimum background in general and liberal arts courses, emphasis in the curricula will be on the basic science relevant to the subject matter area, mathematics and research methods, and communications.
3. *Agricultural Business*—The curricular program in Agricultural Business provides an opportunity for training designed to serve those students interested in the wide range of jobs in the administrative, sales, and managerial aspects of the agricultural industry. Emphasis in the curricular program is given to general education in agriculture, liberal arts, and humanities with special emphasis on communications, economics, commerce, and a subject matter area in agriculture.

All students, other than those in the pre-professional programs will follow a basic curriculum for the first two years. The first two years are to be considered, in part, as an exploratory period during which the student would decide upon a departmental or group major. By the end of his sophomore year a student is expected to choose between the program in agricultural technology, agricultural science, and agricultural business. The major and the program to be followed should be elected by the student on the basis of his individual interests and occupational or professional objectives. The student should be guided by his advisor and other sources of counsel and guidance.

The basic curriculum for the first two years for the programs in agricultural technology, agricultural science and agricultural business is as follows:

Required Courses or Course Groups	*Sem. Hrs.*
Physical Education	2
English Composition	6
General Inorganic Chemistry	8-10
Mathematics 111	3
Biological Science—to be selected from: Microbiology 100, 102, 200 Botany 101 or 125, 103, 201 Zoology 100, 200	8
Humanities—to be selected from: Philosophy 200, 220, 230 Humanities 200, 201, 202 English 161, 251, 252 Courses in Art and Music as approved by advisor Modern Foreign Language—6 hours	6
Communications—to be selected from: English 181 or 291, 203, 205 Journalism 201, 203	6
Social Studies—to be selected from: Rural Sociology 156 History 104, 105, 108, 109, 240 Sociology 240 Economics 103, 251, 252 Anthropology 153 Geography 153 Psychology 100 Political Science 151	6
Introduction to Agriculture	2
Basic Agriculture Group—(Students must select five courses from at least four of the areas listed in this group.) An introductory course in Agricultural Economics or Rural Sociology. An introductory course in Agronomy (Soils, Crops, and Plant Pathology) An introductory course in Animal Science, Dairy Science, or Poultry Science. An introductory course in Agricultural Engineering, Entomology, or Animal Pathology An introductory course in Horticulture or Farm Forestry	15
Electives	8
Total	70-72

The general requirements for the junior and senior year for the program in Agricultural Technology, Agricultural Science and Agricultural Business are:

Courses in Group Options	*Study Program Area* *Agricultural Technology*	*Agricultural Science*	*Agricultural Business*
Departmental Major[1]	18[2] crs.	18 crs.	18 crs.
Specialty Support	6[3]	20[3]	26[4]
Mathematics and Statistics	....	6	....
Agricultural Plant Sciences	7	....	....
Agricultural Animal Sciences	7	....	....
Agricultural Economics & Rural Soc.	9	3	3
Electives	23[5]	23[5]	23[5]

A student may elect to follow any one of the three programs. Agricultural Technology, Agricultural Science or Agricultural Business, with a major in Agricultural Economics, Agronomy, Animal Science, Dairy, Horticulture or Poultry. Students interested in dairy manufacturing may elect a program in Agricultural Science or Agricultural Business. Students interested in Agricultural Extension or Agricultural Education will follow an Agricultural Technology program. Students may major in Rural Sociology in an Agricultural Science Program.

More detailed information relative to course requirements for each of the major areas of study is available in the College of Agriculture's Student and Advisor Handbook. Copies of this Handbook may be secured by writing to the Associate Dean, College of Agriculture and Home Economics, University of Kentucky.

AGRICULTURAL ENGINEERING CURRICULUM

The professional curriculum in agricultural engineering is basically the application of physical sciences to agriculture. It deals with the application of energy and materials to agricultural production and processing. The curriculum prepares one for *research, development* and *sales* in agricultural mechanization (design of machine systems for handling soil, tillage, harvesting, grinding, mixing and conveying), farm structures and related equipment for environmental control in animal and plant buildings, energy use such as electric and LP gas or oil for heating greenhouses, poultry brooding, houses, etc., design of processing systems, and soil and water conservation engineering.

The professional curriculum in agricultural engineering is administered jointly by the College of Agriculture and Home Economics and the College of Engineering.

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[1] A maximum of 30 hours in a department may be offered by the students in fulfilling minimum requirements for a degree. Courses in genetics and statistics in agriculture are not to be counted in this 30 hour maximum.

[2] Include subject matter departments, agricultural extension course group and agricultural education course group.

[3] To be made up of courses in science considered to be appropriate background for the departmental area in which the student is majoring.

[4] To be made up of a group of business, economics, and agricultural economics courses.

[5] To include at least one course offered at the sophomore level or above in at least three departments in the College of Agriculture outside the one in which the student is majoring. In the Agricultural Technology program, one of these three departments should be Agricultural Engineering.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

Freshman Year

First Semester	Crs.
AEN 001—The Engineering Profession	0
ENG 101—Freshmen Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
CHE 110—General College Chemistry	5
CE 105—Basic Engineering Graphics I	2
PE—Physical Education	1
Military or Aerospace Science or elective	3
	19

Second Semester	Crs.
AEN 002—The Engineering Profession	0
AEN 105—Engineering in Agriculture	3
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General College Chemistry for Engrs.	5
PE—Physical Education	1
Elective	2
	18

Sophomore Year

First Semester	Crs.
AEN 003—The Engineering Profession	0
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Lab.	2
CE 100—Plane Surveying	3
Elective	2
AGR 206—Prin. of Field Crop Production	3
	17

Second Semester	Crs.
AEN 004—The Engineering Profession	0
MA 212—Analytics and Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab.	2
EM 221—Statics	3
Elective	2
AGR 266—Soils	4
	18

Junior Year

First Semester	Crs.
EM 313—Dynamics	3
EM 313—Dynamics	3
EE 305—Elec. Circuits and Machinery	3
*MA 431—Differential Equations	3
ME 400—Elements of Engr. Thermodyn.	3
ECO 251—Principles of Economics	3
Non-technical Elective	3
	18

Second Semester	Crs.
AEN 006—The Engineering Profession	0
AEN 416—Energy Sources and Machinery for Agriculture	4
CE 352 and CE 351—Fluid Mechanics and Hydraulics Lab. OR	4
ME 330 and ME 331 Fluid Mechanics and Fluid Mechanics Lab.	4
EM 331—Strength of Materials	3
CE 301—Testing Materials	1
EE 306—Elec. & Electron, Circ. & Mach.	3
Non-technical Elective	3
	18

Senior Year

First Semester	Crs.
AEN 007—The Engineering Profession	0
AEN 425—Functional Design of Agricultural Structures	4
AEN 446—Agricultural Processing and Electrification	4
AEN 435—Principles of Soil and Water Engineering	4
Technical Elective	3
Non-technical Elective	3
	18

Second Semester	Crs.
AEN 008—The Engineering Profession	0
AEN 505—Engineering Analysis	3
**AEC 514—Current Farm Management Problems	3
Technical Elective	3
AEN Elective	3
Non-technical Electives	6
	18

* MA 331 may be taken with approval of the head of the department.

** AEC 518 may be substituted.

FORESTRY CURRICULUM

Students interested in Forestry may enter the College of Agriculture and Home Economics and complete a plan of study that is comparable to the freshman and sophomore years of a four-year degree program. Kentucky is a participating member in the Southern Regional Plan for the education of foresters. Under this plan, state tuition aid is available to resident students who have satisfactorily completed the prescribed plan of study in Forestry for the freshman and sophomore years, and who then transfer to one of the accredited Southern Forestry Schools. This Tuition Aid (up to $350.00 per academic year plus an additional $60.00 for the summer camp) for the most part covers the difference between resident and non-resident tuition costs, and is available for the junior and senior years.

The following plan of study is suggested for students entering in this program and leading eventually to a Bachelor of Science degree in Forest Management or one of the other specialties.

Freshman Year

	Crs.
BOT 101 and 103—General Botany	7
CHE 110 and 112—Gen. Chemistry or	10
CHE 102 and 104—Gen. Chemistry for Agri.	8
ENG 101 and 102—English Composition	6
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
Physical Education	2
HIS 109—History of U. S. Since 1865 or HIS 240—History of Kentucky	3
Elective	3
Total	34 or 36

Sophomore Year

	Crs.
AGR 266—Soils	4
PHY 151—Introduction to Physics	3
GLY 104—Outlines of Geology	3
FOR 100—Elements of Forestry	3
ME 105—Basic Engr. Graphics	2
ENG 203—Comp. for Tech. Students or ENG 181—Essentials of Speech	3
CHE 236—Organic Chemistry	4
ECO 251—Principles of Economics	3
CE 100—Plane Surveying	3
*BOT 201—Local Flora	4
BOT 219—Dendrology	2
Elective	3
Total	37

* MA 113 may be substituted for BOT 201.

To be eligible to transfer to a professional school of forestry, the student must achieve a grade average of C + or better. He will not receive credit for any course in which he has received less than a C grade.

PRE-THEOLOGICAL MAJOR FOR THE RURAL MINISTRY

Many leaders in the work of the rural town and country ministry are today suggesting that some of the men who plan to enter this field of service should consider attending a college of agriculture in which a strong curriculum in rural social science is available, as an undergraduate preparation for seminary training. A student planning to enter a theological seminary and enrolling in a regular curriculum of the College of Agriculture and Home Economics may select from the general University offering a suitable group of courses in philosophy, English literature, and ancient languages. The student planning to elect this major is advised to acquaint himself with the specific requirements of the theological seminary of his choice.

PRE-VETERINARY

Students planning to become veterinarians may enter the College of Agriculture and Home Economics and take the two-year program required for admission to the study of veterinary medicine. Kentucky is a participating member in the Southern Regional Plan for the education of veterinarians and arrangements have been made by the State for the Auburn University at Auburn to accept fourteen students from Kentucky each year and for Tuskegee to accept one student each year. The State pays a stipulated amount per student per year through the Southern Regional Education Board to the institution.

Applicants for admission to the School of Veterinary Medicine at Auburn or Tuskegee must have a grade point average of 2.25 on all courses attempted, and also a 2.25 standing on all required courses. They must be bona fide residents of Kentucky. A grade of D on any required course will not be accepted. The Committee on Admissions of the School of Veterinary Medicine may require a personal interview with any applicant and may also require an examination on any required course. If admitted, Kentucky students have the same status as Alabama students; they do not pay out-of-state tuition.

Inquiries should be addressed to the Committee on Regional Veterinary Training, Dr. Stanley Wall, Chairman, University of Kentucky, Lexington. Admission to the School of Veterinary Medicine must be gained by making formal application through the committee not less than three months in advance of the entrance date. Applications will be considered only from students who submit evidence of satisfactory completion of all requirements. Students will be admitted at the beginning of the fall quarter only.

Students who do not enter the Auburn Veterinary School after the completion of the two-year pre-veterinary program may continue in the University for the third year of study and may then be accepted by the Auburn School. Such students will be awarded the degree Bachelor of Science in Agriculture after one year of study at Auburn if they complete the prescribed 30 semester credits required in the first year of the veterinary curriculum with a standing of 2.0 according to the University of Kentucky grade-point system.

PRE-VETERINARY CURRICULUM LEADING TO THE DEGREE BACHELOR OF SCIENCE IN AGRICULTURE°

First Year

First Semester	Crs.
ZOO 100—Prin. of Animal Biol.	4
MA 111—College Algebra	3
CHE 110—Gen. Chem.	5
ENG 101—Eng. Composition	3
Physical Education	1
	16

Second Semester	Crs.
**AGE 100—Agricultural Entomology	3
PS 140—Fm. Pty.	3
MA 112—Plane Trig.	2
CHE 112—Genl. Chem.	5
ENG 102—Eng. Comp.	3
Physical Education	1
	17

Second Year

First Semester	Crs.
PHY 211—Gen. Elem. Phys.	5
CHE 230—Organic Chem.	5
ASC 100—Farm Livestock Prod.	3
ASC 280—Prin. of An. Nutrition	4
HIS 108—History of U.S. or HIS 109—Hist. of U.S. since 1865.	3
	20

Second Semester	Crs.
PHY 213—Gen. Elem. Physics	5
CHE 232—Organ. Chem.	5
BOT 101—Gen. Botany	4
***CL 131—Med. Term.	3
	17

° Requirements for admission to Tuskegee vary slightly from requirements for Auburn.

°° A second course in Zoology may be substituted on approval of advisor.

°°° Two semesters of Modern Foreign Languages may be substituted on approval of advisor.

Third Year

First Semester	Crs.
AEC 100—Agr. Econ.	3
AGR 105—Introd. to Agron.	3
AGR 266—Soils	4
AEN 100—Principles of Agricultural Mechanics	3
MB 200—Prin. of Bacteriology	4
HUM 200, 201, 202	2
	19

Second Semester	Crs.
DS 120—Fund. of Dairying	3
ASC 260—Genetics	3
ECO 251—Prin. of Econ.	3
AEC 400—Agr. Mktg.	3
HUM 203 or 204	2
Electives	3
	17

Fourth Year
(At Auburn University—Standing of 2.0 Required)

	Crs.
VM 101, 102, 103—Anatomy	10
VM 104, 105, 106—Histology and Embryology	10
VM 107, 108, 109—Physiology	10
	30

Minimum credits for degree 140

GRADUATE WORK

The departments in the college offer graduate work leading to the following advanced degrees in the Graduate School:

1. Master of Science in Agriculture with a major in any department or section other than Animal Pathology and Forestry.
2. Doctor of Philosophy in the Departments of Animal Sciences, Agricultural Economics, and Rural Sociology.

SHORT COURSES

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

AGRICULTURAL ECONOMICS

FACULTY

Professors: Aubrey J. Brown (Ph.D., Illinois, 1946), CHAIRMAN; John H. Bondurant (Ph.D., Cornell, 1943), Lawrence Allen Bradford (M.S., Kentucky, 1939), George Boyd Byers (Ph.D., Iowa State, 1948), Dana George Card (Ph.D., Cornell, 1939), Carroll David Phillips (Ph.D., Minnesota, 1940), John C. Redman (Ph.D., Kentucky, 1951), John Bissell Roberts (M.S., Kansas State, 1935), Robert William Rudd (Ph.D., California, 1952). *Associate Professors*: Wendell Binkley (M.S., Kentucky, 1940), Carl M. Clark (M.S., Oklahoma State, 1929), Dallas Milton Shuffett (Ph.D., Kentucky, 1956), Eldon Dee Smith (Ph.D., Wisconsin, 1954), James Forrest Thompson (Ph.D., Chicago, 1962). *Assistant Professors:* James E. Criswell (M.S., Kentucky, 1948), Ernest D. Gooch, Jr. (Ph.D., Illinois, 1962), Willard H. Minton (M.S., Kentucky, 1951), Joe Eugene Fuqua (M.S., Kentucky, 1956), Woodrow W. Hourigan (M.S., Kentucky, 1962).

Course Descriptions

GENERAL AGRICULTURAL ECONOMICS

100 *Agricultural Economics.* (3) I, II
An examination of the agricultural industry and of farm businesses as affected by economic forces. *Bradford and Criswell.*

AGRICULTURAL MARKETING

400 *Agricultural Marketing.* (3) I, II
Principles and methods of marketing farm products with attention to systems and agencies at both country and central markets. Prereq: ECO 251; AEC 100. *Gooch.*

401 *Marketing Tobacco.* (2) II
Special emphasis on the marketing of and the market systems for tobacco. Application of marketing principles and methods to tobacco. Prereq: AEC 400. *Clark.*

402 *Tobacco Market Grades and Grading.* (1) II
Procedures and problems in establishing market standards for tobacco, including practice in grading. Prereq. or concurrent: AEC 400, or approval of instructor. *Clark.*

403 *Marketing Livestock and Livestock Products.* (2) II
Analysis of livestock and dairy markets; market organization, agencies, institutions, and services; and public regulations. Prereq: AEC 400. *Gooch.*

404 *Marketing and Processing Poultry Products.* (2) I, S
Organization and operation of markets; grading, packaging and handling poultry and eggs. Lecture, 1 hour; lab, 2 hours.

500 *Agricultural Cooperation.* (3) II, S
Principles, methods, and problems involved in the cooperative marketing of farm products and in the purchase of farm production supplies through cooperatives. Prereq: AEC 400. *Binkley.*

606 *Advanced Agricultural Marketing.* (3) II
A critical examination of objectives and results of various types of research in market organization, marketing functions, market management, and price analysis. Prereq: Approval of instructor. *Rudd.*

AGRICULTURAL STATISTICS AND MATHEMATICAL ECONOMICS

530 *Agricultural Statistics.* (3) I, II
Principles and methods involved in the analysis, interpretation, and use of agricultural statistics including variation, correlation, standard errors, and simple analysis of variance. *Card and Shuffett.*

630 *Statistics for Agricultural Research: Social Sciences.* (3) I
Multiple and partial correlation, test of reliability, sample surveys, and other techniques for agricultural research. Prereq: AEC 530 or equivalent. *Card and Shuffett.*

631 *Statistics for Agricultural Research: Plant and Animal Sciences.* (3) II
Analysis of variance and covariance; statistical considerations in the design of experiments; tests of significance and confidence limits. Prereq: AEC 530 or equivalent. *Card.*

AGRICULTURAL POLICY AND LAND ECONOMICS

540 *Agricultural Policy.* (3) I
Historical development of principles underlying agricultural policy; objectives of agricultural policy; appraisal of current and proposed agricultural programs. Prereq: AEC 400. *Bradford.*

545 *Land Economics.* (3) I
Institutional, technological and physical forces affecting the use of land resources in agriculture. Analysis of problems connected with land tenure, land conservation and transfer of farm real estate. Prereq: AEC 410 or approval of instructor. *Redman.*

640 *Advanced Agricultural Policy.* (3) II
Influences of policies upon economic progress, efficiency in resource use, distribution of income, and welfare in agriculture. Prereq: Approval of instructor. *Rudd.*

FARM MANAGEMENT

410 *Farm Management.* (3) I, II
An analysis of management and of the science of organizing and operating farms; measurements of success; developing crop and livestock programs; and record keeping in the light of maximizing returns from resources. Prereq: AEC 100; ECO 251. *Bradford.*

415 *Farm Accounting.* (2) II
Development and analysis of farm records and farm accounts including farm cost accounting. Prereq: AEC 410. *Criswell.*

511 *Advanced Farm Management.* (3) II, S
An advanced analysis of management and managing farms. Prereq: AEC 410. *Bradford and Thompson.*

514 *Current Farm Management Problems.* (3) S
An analysis of the current economic problems in farming, such as costs, technological developments, demand changes, and resource use. An introductory course designed primarily for professional workers in agriculture. Prereq: AEC 410, or approval of instructor. *Bradford.*

516 *Land Value and Appraisal* (Odd No. Years.) (3) I
The capitalization process, and other methods of valuing farm land; appraisal procedures of the Federal Land Banks and other credit institutions. Prereq: AEC 410 or approval of instructor. *Bondurant.*

517 *Types and Systems of Farming* (Even No. Years). (3) I
Critical study of the business organization and management of Kentucky farm business. Field trips required. Prereq: AEC 410, or approval of instructor. *Bondurant.*

518 *Farm Labor Utilization.* (3) I
Efficient work method fundamentals as applied to agricultural production, work simplification analysis of specific farm jobs and incentive payment plans for encouraging economic use of farm labor, are studied. Prereq. or concurrent: AEC 410. *Byers.*

PRODUCTION ECONOMICS

520 *Production Economics.* (3) I
Economic analysis of agricultural production. A theoretical treatment of land and capital returns, costs and related functions of agricultural production at an elementary level. Prereq: AEC 410. *Redman.*

521 *Cost, Price and Production Relationships in Agriculture.* (3) S
Relationship among production expenses, cost of production, prices paid, prices received, agricultural production, and farm income. Designed primarily for professional workers in agriculture. Prereq: AEC 410, and approval of instructor. *Bradford.*

620 *Economics of Agricultural Production: Static Application.* (3) II
Application of economic principles to agricultural production problems of resource combination, enterprise selection, scale of operations, household-firm relationships, interregional competition, and national agricultural policies and programs. Prereq: Approval of instructor. *Thompson.*

621 *Economics of Agricultural Production: Dynamic Application.* (3) I
A continuation of 620 with application to dynamic situations. Prereq: AEC 620 and approval of instructor. *Redman.*

AGRICULTURAL PRICES AND FINANCE

455 *Agricultural and Farm Finance.* (3) I, S
Credit needs of agriculture; problems connected with farm and market agency financing; organization and operation of agricultural credit agencies. Prereq: ECO 251, AEC 410. *Clark and Bradford.*

550 *Agricultural Prices.* (3) II
Price behavior of agricultural products including supply-price relationships and their relation to the general price level. Prereq: ECO 251. *Hourigan.*

650 *Advanced Agricultural Prices.* (3) I
Advanced study of agricultural price behavior by the application of economic theory and statistical analysis. Prereq: Approval of instructor. *Rudd.*

GENERAL AGRICULTURAL ECONOMICS COURSES

560 *Introduction of Research Methods in Agricultural Economics.* (3) I
Survey of agricultural economics research areas, methods of initiating, preparing and conducting research projects, financing agricultural research. Applicable to problems of agricultural production and marketing. Prereq: Senior standing and consent of instructor. *Smith.*

580 *Special Problems in Agricultural Economics.* (3) I, II, S
Directed independent study of a selected problem. Prereq: Approval of instructor and head of department. *Brown and Staff.*

590 *Introduction to Mathematical Economics.* (3) I
A review of mathematical approaches to economic theory. Models applicable to production, marketing and pricing problems. Prereq: ECO 515 or equivalent (same as Economics 590).

660 *Research Methods in Agricultural Economics.* (3) II
An analytical examination of research methods and techniques used in agricultural economics. Prereq: Approval of instructor. *Redman.*

690 *Mathematical Economics.* (3) I
Problems of economics amenable to the mathematics of differential and difference equations, vectors, complex numbers and matrix algebra. Agricultural and business applications. Prereq: AEC 590 and ECO 618 or equivalents (same as Economics 690).

691 *Econometrics.* (3) II
The application of statistical methods to problems of economic analysis. Building and measuring relationships among economic variables. Econometric models of the economy as a whole and of individual sectors. Prereq: ECO 550, 618, AEC 630 or equivalent (same as Economics 691).

768 *Residence Credit for Master Degree.* (0)
May be repeated once. Prereq: Consent of advisor and chairman of department. *Staff.*

769 *Residence Credit for the Doctor's Degree.* (1 to 18 wks. residence)
May be repeated indefinitely. Prereq: Consent of advisor and chairman of department. *Staff.*

770 *Agricultural Economic Seminars.* (0) I, II
Analysis of economic problems which affect agriculture. May be repeated three times. *Staff.*

780 *Special Problems in Agricultural Economics.* (3) I, II, S
Open to graduate students who have the necessary training and ability to conduct research on a selected problem. Prereq: Approval of head of department. May be repeated three times for a total of 9 credits. Prereq: Consent of chairman of department. *Brown and Staff.*

AGRICULTURAL ENGINEERING

FACULTY

Professor: Blaine F. Parker (Ph.D., Michigan State, 1954), CHAIRMAN. *Associate Professors:* Jesse Byron Brooks (M.S., Auburn, 1950), Wiley Hix Henson, Jr. (Ph.D., N.C. State College, 1962), Edward Manson Smith (M.S., Kansas State, 1950), John Neal Walker (Ph.D., Purdue, 1961), Earl Robert Young (M.S., Minnesota, 1938). *Assistant Professors:* Joe Millard Bunn (Ph.D., Iowa State, 1960), James Teddie Ligon (Ph.D., Iowa State, 1961), Gerald Martin White (Ph.D., Purdue, 1960), Elmon Eugene Yoder (M.S., Oregon, 1961). *Instructors:* James Hubert Casada (B.S., Kentucky, 1960), Samuel Warren Smith (B.S., Kentucky, 1958).

001 *The Engineering Profession* (Freshman). (0) I, II

002 *The Engineering Profession* (Freshman). (0) I, II

003 *The Engineering Profession* (Sophomore). (0) I, II

004 *The Engineering Profession* (Sophomore). (0) I, II

005 *The Engineering Profession* (Junior). (0) I, II

006 *The Engineering Profession* (Junior). (0) I, II

007 *The Engineering Profession* (Senior). (0) I, II

008 *The Engineering Profession* (Senior). (0) I, II

Lectures on professional growth, conduct, and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

100 *Principles of Agricultural Mechanics.* (3) I, II, S

An elementary analysis of engineering principles as applied to agricultural structures, machines, equipment and systems of physical facilities for efficient and economical agricultural production and processing. Lecture, two hours, lab, two hours. *Young.*

101 *Laboratory for Agricultural Engineering 100.*

105 *Engineering in Agriculture.* (3) II

An introduction to the application of mathematical techniques to problems in agriculture. Insofar as possible the problems associated with the storage, handling, and growth of biological material will be described mathematically. The theory and use of the slide rule. Lecture, three hours. *Walker.*

212 *Tractors and Field Machinery.* (3) I, II

Principles governing the selection and application of tractors and power-driven machines. Operating principles of engines, including valves, carburetion, ignition and lubrication. Mechanical principles of machines and preventive maintenance. Lecture, two hours; lab, two hours. *Young.*

213 *Laboratory for Agricultural Engineering 212.*

252 *Farm Shop.* (3) I, II, S

Wood and metal work, including blueprint reading, oxy-acetylene and arc welding, power woodworking tools, soldering and pipe work. Lecture, one hour; lab, four hours. *Young.*

253 *Laboratory for Agricultural Engineering 252.*

400 *Farmstead Planning and Mechanization.* (3) I, II

Analysis of systems for handling feed, water, and waste products in agriculture. The processing and storage of farm products. Farmstead layout. Structural and environmental design. Lecture, one hour; lab, four hours. Prereq: AEN 100 or consent of instructor. *Walker and White.*

410 *Farm Power and Machinery.* (3) S

A study of farm tractors and implements. Operating principles of valves, carburetion, ignition, and lubrication of the engine. Use and care of selected tractor-mounted implements. Emphasis on maintenance. Class and laboratory work on tractors and implements. Lecture, two hours; lab, two hours. *Young.*

416 *Energy Sources and Machinery for Agriculture.* (4)

The use of concepts learned in physical and engineering sciences in the design of energy converters and machinery for agriculture. Analytical and experimental approaches are used. Lecture, three hours; lab, two hours. Prereq: MA 431, EM 313, concur: ME 400, EM 331. *E. Smith.*

425 *Functional Design of Agricultural Structures.* (4) I

Functional requirements of farm buildings and structures; planning for plant and process efficiency; selection and utilization of materials; sanitary equipment and disposal of wastes; preparation of plans, estimates, and specifications. Lecture, two hours; lab, four hours. Prereq: EMC 431, CE 102. *Walker.*

426 *Farm Buildings and Equipment.* (3) I

Continuation of Agr. Engr. 425 with more advanced study devoted to several of the same topics. Lecture, two hours; lab, two hours. Prereq: AEN 425. *Walker.*

430 *Farm Water Management.* (3) I

Elementary surveying, mapping, and determination of areas of farm land, consideration of precipitation, runoff, and soil erosion relationships, planning terraces, waterways, drainage systems, and farm reservoirs. Lecture, two hours; lab, three hours. Prereq: AEN 100 or consent of instructor. *Ligon.*

435 *Principles of Soil and Water Conservation Engineering.* (4) II

Engineering aspects of the control of surface and subsurface water to aid agricultural production. Mapping of farm land; design and construction of terraces, dams, waterways, drainage, and irrigation systems. Lecture, three hours; lab, two hours. Prereq: ME 330 or CE 350.

436 *Soil and Water Conservation Engineering.* (3) I

Continuation of AEN 435 with more advanced study devoted to several of the same topics. Lecture, three hours. Prereq: AEN 435.

440 *Dairy Equipment.* (2) II

Engineering principles involved in the construction, operation, and management of machinery and equipment used in processing dairy products. Lecture, two hours. *White.*

442 *Farm Electrification.* (3) II

Study of the various aspects of farmstead electrification including the fundamentals of farmstead wiring and the selection, operation and economics of farm electrical equipment. Special attention given to materials handling and crop processing equipment. Lecture, two hours; lab, two hours. Prereq: AEN 100 or consent of instructor. *White.*

446 *Agricultural Processing and Electrification.* (4) I

Application of engineering principles to the handling and processing of agricultural products. The utilization of electricity in agriculture. Instrumentation and control of agricultural processes. The analysis of processing systems on the farmstead. Lecture, three hours; lab, two hours. Prereq: EE 306, ME 330, or CE 352. *White.*

450 *Special Problems.* (1-3) I, II, S

This course is designed to permit advanced students to make an intensive study of some phases of Agricultural Engineering in which they are particularly interested. Approval of instructor required. May be repeated for a maximum of 6 credits. *Staff.*

505 *Engineering Analysis.* (3) II

The use of professional analysis techniques in evaluating engineering problems related to the agricultural industry; determining the applicability of physical concepts to the solution of these problems; definition of specific engineering objectives, analysis, finding solutions and interpretation of solutions. Prereq: AEN 416, 425, 435, 446 or consent of instructor. *E. Smith.*

519 *Advanced Farm Machinery.* (3) I, II

Analysis of agricultural machines, power units, and equipment with emphasis on functional design requirements, development procedures, safety requirements, and evaluation of performance. To be offered as a formal class or as a special problems course. Prereq: AEN 417.

548 *Advanced Agricultural Processing.* (3) I, II

Analytical study of engineering problems dealing with the handling and processing of agricultural products, such as grading, sorting, drying, and curing, and the preparation of plans for these operations. To be offered as a formal class or as a special problems course. Graduate students only. Prereq: AEN 425 and 445 or equivalent.

628 *Advanced Farm Buildings and Equipment.* (3) I, II

Analysis and solution of selected problems dealing with such topics as rural housing, and the maintenance of desirable environments for farm animals and for the storage of farm products. To be offered as a formal class or as a special problems course. Prereq: AEN 425. *Walker.*

635 *Advanced Soil and Water Conservation Engineering.* (3) I, II

Analysis and solution of selected problems dealing with land improvement and the control and use of water for agricultural production, with emphasis on functional design requirements of water retarding, storage, and distribution systems. To be offered as a formal class or as a special problems course. Graduate students only. Prereq: AEN 435 or equivalent.

646 *Advanced Rural Electrification.* (3) I, II

Analytical study of selected topics associated with electricity in agriculture. To be offered as a formal class or as a special problems course. Graduate students only. Prereq: AEN 445.

657 *Research Methods in Agricultural Engineering.* (3) I, II, S

A study of research techniques and methods used in agricultural engineering. Graduate students only. Prereq: AEN 530 or equivalent.

658 *Instrumentation in Agricultural Engineering Research.* (3) I, II

The principles and applications of measuring instruments and devices for obtaining experimental data. Prereq: AEN 657.

768 *Residence Credit for Master's Degree.* (0)

May be repeated once.

775 *Seminar.* (0) I, II, S

Weekly meetings with members of the staff for reports and discussion on research and current trends and practices in agricultural engineering. (Graduate students only.) May be repeated twice. One class hour. *Staff.*

795 *Thesis.* (0) I, II, S

May be repeated twice.

AGRICULTURAL ENTOMOLOGY

FACULTY

Professors: Lee Hill Townsend (Ph.D., Illinois, 1935), CHAIRMAN. Juan Guadelupe Rodriguez (Ph.D., Ohio State, 1949). *Associate Professor:* Richard Thurston (Ph.D., Rutgers, 1952). *Assistant Professors:* Fred William Knapp (Ph.D., Kansas State, 1961), Richard Lloyd Miller (Ph.D., Iowa State, 1962), Bobby Clifton Pass (Ph.D., Clemson 1962).

100 *Agricultural Entomology.* (3) I, II

A general consideration of the fundamentals of insect structure, biology, and classification, with frequent discussions of current topics relating to both beneficial and destructive insects. Lectures, two hours; lab, two hours. *Townsend.*

101 *Laboratory for Agricultural Entomology 100.* (0)

110 *Apiculture.* (3) II

The anatomy of the bee; the colony; location and equipment of the apiary; honey production; diseases and enemies of bees. Laboratory work includes manipulation of equipment and bees. Lectures, two hours; lab, two hours. *Townsend.*

111 *Laboratory for Agricultural Entomology 110.* (0)

115 *Economic Entomology: Household Insects.* (2) I

Life histories, habits, and control of the common insects which are injurious and troublesome in the home. Consideration is given to certain other insects which have public health importance. Lectures, two hours.

120 *Fundamentals of Insect Pollination.* (2) I

Principles of pollination as effected by insects, with emphasis on the honeybee. The common agricultural plants are considered and the pollination described. Lectures, two hours. *Townsend.*

500 *Economic Entomology.* (3)

For those interested in agricultural teaching and extension work. Life history, control, and identification of economic insects of Kentucky are considered. Lectures, two hours; lab, two hours. Prereq: AGE 100. *Townsend.*

501 *Laboratory for Agricultural Entomology 500.* (0)

510 *Economic Entomology: Fruit and Garden Insects.* (3) I, S

Life histories, habits, distribution, and control of insects injurious to fruits and vegetables, with attention to those found in Kentucky. Enemies of those species are considered. Lectures, two hours; lab, two hours. Prereq: AGE 100. *Rodriguez.*

511 *Laboratory for Agricultural Entomology 510.* (0)

520 *Economic Entomology: Farm Crop Insects and Animal Parasites.* (3) II, S

Life histories, habits, distribution, and control of insects injurious to farm crops; also insect parasites of farm animals. Enemies of these species are considered. Lectures, two hours; lab, two hours. Prereq: AGE 100. *Thurston.*

521 *Laboratory for Agricultural Entomology 520.* (0)

550 *Systematic and Technical Agricultural Entomology.* (2-3) I, II

Insect physiology, anatomy, ecology, and taxonomy, entomological literature and technique; studies of special groups of insects. Prereq: AGE 100 and any of the following: 500, 510, 520. May be repeated for a maximum of 6 credits. *Staff.*

620 *General Acarology.* (4)

Introduction to study of mites. Classification, morphology, physiology and ecology of mites important to the medical, veterinary and agricultural fields. Lecture, two hours; lab, four hours. Prereq: ZOO 100, AGE 100, and consent of instructor. *Rodriguez.*

768 *Residence Credit for the Master's Degree.* (1 to 9 wks. residence)

May be repeated once. *Staff.*

780 *Entomological Problems.* (2-3) I, II

Investigations of chosen insect problems, including original work. Discussion and assignment of current insect subjects. Prereq: AGE 100, 510, 520, 550, 768. May be repeated once for a maximum of 6 credits. *Staff.*

AGRICULTURAL EXTENSION

501 *Principles of Agricultural Extension.* (3) II

Philosophy, history and development of Agricultural Extension; evaluation of instructional techniques; leadership training; and practice in use of Extension methods. Three lectures per week. Open to juniors, seniors and graduate students.

768 *Residence Credit for Master's Degree.* (0 credit)

790 *Special Problems in Agriculture or Home Economics Extension.* (1-4) I, II, S

Directed independent study of research relative to a particular problem in extension and the study of a selected problem. May be repeated three times to a total of 12 credits.

AGRICULTURE—GENERAL

100 *Introduction to Agriculture.* (2) I, II
A general analysis of the changes taking place in agriculture and their implications to a student of agriculture. *Wall.*

201 *Agriculture Around the World.* (3) II
A study of the agriculture of the United States and other countries in different regions of the world. Lectures, 3 hours.

501 *Agency Relationships.* (1) II
In this course the student learns something of the objectives of public and private agricultural agencies and organizations and how they work together for the improvement of agriculture. Lecture, one hour. *Wall.*

AGRONOMY

FACULTY

Professors: Gilbert Theodore Webster (Ph.D., Iowa State, 1949), CHAIRMAN. Charles Eugene Bortner (M.S., Kentucky, 1932), Herbert Fane Massey, Jr. (Ph.D., Wisconsin, 1952), Roy Edward Sigafus (Ph.D., Cornell, 1951), Granville Woolman Stokes (Ph.D., Wisconsin, 1953), William Gregory Survant (Ph.D., Ohio State, 1951), William Chelcy Templeton, Jr. (Ph.D., Purdue, 1960). *Associate Professors:* Harry Hudson Bailey (Ph.D., Michigan State, 1956), Robert Cecil Buckner (Ph.D., Minnesota, 1955), William Graham Duncan (Ph.D., Purdue, 1958), Verne Clifford Finkner (Ph.D., Iowa State, 1950), Joe Frank Freeman (M.S., Kentucky, 1923), Thomas Barksdale Hutcheson, Jr. (Ph.D., North Carolina State, 1956), William Anderson Kendall (Ph.D., Ohio State, 1954), Frank Albert Loeffel (Ph.D., Minnesota, 1953), John Leonard Ragland (Ph.D., North Carolina State, 1959), William Hugh Stroube (Ph.D., Louisiana State, 1953), Norman Linn Taylor (Ph.D., Cornell, 1953), Timothy Henry Taylor (Ph.D., Pennsylvania State, 1955). *Assistant Professors:* William Offutt Atkinson (M.S., Kentucky, 1953), George Raymond Benoit (Ph.D., Iowa State, 1961), Robert Lynwood Blevens (M.S., Kentucky, 1958), Paul Barron Burrus, II (M.S., Kentucky, 1957), James Lewis Hamilton (M.S., Kentucky, 1951), John Scoville Harrison (M.S., Kentucky, 1961), Albert Leon Hatfield (M.S., Kentucky, 1956), Andrew Jackson Hiatt (Ph.D., North Carolina State, 1960), James F. Shane (M.S., Kentucky, 1950), Jones H. Smiley (Ph.D., Wisconsin, 1963), Jack Rudisill Todd (M.S., Kentucky, 1937), Allen Maxwell Wallace (M.S., Missouri, 1954).

General Courses

105 *Introduction to Agronomy.* (3) I, II
The interrelations of soil, plant diseases and crop production. Lecture, discussion and demonstration, 3 hours. *Survant.*

370 *Seminar.* (1) II
Study and analysis of principal sources of agronomic literature. Reports and discussion of selected topics. May be repeated for a maximum of two credits. *Webster.*

399 *Special Problems in Agronomy.* (1-4) I, II, S
Prereq: Consent of instructor. May be repeated for a maximum of 9 credits. *Staff.*

599 *Special Problems in Agronomy.* (1-4) I, II, S
Prereq: Consent of instructor. May be repeated for a maximum of 9 credits. *Staff.*

768 *Residence Credit for Master's Degree.* (0) I, II, S
May be repeated once. *Staff.*

770 *Agronomy Seminar.* (1) I, II
Reports and discussion of problems and research in soils, crops and plant pathology. May be repeated three times. Maximum of 4 credits. *Staff.*

799 *Research in Agronomy.* (1-4) I, II, S
Prereq: Consent of instructor. May be repeated for a maximum of 12 credits. *Staff.*

COURSES IN CROPS

206 *Principles of Field Crops Production.* (3) I, II
A course in scientific fundamentals underlying the production of cereal, fiber, forage and tobacco crops. Lecture and discussion, two hours; lab, two hours. Prereq: BOT 101 or consent of instructor. *Stroube.*

207 *Laboratory for Agronomy 206.*

502 *Ecology of Economic Plants.* (3) I
Critical study of the response of economic plants to natural and man-modified environments. Two lectures and one two-hour lab period each week. Prereq: BOT and AGR 206 or HOR 100, or consent of instructor. *T. Taylor.*

503 *Weed Identification and Control.* (3) I, S
The important characteristics, identification, and control of weeds, with emphasis on identification and control of Kentucky weeds. Lecture and discussion, two hours. Prereq: AGR 206. *Sigafus.*

504 *Laboratory for Agronomy 503.*

506 *Field Crop Improvement.* (3) II
A study of the principles involved and the techniques used in breeding crop plants. Lecture and recitation, two hours; lab, two hours. Prereq: AGR 206 and BOT 530 or ASC 260 or consent of instructor. *Loeffel.*

507 *Laboratory for Agronomy 506.*

508 *Advanced Crops: Tobacco.* (3) I
Origin of the nicotiana species, botany, pathology, entomology, physiology, breeding, and culture of tobacco, with special emphasis on burley. Lecture and discussion, two hours; lab or field, two hours. Prereq: BOT 101; AGR 206 or consent of instructor. *Stokes.*

509 *Laboratory for Agronomy 508.*

510 *Pastures and Harvested Forages.* (3) II
A comprehensive study of forage crops with special emphasis upon their production in Kentucky. Lecture and recitation, 3 hours. Prereq: BOT 101; AGR 106 or consent of instructor. *Sigafus.*

512 *Advanced Crops: Cereals.* (3) II
A study of the grain crops of the world, in respect to adaptation, culture and uses. Lecture and recitation, two hours; lab, two hours. Prereq: BOT 101; AGR 206 or consent of instructor. *Sigafus.*

730 *Grassland Research.* (3) II
The conduct and interpretation of grassland experiments with emphasis on pasture research and the plant-animal complex. Lecture and discussion, 3 hours. Prereq: Approval of instructor. *Templeton.*

COURSES IN SOILS

266 *Soils.* (4) I, II
A general study of soil properties and processes with emphasis upon their influence on soil management. Lecture and discussion, three hours, lab, two hours. Prereq: CHE 104 or equivalent or concurrent, or consent of instructor. *Survant.*

267 *Laboratory for Agronomy 266.*

566 *Soil Biology.* (3) I
A study of soil organisms and biological soil proceses in relation to soil productivity. Lecture, two hours; lab, two hours. Prereq: AGR 266 and MB 200.

567 *Laboratory for Agronomy 566.*

568 *Soil Conservation.* (3) II, S
The scope and nature of the soil conservation problem, and the application of soil conserving methods in the planning and management of farms. Lecture and discussion, two hours; lab, two hours. Prereq: AGR 266. *Survant.*

569 *Laboratory for Agronomy 568.*

570 *Soil Fertility and Fertilizers.* (3) II, S
Soil reactions of elements essential for plant growth; sources and manufacture of fertilizer materials; profitable use of fertilizers, manure and lime in a sound management program. Lecture and discussion, three hours. Prereq: AGR 266, or equiv. *Ragland.*

571 *Soil Chemistry.* (4) II
Chemical methods applicable to soil fertility and productivity; determination of plant nutrients in soil; study of chemical characteristics of soil by means of modern instrumentation. Lecture and discussion, two hours; lab, four hours. Prereq: AGR 266 or concurrent: CHE 226 or 220. *Massey.*

572 *Laboratory for Agronomy 571.*

573 *Soil Origin, Classification and Mapping.* (3) I
Classification of Kentucky soils, use of soil survey equipment, preparation of soils maps and development of a land use plan of an assigned area. Lecture and recitation, two hours; lab, three hours. Prereq: AGR 266 and GLY 100 or approval of instructor. *Bailey.*

574 *Laboratory for Agronomy 573.*

575 *Soil Physics.* (4) I, S
Physical properties of soils in relation to soil management and conservation. Lecture and discussion, two hours; lab, four hours. Prereq: AGR 266 and approval of instructor. *Benoit.*

576 *Laboratory for Agronomy 575.*

712 *Advanced Soil Fertility.* (Even No. Years) (4) I
Study and discussion of current literature related to soil fertility research methods especially applicable to soil fertility. Lecture-discussion, 3 hours; lab, 2 hours. Prereq: AGR 570, AEC 530 or consent of instructor.

713 *Laboratory for Agronomy 712.*

COURSES IN BOTANY

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

501 *Plant Physiology.* (3-5) I
See course description under Botany.

701 *Advanced Plant Physiology.* (4)
See course description under Botany.

534 *Cytogenetics.* (3) II
See course description under Botany.

ANIMAL SCIENCE

FACULTY

Professors: Wesley Patterson Garrigus (Ph.D., Illinois, 1935), CHAIRMAN. Charles Elmer Barnhart (Ph.D., Iowa State, 1954), Ray Horn Dutt (Ph.D., Wisconsin, 1948), James Dillon Kemp (Ph.D., Illinois, 1952), Dewey G. Steele (Ph.D., Wisconsin, 1926), Patch Gregory Woolfolk (Ph.D., Cornell, 1950). *Associate Professors*: Neil Wright Bradley (Ph.D., Illinois, 1958), Charles Frank Buck (Ph.D., Cornell, 1953), George Ernest Mitchell, Jr. (Ph.D., Illinois, 1956), William York Varney (Ph.D., Michigan State, 1960). *Assistant Professors:* Benjamin T. Dean (Ph.D., Missouri, 1961), Charles H. Chaney (Ph.D., Kentucky, 1961), Hudson A. Glimp (Ph.D., Oklahoma, 1965), Roy C. Gray, Jr. (Ph.D., Auburn, 1964), Charles Oran Little (Ph.D., Iowa State, 1960), William Glen Moody (Ph.D., Missouri, 1963), Don Ovid Pinney (Ph.D., Oklahoma, 1963), E. Dale Purkhiser (Ph.D., Purdue, 1962), John Robertson (Ph.D., Kentucky, 1960), Dallas Gene Waddill (Ph.D., Michigan, 1960).

COURSES IN ANIMAL SCIENCE

100 *Farm Livestock Production.* (3) I, S
Types, market classes, and grades of beef cattle, sheep, swine; origin, development, and characteristics of breeds; importance and place of livestock in Kentucky agriculture. Lecture, two hours; lab, two hours. *Buck.*

101 *Laboratory for Animal Science 100.*

102 *Light Horse Husbandry.* (3) I, II
A brief study of the breeds of light horses; selection, feeding, and management; fundamental instruction in equitation. Lecture, two hours; lab, two hours. *Ryen.*

103 *Laboratory for Animal Science 102.*

104 *Breeds of Livestock.* (3) I
A study of the identification, origin, development, adaptations and present status of the breeds of beef cattle, sheep and swine. Lecture, three hours. *Waddill, Woolfolk, and Pinney.*

201 *Livestock Judging.* (3) II
Evaluation of purebred and commercial beef cattle, sheep, and swine; both market and breeding classes. Practice in writing reasons and giving of reasons orally. Lab, six hours. Prereq: ASC 100. Not open to freshmen. *Pinney.*

203 *Livestock Management.* (1) I
Intensive training in approved livestock management practices with emphasis on the preparation of animals for show and sale. Lab, two hours. *Pinney.*

204 *Meats and Meats Processing.* (4) I, II
Slaughtering and cutting of beef, veal, hog, and lamb carcasses; correlation of breeding and feeding with carcass values, meat curing. Lecture, two hours; lab, four hours. Prereq: ASC 100. Not open to freshmen. *Kemp and Moody.*

205 *Laboratory for Animal Science 204.*

206 *Selection, Evaluation, and Use of Meats.* (3) II
History and growth of packing and meat industry; physical and chemical composition and nutritive value of meat; selection and utilization of cuts; identification; grading, cutting, processing and freezing methods; wholesale and retail sales methods. Lecture, two hours; lab, two hours. *Kemp.*

207 *Laboratory for Animal Science 206.*

208 *Light Horse Production.* (3) I, II
Breed history, development and pedigrees; a general study of the anatomy and physiology of the horse; diagnosis, prevention and cure of common ailments; breaking, schooling and training. Lecture, two hours; lab, two hours. Prereq: ASC 102. *Ryen.*

209 *Laboratory for Animal Science 208.*

301 *Advanced Livestock Judging.* (3) I
Primarily for judging team candidates. Open only to those who have made good standings in the prerequisite courses. Lab, six hours. Prereq: ASC 100, 201, and approval of instructor. *Pinney.*

302 *Packing House Operations.* (4) S
An intensive on-the-job study of various packing house operations, includes livestock buying, slaughtering operations, cutting operations, curing, smoking, lard rendering, sausage making, packaging, inedible by-products, job relations, sales, advertising, business management, and plant maintenance. Prereq: ASC 204, ASC 206, or equivalent, and consent of instructor. *Kemp.*

303 *Meat Judging.* (2) I
Intensive instruction in the evaluation of carcasses and cuts of beef, veal, pork, and lamb. Lab, four hours. Prereq: ASC 204, or ASC 206. *Moody.*

370 *Animal Science Seminar.* (1) II
An insight into the problems and opportunities in Animal Science. Presentation and discussion of current topics by students, staff and guests. Lecture, one hour. May be repeated once for a maximum of 2 credits. *Staff.*

395 *Special Problems in Animal Science.* (1-4) I, II, S
Approval of instructor required. May be repeated twice for a maximum of 9 credits. *Staff.*

500 *Animal Breeding.* (3) I
History of animal improvement; survey of hereditary traits in livestock, inbreeding and outcrossing; progeny tests and herd analysis. Lecture, three hours. Prereq: ASC 100, 260. *Steele.*

502 *Applied Livestock Nutrition.* (3) S
A discussion of the specific nutritional requirements of beef cattle, sheep and swine; with emphasis on recent nutritional concepts, feed formulation, and economic consideration. Prereq: ASC 280 and approval of instructors. *Staff.*

504 *Sheep Production.* (3) II
History and importance of the sheep industry; selection, breeding, feeding, and management of sheep; production and handling of wool. Lecture, two hours; lab, two hours. Prereq: ASC 100, 280. *Woolfolk.*

505 *Laboratory for Animal Science 504.*

506 *Beef Production.* (3) II
History and importance of the beef cattle industry; selection, breeding, feeding and management of beef cattle. Lecture, two hours; lab, two hours. Prereq: ASC 100, 280. *Bradley.*

507 *Laboratory for Animal Science 506.*

508 *Pork Production.* (3) II
History and importance of the swine industry; selection, breeding, feeding, and management of swine. Lecture, two hours; lab, two hours. Prereq: ASC 100, 280. *Waddill.*

509 *Laboratory for Animal Science 508.*

771 *Animal Industry Seminar.* (1) I, II
May be repeated twice for a total of 3 credits. Co-listed DS 771 and Poultry Science 771. *Staff.*

780 *Special Problems in Animal Science, Variable Credit.* (1-4)
May be repeated for a maximum of nine hours. Prereq: Consent of instructor.

790 *Research in Meats.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Kemp and Moody.*

791 *Research in Horse Husbandry.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. *Ryen and Steele.*

792 *Research in Sheep Husbandry.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Woolfolk.*

793 *Research in Beef Cattle Husbandry.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Bradley.*

794 *Research in Swine Husbandry.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Chaney.*

COURSES IN ANIMAL NUTRITION

280 *Feeds and Feeding.* (4) I, II
Digestion, absorption, assimilation and utilization of nutrients by domestic animals; principal feeds, rations, and nutritive ratios. Lecture, three hours; lab, two hours. Prereq: CHE 102 or 110. *Buck.*

281 *Laboratory for Animal Science 280.*

580 *Principles of Animal Nutrition.* (3) I
The chemistry and physiology of animal nutrition and the nutritive requirements for growth, fattening, reproduction, lactation, and other body functions. Lecture, three hours. Prereq: CHE 236 or equivalent. *Mitchell.*

680 *Laboratory Methods in Animal Nutrition and Meats.* (4) I
The use of laboratory techniques and equipment in the solution of fundamental problems of nutrition. Lecture and recitation, one hour; lab, 6 hours. Prereq: ASC 580. *Little.*

681 *Laboratory for Animal Science 680.*

682 *Nutrient Metabolism.* (5) S
Introduction to history, principles and present concepts of ruminant and non-ruminant mineral nutrition. Prereq: one course in introductory nutrition, physiology or biochemistry and consent of instructor. *Mitchell and Little.*

684 *Advanced Ruminant Nutrition.* (3) I
Introduction of principles of ruminant metabolism in the utilization of feedstuff for meat, milk, and wool production. Prereq: One course each in nutrition, physiology, and biochemistry and consent of instructor. *Mitchell, and Jacobson.*

686 *Swine Nutrition.* (3) I (Alternate Years)
A study of the nutritional requirements of the non-ruminant animal with special reference to swine and their various stages of growth, lactation and reproduction. An evaluation of the relative value of feed ingredients and mixed feed formulation. Prereq: ASC 580, CHE 430. *Chaney.*

784 *Special Problems in Animal Nutrition.* (1-4) I, II, S
Approval of instructor required. May be repeated twice for a total of 9 credits. *Animal Nutrition Staff.*

798 *Research in Animal Nutrition.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Animal Nutrition Staff.*

COURSES IN GENETICS

260 *Genetics.* (3) I, II, S
The elementary principles of heredity and their relationship to plant and animal breeding. Attention is directed briefly to human heredity. Lecture, three hours. Prereq: BOT 101 or ZOO 100, Concur: ASC 561. *Steele.*

261 *Genetics Laboratory.* (1) I, II
Technic of Drosophila breeding; analysis of Mendelian ratios in corn; observation of chromosomes in mitosis and reduction. Lab, two hours. Concurrently with ASC 260, at student's option. *Steele.*

398 *Special Problems in Genetics.* (1-3) I, II, S
Approval of instructor required. May be repeated twice for a maximum of 9 credits. *Steele and Dutt.*

560 *Genetics.* (3) I, II, S
Lecture ASC 260 and assigned readings. Primarily for graduate students. Lecture, three hours. Prereq: BOT 101 or ZOO 100, concur: ASC 561. *Steele.*

561 *Genetics Laboratory.* (1) I, II
Similar to ASC 261 but additional work required. Primarily for graduate students. Lab, two hours. Concurrent with ASC 560 at student's option. *Steele.*

562 *Advanced Genetics.* (3) II
Concerned chiefly with the physical basis of heredity, mutations, chromosomal aberrations, linkage, genetics and developments, and reports on current literature. Lecture, three hours. Prereq: ASC 260. *Steele.*

660 *Physiology of Reproduction.* (3) II
Physiological processes of reproduction in farm animals, gonadal functions, endocrine relationships, fertility, and factors affecting reproductive efficiency. Lecture, three hours. Prereq: ASC 500 or DS 524 or PTY 540 and APY 501. *Dutt.*

662 *Population Genetics.* (3) I
Introduction to principles of static and dynamic populations; statistical concepts and tools applied to quantitative inheritance. Lecture, three hours. Prereq: One course each in statistics and genetics and consent of instructor. For graduate students only. Same as DS 662.

783 *Special Problems in Genetics.* (1-3) I, II, S
May be repeated for a maximum of 9 credits. Prereq: Approval of instructor. *Steele and Dutt.*

797 *Research in Genetics.* (3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Steele and Dutt.*

COURSES APPLICABLE TO ALL DIVISIONS

768 *Residence Credit for the Master's Degree.*
(1 to 9 wks. residence)
May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree.*
(1 to 18 wks. residence)
May be repeated indefinitely. *Staff.*

DAIRY SCIENCE

FACULTY

Professors: Dwight Moody Seath (Ph.D., Iowa State, 1939), CHAIRMAN. Theodore Russell Freeman (Ph.D., Penn State, 1937), Don Richard Jacobson (Ph.D., Maryland, 1956), Durward Olds (Ph.D., Illinois, 1956). *Associate Professor:* Arthur William Rudnick, Jr. (Ph.D., Minnesota, 1954). *Assistant Professors:* Oliver Wendell Deaton (Ph.D., Mich. State, 1963), Bruce Edward Langlois (Ph.D., Purdue, 1962). *Instructor:* Arthur Paul Graden (B.S., Kentucky, 1959).

120 *Fundamentals of Dairying.* (3) I, II
Place of dairying in agriculture; factors affecting secretion, composition, physical and chemical properties of milk and cream; food value of dairy products; dairy calculations; clean milk production; farm dairy processes. Lecture, two hours; lab, two hours. *Graden, Rudnick, and Seath.*

121 *Laboratory for Dairy Science 120.*

221 *Judging Dairy Cattle.* (3) II
Selection of sires, cows, and heifers with due consideration for breed and dairy type, application of principles involved in the problem of herd improvement. Lab, six hours. Prereq: DS 120. *Deaton.*

230 *Judging Dairy Products.* (2) II
A study of the accepted standards of judging market milk, butter, ice cream, and cheese; scoring these products in accordance with standard methods. Lecture, one hour; lab, two hours. *Freeman.*

231 *Laboratory for Dairy Science 230.*

232 *Advanced Dairy Products Judging.* (2) I
Practice in judging dairy products with especial emphasis being given to commercial methods of scoring dairy products and to procedure followed in intercollegiate judging contests. Lecture, one hour; lab, two hours. Prereq: DS 230 or approval of instructor. *Freeman.*

233 *Laboratory for Dairy Science 232.*

235 *Dairy Plant Testing Methods.* (3) I
Purpose, principles, technic and interpretation of results of testing procedures essential to the control of all dairy processing operations. Lab, six hours. Prereq: DS 120; CHE 104. *Rudnick.*

237 *Approved Dairy Practice.* (1)
A minimum of three months practical experience in an approved dairy plant. *Freeman.*

321 *Advanced Dairy Cattle Judging.* (3) I
Primarily for judging team candidates. Open only to those who have made good standings in the prerequisite courses. Lectures and lab. Prereq: DS 120, 221, or consent of instructor. *Deaton.*

396 *Special Problems in Dairying.* (1-4) I, II, S
Approval of instructor required, may be repeated to a maximum of 9 credits. *Dairy Staff.*

520 *Dairy Cattle Feeding and Management.* (2-3) I
Application of principles of nutrition to dairy cattle feeding; current methods contributing to maximum production of quality dairy products on the farm. Lecture, two hours; lab, two hours. Prereq: ASC 280. *Jacobson and Gordon.*

521 *Laboratory for Dairy Science 520.*

524 *Dairy Cattle Breeding.* (3) II
Application of genetics to problems of breed and herd improvement; progeny testing of sires; type classification, selective registration; prominent families and strains within the leading dairy breeds. Lecture, two hours; lab, two hours. Prereq: ASC 260. *Deaton.*

525 *Laboratory for Dairy Science 524.*

526 *Reproduction in Dairy Cattle.* (2) II
A study of male and female reproductive processes in dairy cattle and the application of artificial breeding to the improvement of dairy herds. Lecture, one hour; lab, two hours. Prereq: DS 120, ASC 260, ZOO 100 or consent of instructor. *Olds.*

527 *Laboratory for Dairy Science 526.*

530 *Dairy Bacteriology.* (2) I
Application of bacteriological principles to production and processing of dairy products, entrance of micro-organisms into dairy products, effects of their growth and methods for control. Lecture, two hours. Prereq: MB 200 or 400. *Langlois.*

531 *Dairy Bacteriology Laboratory.* (2) I
Laboratory to accompany DS 530, Dairy Bacteriology. Lab, four hours. Prereq: or concurrent: DS 530. *Langlois.*

533 *Advanced Dairy Bacteriology.* (3) II
Bacteriological principles and problems relating to specific dairy products and processes. Lab, six hours. Prereq: DS 530, 531. *Langlois.*

534 *Principles of Dairy Technology.* (4) II
Chemical and physical characteristics of dairy products; chemical, physical, and physico-chemical principles involved in dairy processing; special methods of analysis. Lecture, one hour; lab, six hours. Prereq: MA 101, CHE 236, DS 235. *Freeman.*

535 *Laboratory for Dairy Science 534.*

536 *Dairy Processing and Plant Management.* (6) II
Methods used for processing milk, butter, ice cream, cheese, and concentrated milks; fundamentals of dairy plant management. Lecture, two hours; lab, eight hours. Prereq: DS 235. *Rudnick.*

537 *Laboratory for Dairy Science 536.*

572 *Dairy Seminar.* (1) I, II
May be repeated to a maximum of four credits. *Dairy Science Staff.*

622 *Current Developments in Dairy Science.* (3) II, S
A course designed to acquaint the advanced student with the more significant problems and scientific developments of current interest in the dairy field. Lecture, three hours. Prereq: Graduate standing and permission of major advisor. *Dairy Science Staff.*

662 *Population Genetics.* (3) I
Introduction to principles of static and dynamic populations; statistical concepts and tools applied to quantitative inheritance. Lecture, three hours. Prereq: one course each in statistics and genetics and consent of instructor. Same as ASC 662.

684 *Advanced Ruminant Nutrition.* (3) II
Introduction to principles of ruminant metabolism in the utilization of feedstuffs for meat, milk and wool production. Lecture, three hours. Prereq: One course each in nutrition, physiology and biochemistry, and/or consent of instructor. Jacobson and Mitchell. Same as ASC 684.

768 *Residence Credit for Master's Degree.* (0) I, II, S
May be repeated once. *Dairy Science Staff.*

769 *Residence Credit for Ph.D. Degree.* (0) I, II, S
May be repeated indefinitely. *Dairy Science Staff.*

771 *Animal Industry Seminar.* (1) I, II
May be repeated twice for a total of 3 credits. Same as ASC 771 and Poultry Science 771. *Dairy Science Staff.*

781 *Special Problems in Dairying.* (1-3) I, II, S
May be repeated to a maximum of twelve credits. Prereq: Consent of instructor. *Dairy Science Staff.*

795 *Research in Dairying.* (3) I, II, S
Problems involving original investigation in either dairy production or dairy manufacturing. May be repeated for a total of 12 credits. *Dairy Science Staff.*

FORESTRY

FACULTY

Professor: Oscar Malcolm Davenport (M.S., Purdue, 1940), Acting Chairman.

100 *Elements of Forestry.* (3) I
A brief coverage of the general fields of forestry; development and importance; tree growth; principal forest regions and important timber species; forest management practices, utilization and products; state and federal forestry programs. Lectures, three hours. *Davenport.*

104 *Farm Forestry.* (3) I, II
The principles of forestry as applied to farm woodlands. Important trees of Kentucky. Tree structure and physiology. Reproduction, management and protection of farm woodlands. Measuring and utilization of wood products. Lectures, two hours; lab, two hours. *Davenport.*

105 *Laboratory for Forestry 104.*

200 *Seeding and Planting.* (3) II
Artificial regeneration for forest stands; fundamentals of forestry nursery practice; planting techniques and methods. Lectures, two hours; lab, two hours. Prereq: FOR 100 or 104. *Davenport.*

201 *Laboratory for Forestry 200.*

300 *Elements of Forest Mensuration.* (3) I
The theory and application of measurements of logs, trees, and stands of timber. Lectures, two hours; lab, two hours. Prereq: FOR 100 or 104; MA 112; or approval of instructor. *Davenport.*

301 *Laboratory for Forestry 300.*

400 *Wood Identification and Technology.* (3) I
General anatomy of wood, identification of commercial species of the United States based on gross and miscroscopic features. Properties and uses. Lectures, two hours; lab, two hours. Prereq: FOR 100 or 104; BOT 101; and approval of instructor. *Davenport.*

401 *Laboratory for Forestry 400.*

410 *Lumber and Other Forest Products.* (3) II
The production, processing and merchandizing of lumber. *Davenport.*

415 *Wood Conditioning.* (3) I, S
The methods and principles involved in seasoning, changes in physical properties, and preservation of wood. Prereq: FOR 100 or 104. *Davenport.*

780 *Special Problems in Forestry.* (1-4) I, II, S
This course is designed to meet the need for advanced work. Prereq: FOR 400 and 415, and approval of instructor. May be repeated twice for a total of 9 credits. *Davenport.*

HORTICULTURE

FACULTY

Professors: Hubert Charles Mohr (Ph.D., Texas A.&M., 1955), Chairman. Clair Smith Waltman (Ph.D., Michigan State, 1941). *Associate Professors:* Carl Edward Chaplin (M.S., Illinois, 1948), Donald James Cotter (Ph.D., Cornell, 1956), James Watt Herron (Ph.D., Cornell, 1951), James Durrett Kelley (Ph.D., Michigan State, 1957), Dudley Carl Martin (Ph.D., Michigan State, 1954). *Assistant Professors:* Jan W. Abernathie (Ph.D., Illinois, 1959), Lindsay D. Brown (Ph.D. Mich. State, 1962), Dean Edgar Knavel (Ph.D., Michigan State, 1959). *Instructor:* Jack W. Buxton (M.S., Illinois, 1963).

100 *General Horticulture.* (3) I, II
A study of the principles and practices basic to the production of fruit, flowers, and vegetable crops. Lectures, three hours. *Waltman.*

101 *Elementary Landscape.* (2) II
The elementary principles of landscape as applied to the planting of urban home grounds and farmsteads. Lectures, two hours. Offered 1963-64 and alternate years. *Abernathie.*

102 *Elementary Floriculture.* (2) II
The elementary principles of growing flowers and decorative plants, as house plants, and outdoor culture. Lectures, two hours. Offered 1962-63 and alternate years. *Abernathie.*

329 *Ornamental Plants.* (2) II
A detailed study of evergreen and deciduous plants, their identification, hardiness, growth habit, size, culture, adaptation to environmental conditions, uses, and outstanding horticultural characteristics. Lectures, one hour; lab, two hours. Prereq: HOR 100, 150, BOT 101, 102, and approval of instructor. Offered 1964-65 and alternate years.

330 *Laboratory for Horticulture 329.*

395 *Special Problems in Pomology.* (1-4) I, II, S
This course is designed to meet the need for advanced work. May be repeated for a total of nine credits. Prereq: HOR 100 and one of the following: 502, or 504.

396 *Special Problems in Vegetable Crops.* (1-4) I, II, S
This course is designed to meet the need for advanced work. Prereq: HOR 100, 510, and approval of instructor. May be repeated twice for a total of 9 credits.

397 *Special Problems in Ornamental Horticulture.* (1-4) I, II, S
This course is designed to meet the need for advanced work. Prereq: HOR 100, 520, 522; BOT 101, 103; and approval of instructor. May be repeated for a total of 12 credits. *Abernathie & Kelley.*

500 *Principles of Spray Practice.* (2) I
A study of the principles and practice of spraying for the control of pests of horticultural crops including insects, diseases and weeds. Lecture, one hour; lab, two hours. Prereq: HOR 100, CHE 102, AGE 100. *Waltman.*

501 *Laboratory for Horticulture 500.*

502 *Pomology: Deciduous Tree Fruits.* (3) I
A course dealing with the theory and practice of commercial tree fruit production, with major emphasis on apple growing. Lectures, two hours; lab, two hours. Prereq: HOR 100. *Waltman.*

503 *Laboratory for Horticulture 502.*

504 *Pomology: Small Fruits.* (2) II
A detailed study of the care and management of commercial plantings of strawberries, raspberries, and other bush fruits. Lectures, one hour; lab, two hours, first half; lectures, two hours, last half. Prereq: HOR 100. *Waltman.*

505 *Laboratory for Horticulture 504.*

510 *The Principles of Vegetable Gardening.* (3) I
A study of the fundamental principles underlying commercial production of vegetables. Lectures, two hours; lab, two hours. Prereq: HOR 100, AGR 266. *Knavel.*

511 *Laboratory for Horticulture 510.*

512 *Growing Vegetable Plants Under Glass.* (3) II
Production of vegetable plants grown for transplanting; types of hotbeds, cold frames, and simple greenhouse structures. Lectures, two hours; lab, two hours. Prereq: HOR 510. *Knavel.*

513 *Laboratory for Horticulture 512.*

520 *Landscape Gardening.* (3) I
The adaptation of principles of landscape architecture; coordination of buildings with surroundings; identification and uses of decorative materials and their requirements. For ornamental majors. Lectures, two hours; lab, two hours. Prereq: HOR 100, 101, BOT 101, 103. Offered 1964-65 and alternate years. *Abernathie.*

521 *Laboratory for Horticulture 520.*

522 *Advanced Landscape.* (3) II
A continuation of Horticulture 520, with special emphasis on design and use of materials. For ornamental majors. Lectures, two hours; lab, two hours. Prereq: 520. Offered 1964-65 and alternate years. *Abernathie.*

523 *Laboratory for Horticulture 522.*

524 *Floriculture.* (2) I
A detailed study of specific groups of flowers such as bulbs, iris, and roses. Lectures, two hours. For ornamental majors. Prereq: HOR 102. Offered 1963-64 and alternate years. *Abernathie.*

525 *Plant Propagation.* (3) I
A detailed study of the methods of propagating certain horticultural plants. Includes cuttings, grafting, and budding. Lectures, two hours; lab, two hours. Prereq: HOR 100, 520; BOT 101, 103. Offered 1963-64 and alternate years. *Kelley.*

526 *Laboratory for Horticulture 525.*

527 *Plants and Planting Materials.* (2) I
A detailed study of evergreen and deciduous plants, their identification, size, shape, effects produced, the conditions required for their use and suitability for landscape uses. Lecture, one hour; lab, two hours. For ornamental majors. Prereq: HOR 520 or approval of instructor. Offered 1964-65 and alternate years. *Kelley.*

528 *Laboratory for Horticulture 527.*

768 *Residence Credit for Master's Degree.* (0) I, II, S
May be repeated once. *Staff.*

770 *Seminar.* (1) I, II, S
May be repeated twice for a total of 3 credits. *Staff.*

780 *Special Problems in Pomology.* (3) I
This course is designed to meet the need for advanced work. Prereq: HOR 100 and one of the following: 502 or 504. May be repeated twice for a total of 9 credits.

781 *Special Problems in Vegetable Crops.* (1-4) I, II, S
This course is designed to meet the need for advanced work. Prereq: HOR 100, 510, and approval of instructor.
May be repeated twice for a total of nine credits.

782 *Special Problems in Ornamental Horticulture.* (1-4) I, II, S
This course is designed to meet the need for advanced work. Prereq: HOR 100, 520, 522; BOT 101, 103; and approval of instructor. May be repeated for a total of 12 credits. *Abernathie & Kelley.*

790 *Research in Horticulture.* (1-4) I, II, S
Prereq: Approval of instructors. May be repeated twice for a total of 9 credits. *Staff.*

PLANT PATHOLOGY

FACULTY

Professors: Richard Alexander Chapman (Ph.D., Illinois, 1948), CHAIRMAN. Stephen Diachun (Ph.D., Illinois, 1938), Edward Marshall Johnson (Ph.D., Minnesota, 1930), John Wieland Oswald (Ph.D., California, 1942), Granville Woolman Stokes (Ph.D., Wisconsin, 1953). *Associate Professor:* Lawrence Henson (M.S., Kentucky, 1933). *Assistant Professors:* Raymond Earl Hampton (Ph.D., Wisconsin, 1960), Columbus Christopher Litton (M.S., Kentucky, 1953), Richard Allyn Reinert (Ph.D., Wisconsin, 1962).

COURSES IN PLANT PATHOLOGY

397 *Special Problems in Plant Pathology.* (1-4) I, II, S
Prereq: Consent of instructor. May be repeated to a maximum of 9 credits. *Staff.*

541 *Plant Pathology.* (3) I, II
Significance, nature, causes, and methods of control of plant diseases. Lectures and discussion, two hours; lab, two hours. Same as BOT 541, Plant Pathology. Prereq: BOT 101. Consent of instructor. *Diachun, Chapman.*

542 *Laboratory for 541.*

543 *Diseases of Plants.* (3) II
Symptoms, causes, and control of some of the more common representative plant diseases. Students may select problems in their major field of interest. Discussion, one hour; lab, four hours. Prereq: PPA 541 or BOT 541, and consent of instructor. *Staff.*

544 *Laboratory for 543.*

656 *Virus Diseases of Plants.* (4) II
Characteristics and properties of viruses that cause plant diseases; host-virus relationships; identification and control of some important virus diseases; consideration of research methods. Lecture and discussion, two hours; lab, four hours. Prereq: PPA 541 or BOT 541, and consent of instructor. *Diachun.*

657 *Laboratory for 656.*

658 *Nematode Diseases of Plants.* (3) I
The importance, effects, recognition and control of nematodes that cause plant diseases; physiology of plant parasitic nematodes and their relations with other nematodes and plant pathogens. Lecture, 1 hour, lab, 4 hours. Prereq: PPA 541 or BOT 541 or ZOO 534, or consent of instructor. Will be offered in fall of odd numbered years. *Chapman.*

660 *Physiology of Plant Diseases.* (3) II
Physiological aspects of plant diseases including effects of pathogenic organisms on plant metabolism; host parasite interactions; and mechanisms of disease resistance. Laboratory work emphasizes methods used in investigating the physiological effects of diseases on plants. Discussion 2 hours; lab 2 hours. Prereq: PPA 541, BOT 501, or consent of instructor. *Hampton.*

661 *Laboratory for 660.*

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once. *Staff.*

769 *Residence Credit for the Doctor's Degree in Biological Sciences.*
1-18 weeks residence. May be repeated indefinitely. *Staff.*

770 *Plant Pathology Seminar.* (1) I, II
Reports and discussions of problems and investigations of problems in Plant Pathology. May be repeated three times. *Staff.*

784 *Special Problems in Plant Pathology.* (1 to 3) I, II, S
May be repeated to a maximum of nine credits. Prereq: PPA 541 or BOT 541, and consent of instructor. *Staff.*

794 *Research in Plant Pathology.* (1-4) I, II, S
Prereq: PPA 541 or BOT 541, and consent of instructor. May be repeated to a maximum of 12 credits. *Staff.*

POULTRY SCIENCE

FACULTY

Professors: Wyatt Marion Insko (M.S., West Virginia, 1927), CHAIRMAN; Donald Wayne MacLaury (Ph.D., Iowa State, 1955). *Associate Professors:* Okra Jones Abbott (Ph.D., Wisconsin, 1956), John J. Begin (Ph.D., Pennsylvania State, 1960). *Assistant Professor:* John Carlisle White (M.S., Kentucky, 1953). *Assistant in Poultry:* Thomas H. Johnson (B.S., Kentucky, 1948).

140 *Fundamentals of Poultry Science.* (3) I, II
The elementary principles of poultry science, including breeds and development, anatomy and physiology, incubation and embryology, breeding and genetics, environment and housing, feeding and nutrition, disease control and pathology, and market technology. Lecture, two hours; lab and demonstration, two hours. *Begin.*

141 *Laboratory for Poultry Science 140.*

242 *Poultry Judging.* (3) II
Selection of breeding stock as a basis for flock improvement, including breed type and production values. Lecture, one hour; lab, four hours. Prereq: PTY 140. *Johnson.*

243 *Laboratory for Poultry Science 242.*

342 *Advanced Poultry Judging.* (3) I
Primarily for judging team candidates. Open only to those who have made good standing in the prerequisite courses. Lecture, one hour; lab, four hours. Prereq: PTY 140, 242. *Johnson.*

343 *Laboratory for Poultry Science 242.*

346 *Hatchery Management.* (3) II
Principles involved in operating incubators and brooders; hatchery operation and management; factors influencing the avian embryo; operation of commercial incubators. Lecture, two hours; lab, two hours. Prereq: PTY 140 and approval of instructor. *MacLaury.*

347 *Laboratory for Poultry Science 346.*

397 *Special Problems in Poultry.* (1-4)
Approval of instructor required. May be repeated twice for a total of 9 credits. *Staff.*

540 *Poultry Breeding.* (3) I
Genetic principles involved in poultry breeding; disease resistance; inheritance of egg production and related characters; development of breeding programs. Lecture, three hours. Prereq: PTY 140, ASC 260.

542 *Advanced Poultry Production.* (3) I
Studies of control measures in poultry diseases, nutrition, marketing; flock management and replacement. Lecture, two hours; lab and dem., two hours. Prereq: PTY 140. *Abbott.*

548 *Poultry Nutrition.* (3) II
A study of nutrients, feed ingredients, deficiencies, formulation, and feeding practices for broilers, replacement stock, and layers. Lecture, two hours; lab, two hours. Prereq: CHE 236 or equivalent and PTY 140 and ASC 580. *Begin.*

549 *Laboratory for Poultry Science 548.*

768 *Residence Credit for Master's Degree.* (0) I, II, S
May be repeated once. *Staff.*

771 *Animal Industry Seminar.* (1) I, II
May be repeated twice for a maximum of three credits. Co-listed DS 771 and ASC 771.

782 *Special Problems in Poultry.* (1-3) I, II, S
Prereq: Permission of instructor. May be repeated to a maximum of 9 credits.

796 *Research in Poultry.* (1-3) I, II, S
Problems involving original investigation. May be repeated twice for a total of 9 credits. Prereq: Consent of instructor. *Staff.*

RURAL SOCIOLOGY

(See also Sociology Department courses, College of Arts and Sciences)

FACULTY

Professors: A. Lee Coleman (Ph.D., Cornell, 1950), CHAIRMAN. Howard Wayland Beers (Ph.D., Cornell, 1935), Distinguished Professor, on indefinite leave; Thomas Robert Ford (Ph.D., Vanderbilt, 1951). *Associate Professors:* James Stephen Brown (Ph.D., Harvard, 1950), Charles Milton Coughenour (Ph.D., Missouri, 1953), Frank Anthony Santopolo (Ph.D., Fordham, 1956), E. Grant Youmans (Ph.D., Michigan State, 1953). *Assistant Professors:* George A. Hillery, Jr. (Ph.D., Louisiana State, 1954), Joseph Joseph Mangalam (Ph.D., Cornell, 1957), Harry Karl Schwarzweller (Ph.D., Cornell, 1958).

156 *Introduction to Rural Sociology.* (3) I, II
Agriculture and culture; family, church, school, government, and trade in rural life; the person in relation to rural neighborhoods, communities, groups, and agencies; cooperation and conflict; recreation, health, and social welfare. *Mangalam.*

513 *Rural Community Analysis.* (3) I
The nature of the town-country community, with special emphasis on the function of institutional and agency programs and their leaders in relation to the community. Same course as HE 575. *Ford.*

514 *Rural Movements and Social Policy.* (3) I
Social factors in selected rural movements, their organization and development, influence upon governmental policy, and the social needs met. Prereq: An introductory course or consent of instructor. *Brown.*

517 *Advanced Rural Sociology.* (3) II
Systematic study of the structure and function of family, informal and locality groups, social strata, religious, educational, political, and occupational groups in rural society. *Brown.*

541 *Group Organization and Leadership.* (3) II, S
A study of the dynamics of organized groups; leadership, membership participation and program planning in agricultural organization and other organized rural groups. Prereq: An introductory course or consent of instructor. *Coughenour.*

565 *Special Problems in Rural Life.* (1-3) I, II
Supervised individual study in selected sub-fields of rural sociology, population, standards of living, neighborhood and community change, and rural institutions are among the available fields for investigation. May be repeated twice for a total of 6 credits. *Staff.*

615 *Rural Urban Relations.* (3) II
Interdependence of city and country; solidarity and antagonistic relationships of city and country; the process of urbanization; problems of rural adjustment to urban influence.

768 *Residence Credit for the Master's Degree.*
(1 to 9 wks. residence)
May be repeated once. *Staff.*

773 *Topical Seminar.* (3) I, II
Analysis of topics of scientific interest in rural sociology, selected from such fields as the following: criticism of research; sociological factors in land use; migration; rural social ecology of the South; highland societies. May be repeated once for a maximum of 6 credits. *Staff.*

776 *Seminar in Rural Organization.* (3) I
Basic theories of social organization, comparative study of selected systems of rural social organization; examples of purposeful organization.

778 *Seminar in Rural Attitudes.* (3) II
The nature and genesis of rural attitudes and their relation to rural social control; analysis of contemporary rural attitudes and opinions.

790 *Research in Rural Sociology.* (1-3) I, II, S
Individual graduate research with correlated study of rural social research types and methods. May be repeated twice for a total of 6 credits. *Staff.*

VETERINARY SCIENCE

FACULTY

Professors: J. H. Drudge (D.V.M., Michigan State, 1943, Sc.D., Johns Hopkins, 1950), ACTING CHAIRMAN. John T. Bryans (Ph.D., Cornell, 1954), E. R. Doll (D.V.M., Michigan State, 1943), W. H. McCollum (Ph.D., Wisconsin, 1954), J. R. Rooney (D.V.M., Cornell, 1952). *Associate Professor:* H. D. Stowe (D.V.M., Michigan State, 1960, Ph.D., Michigan State, 1962). *Assistant Professors:* E. T. Lyons (Ph.D., Colorado State, 1963), J. C. Wilson (M.S., Kentucky, 1950). *Lecturer:* M. W. Crowe (D.V.M., Auburn, 1957).

251 *Animal Hygiene.* (3) I, II
Animal Hygiene includes feed, water, housing, ventilation, yards, pastures, sanitation, and environment. All are part of the many problems to be considered in a program of animal health. Lecture, three hours.

395 *Special Problems in Animal Pathology.* (3) I, II
Prereq: APY 251, 501, 502, and approval of instructor. May be repeated once for a total of 6 credits.

501 *Anatomy and Physiology of Domestic Animals.* (3) I
A study of anatomy and physiology as related to courses in livestock judging, nutrition, butchering, breeding, and infectious diseases. Lecture, three hours.

502 *Infectious Diseases of Domestic Animals.* (3) II, S
Distribution, general nature, manner of dissemination, methods of control, prevention, and eradication of infectious and parasitic diseases of animals. Lecture, three hours. Prereq: APY 251, or approval of instructor.

768 *Residence Credit for Master's Degree.* (0)

780 *Investigations in Animal Diseases.* (3) I, II
This course is open only to persons who have degrees in veterinary medicine. May be repeated once for a total of 6 credits.

SCHOOL OF HOME ECONOMICS

FACULTY

Professor: Abby Lindsey Marlatt (Ph.D., California, 1947). *Associate Professors:* Annie Richmond Brownlie (M.S., Columbia, 1948), Anne McAdams Clemmons (M.S., Kentucky, 1949), ACTING DIRECTOR. *Assistant Professors:* Mildred Harris Botsford (M.S., Oregon State, 1950), Ruth Boyden (M.A., California, 1924), Lois Blanch Combs (M.S., Tennessee, 1954), A. Kathrine Kidd (M.A., Columbia, 1938), Agnes Lucille Magruder (M.S., Iowa State, 1928), Jessie Wilson Ringo (M.A., Kentucky, 1954), Gertrude Marie Skerski (M.S., California, 1953),Roberta Seat Taylor (M.A., Kentucky, 1941), Claudia Ellis Wells (M.S., Alabama, 1933), Mildred Read Wightman (M.S., Illinois, 1940, M.S., Kentucky, 1956), Helen Mildred Wilmore (M.S., Kansas State, 1937). *Instructors:* Susan Anne Kelley (M.S., Illinois, 1959), Norma June Perry (B.A., Aurora, 1944).

Requirements for Graduation in Home Economics

To receive the degree Bachelor of Science in Home Economics a student is required to gain a total of 136 semester credits and 272 points. These represent the minimum requirements for graduation. There are seven curricula in home economics and a student who completes the requirements of any one of these qualifies for the degree. In all cases the student is responsible for meeting requirements for graduation.

Home Economics offers education for home and family living in a contemporary society. It includes liberalizing courses in the arts, humanities, and sciences as well as technical education in the subject matter of the profession. The student in home economics receives the type of education which gives an understanding of citizenship in a community and responsibility in the family. Home economics also provides education for some of the professions that deal with the home and family living. To that end, curricula are planned to serve as guides for major emphasis in specialized fields of work.

HOME ECONOMICS

Faculty advisors are appointed by the Director of the School of Home Economics to assist students with their academic problems. These include choice of a curriculum, selection of elective courses, preparation of class schedules, and problems of employment. The normal academic load is 17 credits per semester.

Transfer students are required to take a minimum of 18 credits of Home Economics in the University.

CURRICULA & MAJORS IN HOME ECONOMICS

In addition to the general curriculum, provision is made for majors in the following fields: (1) Child Development and Family Living: (2) Clothing, Costume Design, Textiles, and Interior Design; (3) Food and Equipment Demonstration; (4) Home Economics Extension; (5) Institution Management; and (6) Vocational Home Economics (teaching).

The electives should be chosen in accordance with a definite plan, and students should consult with their advisors concerning both Home Economics electives and general electives. The courses from which Home Economics electives are to be chosen appear under each major field.

Changes in a curriculum to meet specific needs may be made if approved in accordance with rules of the University Faculty. A student with a special interest not included in the six major fields may remain in the general curriculum and, in conference with her advisor, select appropriate groups of elective courses. Such special interests include community nutrition, and preparation for graduate study and research in foods and nutrition.

GENERAL CURRICULUM IN HOME ECONOMICS

The general curriculum constitutes a core curriculum, and courses listed are required in all curricula.

General Education		42
Freshman and Sophomore Years		
Communications and Humanities		13
ART 105—Forms of Art	2	
ART 130—Basic Design or		
HUM 203—Art: The Renaissance to the Present	2	
**ENG 101, 102—Freshman Composition	6	
ENG 181—Basic Public Speaking or		
JOU 201—Etymology or		
JOU 203—Principles of News Writing	3	
Physical Sciences		11 or (12)
*CHE 102,104—General Chemistry for Students in Agr. & Home Economics	8	
PHY 151 or 152—Introduction to Physics or	3	
*PHY 281—General Physics for Students in Agr. & H.E.	(4)	
Biological Sciences		7
PGY 206—Elementary Physiology	3	
PSY 100—Introduction to Psychology	4	
Social Sciences		9
ECO 251—Principles of Economics	3	
History or Political Science elective	3	
RS 156—Introduction to Rural Sociology or		
SOC 151—Introduction to Sociology or		
SOC 153 or 154—Societies Around the World	3	
Physical Education		2
Home Economics		43
Freshman and Sophomore Years		
HE 100—Introduction to Home Economics	1	
HE 104—Foods	4	
HE 106—Foods	3	
HE 120—Textiles	2	
HE 151—Health of the Family	3	
HE 153—Marriage and Family Relationships	3	
HE 224—Clothing Selection & Costume Design	3	
HE 255—Child Development	3	
HE 261—Housing	4	
Junior and Senior Years		
HE 211—Foods and Nutrition	3	
HE 330—Interior Design	3	
HE 402—Dietetics	3	
HE 561—Consumer Problems	3	
HE 562,563—Home Management & Family Relations	5	
Electives		51
Home Economics Courses	17	
General Education Courses	34	
Total required for graduation		136

General Electives are to be chosen with assistance of the student's advisor. The following areas are recommended.

Agricultural Extension	Library Science
Anthropology	Microbiology
Art	Modern Foreign Languages and Literatures
Chemistry	Physical Education
Commerce	Psychology
Education	Radio, Television and Films
English	Sociology
History	Zoology
Horticulture	
Journalism	

CURRICULUM IN CHILD DEVELOPMENT AND FAMILY LIVING

This curriculum prepares a student for homemaking, nursery school teaching fellowships, or future specialization in the field of child development and family living.

	Crs.
Core courses (see general curriculum)	85
Home Economics electives (starred courses are required)	17
HE 254—Psychology of the Child	3
*HE 350—Child Guidance	3
HE 395—Guiding Children's Routines	3
HE 529—The Child and His Clothing	3
HE 555—Play and Play Materials	2
HE 557—Infant Development	2
HE 516—Food for Children	3

* Students deficient in mathematics, as indicated by the freshman tests, are required to pass MA 111 with a grade of C before taking Chemistry. Students interested in foods and nutrition research or college teaching should enroll in MA 111 and CHE 110 during the first semester of the freshman year.

** The requirement in whole or in part for ENG 101, 102 may be satisfied without credit by passing a departmental proficiency examination.

HE 595—Special Problems in Child Development and Family Living	5
*HE 396—Supervised Nursery School Participation	3
HE 552—Nursery School Organization	3
HE 553—The Child in His Family	3
General electives	34
Total	136

CURRICULUM IN CLOTHING, COSTUME DESIGN, TEXTILES, AND INTERIOR DESIGN

This curriculum is planned for students who are interested in professional or business careers in clothing retailing, interior design, textiles and clothing research, fashion consulting and writing as well as in the teaching of clothing.

	Crs.
Core courses (see general curriculum)	85
Home Economics electives (starred courses are required for clothing majors)	17
*HE 227—Clothing Construction	4
*HE 328—Clothing and Pattern Designing	3
*HE 520—Advanced Textiles	2
HE 524—Costume Design	3
*HE 526—Advanced Clothing	3
HE 536—Interior Decoration Projects	2
HE 523—Fashion	2
*HE 522—Economics of Clothing	2
HE 534—Decorative Textiles	2
HE 528—Tailoring	2
HE 530—Advanced Interior Design	2
HE 529—The Child and His Clothing	3
HE 537—History of Furniture	3
HE 592—Special Problems	2
HE 597—Special Problems	2
HE 593—Special Problems in Interior Design	2
General electives	34
Total	136

CURRICULUM IN FOOD AND EQUIPMENT DEMONSTRATION

This curriculum prepares the student for commercial demonstration position or for experimental work in foods and equipment.

	Crs.
Core courses (see general curriculum)	85
Home Economics electives (starred courses are required)	17
*HE 568—Household Equipment	3
*HE 505—Experimental Cookery	3
HE 517—Foods for Special Occasions	3
*HE 368—Demonstration Techniques	3
HE 514—Food Preservation	3
HE 503—Community Nutrition	3
HE 240—Institution Marketing	3
HE 242—Institution Foods	4
General electives	34
Total	136

CURRICULUM IN HOME ECONOMICS EXTENSION

This curriculum is offered for those students who wish to enter Home Economics Extension as home demonstration agents.

	Crs.
Core Courses (see general curriculum)	85
Home Economics Electives	17
HE 227—Clothing Construction	4
HE 328—Clothing and Pattern Designing	3
HE 505—Experimental Cookery	3
HE 514—Food Preservation	3
HE 536—Interior Decoration Projects	2
HE 528—Tailoring	2
HE 530—Advanced Interior Design	2
*HE 350—Child Guidance	3
HE 368—Demonstration Techniques	3
HE 503—Community Nutrition	3
HE 517—Food for Special Occasions	3
HE 520—Advanced Textiles	2
HE 522—Economics of Clothing	2
HE 537—History of Furniture	3
HE 540—The School Lunch	3
HE 553—The Child in His Family	3
HE 568—Household Equipment	3
General electives	34
Total	136

CURRICULUM IN INSTITUTION MANAGEMENT

This curriculum is planned to meet requirements of the American Dietetic Association for internships in hospital or administrative dietetics.

	Crs.
Core courses (see general curriculum)	85
Home Economics electives	22
HE 240—Institution Marketing	3
HE 242—Institution Foods	4
HE 510—Advanced Nutrition	4
HE 512—Nutrition in Disease	2
HE 546—Institution Organization & Management	3
HE 543—Institution Equipment	3
HE 344—Food Service Accounting	3
Additional courses in foods, nutrition or institution management may be added if desired.	
General electives	29
MB 200—Principles of Bacteriology	4
CHE 236—Organic Chemistry	4
EDU 202—Human Development and the Curriculum or	4
EDU 548—Educational Psychology	(3)
PSY 540—Introduction to Industrial Psychology or	
PSY 541—Psychology of Industrial Personnel Procedure	3
Total	136

CURRICULUM IN VOCATIONAL HOME ECONOMICS

This curriculum meets requirements for a provisional high school certificate in vocational home economics.

	Crs.
Core courses (see general curriculum)	85
Home Economics electives	17
HE 227—Clothing Construction	4
HE 328—Clothing and Pattern Design	3
HE 350—Child Guidance	3
HE 536—Interior Design Projects or	2

HE 568—Household Equipment	(3)
Additional courses to total 17 credits.	
General electives	15
Literature	3
Humanities	2
Biological Science	4
Social Science	3
Free elective	3
Professional Electives	18 or 19
EDU 202—Human Growth and the Curriculum	4
EDU 586—Techniques of Teaching Home Economics	3
EDU 362—Student Teaching in Home Economics	9
EDU 588—Adult Education in Home Economics	3
Total required for graduation	136

Graduate Work

The School of Home Economics offers graduate work leading to the degree of Master of Science in Home Economics.

Foods and Nutrition

101 *Principles of Nutrition.* (3) S
A non-technical course on the essentials of adequate diet for optimum health and on food plans to fit physiological and environmental factors. Lecture and discussion, three hours. Not open to home economics majors. *Taylor.*

102 *Nutrition and Public Health.* (2) S
Nutrition as it affects social and family problems in the field of public health. Consideration is given to family food budgets on different economic levels. Lecture, one hour; lab, two hours. *Clemmons.*

104 *Foods.* (4) I, II
An introduction to the study of food. The classification and composition of foods and study of methods of preparation and principles involved. Lecture, two hours; lab, four hours. *Staff.*

105 *Laboratory for Home Economics 104.*

106 *Foods.* (3) I, II
Meal planning and service. The selection, purchase and preparation of food. Practice is given in different types of food service. Lecture and lab, six hours. Prereq: HE 104. *Staff.*

107 *Laboratory for Home Economics 106.*

211 *Foods and Nutrition.* (3) I, II
Properties and nutritive values of food. Functions of food for maintenance of body processes. Metabolism of food in the body. Lecture, two hours; lab, three hours. Prereq: CHE 104, PGY 206. *Skerski.*

212 *Laboratory for Home Economics 211.*

401 *Principles of Nutrition.* (3) I, II, S
Fundamental facts of nutrition presented as basis for planning adequate diets for people of different ages, activities and needs and at different income levels. Practical aspects are emphasized. Lecture and discussion, three hours. Not open to home economics majors. *Clemmons.*

402 *Dietetics.* (3) I, II, S
Daily food requirements at different age levels and different economic levels. Practice is given in setting up normal dietaries for individuals, families, and other groups. Lecture, two hours; lab, two hours. Prereq: HE 106, 211. *Taylor.*

403 *Laboratory for Home Economics 402.*

503 *Community Nutrition.* (3) I, II, S
Study of nutrition education programs on a community level. Experience is provided for presenting nutrition in health clinics, schools and state institutions. Lectures, 2 hours; lab, 2 hours. Prereq. or concurrent: HE 402. May be repeated once for a total of six credits. *Clemmons.*

504 *Laboratory for Home Economics 503.*

505 *Experimental Cookery.* (3) II, S
Study of factors that affect results obtained in cooking and food preparation processes. Experimental work under controlled conditions. Lecture, one hour; lab, four hours. Prereq: HE 104, 211. *Brownlie.*

506 *Laboratory for Home Economics 505.*

507 *Workshop in Applied Nutrition.* (2)
The application of scientific knowledge of nutrition to the promotion of positive health. Emphasis is given to communications techniques and their use in field work. *Clemmons.*

508 *Seminar in Nutrition.* (1) I, II, S
Investigations of recent research in nutrition. Prereq: Senior or graduate standing. May be repeated twice for a total of three credits. *Marlatt.*

510 *Advanced Nutrition.* (4) I
Application of biochemistry to understanding of the utilization of nutrients for body processes. Laboratory work includes analysis of digestive juices, blood, and urine; balance experiments. Lecture, two hours; lab, six hours. Prereq: HE 402, CHE 236 or approval of instructor. *Marlatt and Skerski.*

511 *Laboratory for Home Economics 510.*

512 *Nutrition in Disease.* (2) II
Metabolic processes of the body in normal and diseased conditions correlating the metabolic changes due to disease with diet therapy. Lecture, one hour; lab, two hours. Prereq. or concurrent: HE 510, 402. *Marlatt.*

513 *Laboratory for Home Economics 512.*

514 *Food Preservation.* (3) I, S
Principles of home food preservation. Canning, dehydration, and freezing of fruits, vegetables and meats; pickling of fruits and vegetables; making of jams, jellies and preserves; brining. Lecture, two hours; lab, two hours. Prereq: MB 200, HE 104.

515 *Laboratory for Home Economics 514.*

516 *Food for Children.* (3) II, S
Experience in selection, preparation and serving of food to your children. Emphasis is placed on the pre-school age and the factors important in establishing good food habits. Prereq: HE 106, 211, 255. *Staff.*

517 *Food for Special Occasions.* (3) I, S
Advanced work in culinary arts and skills. Preparation of attractive and appetizing dishes to help the homemaker in planning buffet suppers, receptions, picnics, wedding parties, formal meals. Lab, six hours. Prereq: HE 106. *Combs.*

590 *Field Work in Nutrition.* (1) I, II, S
Nutrition problems at different age levels, correlated with surveys and experimental studies to show the relation between diet selection and its physical and mental effects. Lecture and laboratory. May be repeated 3 times for a maximum of 4 credits. Prereq: HE 503, or approval of instructor. *Clemmons.*

591 *Special Problems in Foods and Nutrition.* (1-3) I, II, S
Intensive work on a specific phase of the field. Senior or graduate standing. May be repeated to a maximum of six credits. *Clemmons.*

603 *Advanced Community Nutrition.* (3) I, II, S
Study of nutrition surveys and of bases for judging community nutrition. Emphasis is placed upon economic, geographic, social and educational causes of malnutrition. Experience is given in development of nutrition programs. Prereq: HE 503. May be repeated once for a total of six credits. *Clemmons.*

771 *Seminar in Nutrition.* (2) II, S
May be repeated twice for a total of six hours. *Erikson and Marlatt.*

781 *Special Problems in Foods and Nutrition.* (1-3) I, II, S

Independent advanced work on a specific problem. May be repeated for a total of six credits. *Clemmons, Erikson, and Marlatt.*

CLOTHING, TEXTILES, COSTUME DESIGN, AND INTERIOR DESIGN

120 *Textiles.* (2) I, II

Fundamentals of weaves, fibers, fabrics and finishes. Simple tests for recognizing fabrics, emphasis on practical aspects. Lecture, one hour; lab, two hours.

121 *Laboratory for Home Economics 120.*

224 *Clothing Selection and Costume Design.* (3) I, II

Selection of costume and management of the wardrobe. Clothing costs and values. Designing costumes to meet individual needs. Lecture, one hour; lab, four hours. Prereq: ART 105, HE 120 or approval of instructor. *Kidd.*

225 *Laboratory for Home Economics 224.*

227 *Clothing Construction.* (4) I, II

Basic principles of clothing construction, using commercial patterns with some modification included. Lecture, one hour; lab, six hours. Prereq: HE 120, 224.

228 *Laboratory for Home Economics 227.*

328 *Clothing and Pattern Designing.* (3) I, II, S

Application of design principles to garment. Lecture, one hour; lab, Development of foundation pattern, flat pattern designing, alteration. four hours. Prereq: HE 227. *Botsford.*

329 *Laboratory for Home Economics 328.*

330 *Interior Design.* (3) I, II, S

A study of color, line, texture as used to create effective interiors suited to modern living. Lecture, two hours; lab, two hours. Prereq: HE 224, 261; or for non-majors, approval of instructor. *Kidd.*

331 *Laboratory for Home Economics 330.*

520 *Advanced Textiles.* (2) I, S

Individual semester reports with emphasis on new developments in textile industry. Class project to determine color fastness, tensile strength, and other quality factors, of various types of textiles. Lecture, one hour; lab, two hours. Prereq: HE 120. *Botsford.*

521 *Laboratory for Home Economics 520.*

522 *Economics of Clothing.* (2) I, S

The clothing industry, its influence and economy. Field trips to study mass production; class project; and individual semester reports. Lecture, one hour; lab, two hours. Prereq: HE 227, 561, or approval of instructor. *Botsford.*

523 *Fashion.* (2) II, S

How the fashion world works. Study of French, Italian and American designers who have greatest influence on current trends. Field trips to augment lectures. Lecture, two hours. Prereq: HE 227 or approval of instructor. *Botsford.*

524 *Costume Design.* (3) I, S

The arts of costume today and throughout the past. Costumes are designed to meet today's needs. Lecture, one hour; lab, four hours. Prereq: HE 227, ART 105. *Kidd.*

525 *Laboratory for Home Economics 524.*

526 *Advanced Clothing.* (3) II, S

The making of foundation and creative pattern designs, also creative design through draping, with emphasis on accurate fittings. Lecture, one hour; lab, four hours. Prereq: HE 227. *Botsford.*

527 *Laboratory for Home Economics 526.*

528 *Tailoring.* (2) I, S

Analysis of tailoring technique in the shop and in the home. Tailored garments are planned and constructed. Lab, four hours. Prereq: HE 328. *Botsford.*

529 *The Child and His Clothing.* (3) S

A detailed study of the selection, cost and care of the pre-school child's clothing in relation to his needs. Lectures and occasional field trips. Prereq: HE 255. *Staff.*

530 *Advanced Interior Design.* (2) II, S

The art of interior decoration throughout the past and today. Interiors are planned to meet today's needs. Lecture, one hour; lab, two hours. Prereq: HE 330. *Kidd.*

531 *Laboratory for Home Economics 530.*

534 *Decorative Textiles.* (2) II, S

Survey of techniques used in applying color and design to fabrics. Individual problems, demonstrating techniques, developed. Lecture, one hour; lab, two hours. Prereq: HE 120, ART 105. *Botsford.*

535 *Laboratory for Home Economics 534.*

536 *Interior Decoration Projects.* (2) I, II, S

Selected projects in furnishing the home, including furniture refinishing, upholstering and slip cover making. Costs in terms of time and money are considered. Lab, four hours. Prereq: HE 330, or approval of instructor. *Kidd.*

537 *History of Furniture.* (3) I

Furniture design from antiquity to the present, including effects upon design of social and economic conditions, and uses of historic furnishings in contemporary interiors. Lecture, three hours. Prereq: HE 330, or approval of instructor. *Kidd.*

592 *Special Problems in Clothing and Costume Design.* (1-3) I, II, S

Intensive work on specific phases of the field. Senior or graduate standing. May be repeated for a total of six credits. *Botsford and Kidd.*

593 *Special Problems in Interior Design.* (1-3) I, II, S

Intensive work on specific phases of the field. Senior or graduate standing. May be repeated for a total of six credits. *Kidd.*

597 *Special Problems in Textiles.* (1-3) I, II, S

Intensive work on specific phases of the field. Senior or graduate standing. May be repeated for a total of six credits. *Botsford.*

772 *Seminar in Textiles, Clothing, Costume Design, and Interior Design.* (2) S

Investigation of special textile, clothing, and costume design or interior design problems; lecture, two hours. May be repeated twice for a total of six credits. *Kidd and Botsford.*

782 *Special Problems in Clothing and Costume Design.* (1-3) I, II, S

Independent advanced work on a specific problem. May be repeated for a total of six credits. *Botsford and Kidd.*

783 *Special Problems in Interior Design.* (1-3) I, II, S

Independent advanced work on a specific problem. May be repeated for a total of six credits. *Kidd.*

787 *Special Problems in Textiles.* (1-3) I, II, S

Independent advanced work on a specific problem. May be repeated for a total of six credits. Concur: HE 528. *Botsford.*

INSTITUTION MANAGEMENT

240 *Institution Marketing.* (3) II

Economics of food and supplies for institutions. Factors that influence selection and purchase. Field trips to wholesale houses, distribution centers and food production plants. Lecture, two hours; lab, two hours. Prereq: ECO 251. *Brownlie.*

241 *Laboratory for Home Economics 240.*

242 *Institution Foods.* (4) I

Large quantity food preparation and service. Using modern equipment in preparation of large quantities of food. Food cost accounting, job analysis, and time studies. Lecture, two hours; lab, four hours Prereq: HE 104. *Brownlie.*

243 *Laboratory for Home Economics 242.*

344 *Food Service Accounting.* (3) I
Application of accounting principles to food service in the cafeteria, lunch room, tea-room, restaurant, residence hall, hospital and other institutions. Lecture, one hour; lab, four hours. Prereq: HE 240; ECO 251. *Brownlie.*

345 *Laboratory for Home Economics 344.*

540 *The School Lunch.* (3) I, II
Designed for teachers who manage the lunch room. Consideration is given to equipment, menus, purchase, storage, preparation and service of food. Lecture, two hours; lab, two hours. Prereq: HE 104, ECO 251. *Brownlie.*

541 *Laboratory for Home Economics 540.*

542 *Institution Equipment.* (3) I
Selection, arrangement, cost and care of equipment; problems of lighting, heating, ventilation and refrigeration. Two field trips are taken to neighboring cities to see equipment in use in institutions. Prereq: HE 242. *Brownlie.*

543 *Laboratory for Home Economics 542.*

546 *Institution Organization and Management.* (3) II
Principles of institution organization, types of institution service, personnel and financial management. Legal aspects of institution management. Personal and professional qualifications of an institution manager. Prereq: HE 240, 242. *Brownlie.*

548 *Institution Administration.* (3) S
Application of scientific principles of institution management. Practical principles are developed in various aspects of food service management. Approval of instructor. May be repeated twice for a total of nine credits. *Brownlie.*

594 *Special Problems in Institution Management.* (1-3) I, II, S
Intensive work on specific problems. Prereq: Senior or graduate standing. May be repeated for a total of six credits. *Brownlie.*

784 *Special Problems in Institution Management.* (1-3) I, II, S
Independent, advanced work. May be repeated for a total of six credits. *Brownlie.*

CHILD DEVELOPMENT AND FAMILY LIVING

151 *Health of the Family.* (3) I, II
Factors that influence family health; agencies and forces to be utilized for health improvement; applications of modern science to family health and prevention of disease; techniques of home nursing. Lecture, three hours. *Magruder and Ringo.*

153 *Marriage and Family Relationship.* (3) I, II, S
Dating, engagement, and factors affecting a successful marriage. Lecture, two hours; discussion lab, two hours. *Magruder and Ringo.*

154 *Laboratory for Home Economics 153.*

156 *Workshop in Child Guidance.* (3) S
Theories and practices of guiding your children in various situations, including study of program, space and equipment, creative material, music and science possibilities for young children. This workshop is planned to meet the educational needs of persons employed during the regular school year in private and church-sponsored schools that enroll children aged two through four years. Non-majors only. *Staff.*

254 *Psychology of the Child.* (3) I, II, S
The development of behavior from birth to maturity. The problems of conduct arising during infancy, childhood, and adolescence in relation to child care and training. Prereq: PSY 100. (Same as Psychology 200.) *Staff.*

255 *Child Development.* (3) I, II
Development of children from birth through primary school years with directed observation of children. Lecture two hours; lab, two hours. *Staff.*

256 *Laboratory for Home Economics 255.*

350 *Child Guidance.* (3) I, II
Theories and practice in guiding children's development both at home and in the nursery school, with participation in nursery school guidance. Lecture, two hours; lab, two hours. Prereq: HE 255. *Newsom and Staff.*

351 *Laboratory for Home Economics 350.*

395 *Guiding Children's Routines.* (3) I, II
Participation in supervised activities such as rest and food service in the nursery school. Lecture, one hour; lab, four hours. Prereq: HE 350. *Staff.*

396 *Supervised Nursery School Participation.* (3) I, II
Experience in teaching a nursery school group. Lecture, one hour; lab, four hours. Prereq: HE 350. May be repeated once for a total of six credits. *Staff.*

397 *Laboratory for Home Economics 396.*

552 *Nursery School Organization.* (3) I, S
Organization and administration, including housing, equipment, program, records, parent cooperation. Field trips to nursery schools. Lecture, three hours. Prereq: HE 350. *Newsom.*

553 *The Child in His Family.* (3) II, S
Preparation and presentation of research reports of studies of family influences on the personality and development of children. Lecture, three hours. Prereq: HE 153, 350 or consent of instructor. *Newsom.*

555 *Play and Play Materials.* (2) II, S
Play activities of young children, relation of play equipment to development, and characteristics of good play materials. Construction of toys suitable for the pre-school child. Lecture, one hour; lab, two hours. Prereq: HE 350. *Staff.*

556 *Laboratory for Home Economics 555.*

557 *Infant Development.* (2) S
Study of development, care and guidance of the child during prenatal, natal and infant periods. Lecture, two hours. Prereq: PGY 206. *Newsom.*

595 *Special Problems in Child Development and Family Living.* (1-3) I, II, S
Intensive work on specific problems. Prereq: Senior or graduate standing. May be repeated for a total of six credits. *Newsom.*

775 *Seminar in Child Development.* (2) I, II, S
Preparation and presentation of reports of current investigations in child development. Prereq: Graduate standing. *Newsom.*

785 *Special Problems in Child Development and Family Living.* (1-3) I, II, S
Independent advanced work. May be repeated for a total of six credits. *Newsom.*

HOME MANAGEMENT

261 *Housing.* (4) I, II
The course deals with social and economic problems of housing American families and problems of house buying and house planning from the standpoint of the consumer. Lecture, four hours.

368 *Demonstration Techniques.* (3) II
Emphasis on planning and presenting food and equipment demonstrations. Lecture, one hour; lab, four hours. Prereq: HE 568.

369 *Laboratory for Home Economics 368.*

561 *Consumer Problems.* (3) I, II, S
Consumer buying, its social and economic aspects. Analysis of problems of manufacturer, merchant, and consumer in order to understand the needs and responsibilities of each group. Lecture, three hours. Prereq: ECO 251, HE 261. *Magruder.*

562 *Home Management and Family Relationships.* (2) I, II
Philosophy and principles of home management. Study of the mechanics of time, energy, and money management; personal development, and social and family relationships. Lecture, two hours. Prereq: ECO 251, HE 261. *Wilmore.*

563 *Home Management and Family Relationships.* (3) I, II, S

A residence period in the Home Management House is required of seniors in home economics. Experience in the application of principles presented in other courses. Prereq: HE 562; Prereq. or concurrent: HE 402. *Wilmore and Combs.*

564 *Laboratory for Home Economics* 563.

568 *Household Equipment.* (3) I, II, S

Electric and gas household equipment and small appliances; their selection, maintenance, operation and cost. Lecture, two hours; lab, two hours. Prereq: HE 261. Prereq. or concurrent: PHY 151, 152, or 281. *Combs.*

569 *Laboratory for Home Economics* 568.

596 *Special Problems in Home Management.* (1-3) I, II

Intensive work on specific phases of home management. Prereq: Senior or graduate standing. May be repeated for a total of six credits. *Wilmore.*

662 *Advanced Home Management and Family Relationships.* (3) II, S

A course affording opportunity for special study of social and economic problems affecting family life. Lecture, three hours. Prereq: HE 563. *Wilmore.*

786 *Special Problems in Home Management.* (1-3) I, II

Independent advanced work. May be repeated twice for a total of six credits. Prereq: Graduate standing. *Wilmore.*

GENERAL HOME ECONOMICS

100 *Introduction to Home Economics.* (1) I

Development and scope of home economics as a profession, its wide variety of career opportunities, with analysis of interests, aptitudes, proficiencies and education related to success in these areas. Lecture, one hour; discussion (optional), one hour. *Staff.*

274 *Home Economics for Men.* (2) I, II

Study in selected areas of home economics dealing with values in personal and family living. *Staff.*

575 *Rural Community Analysis.* (3) I

The nature of the town-country community, with special emphasis on the function of institutional and agency programs and their leaders in relation to the community. Same course as RS 513. *Staff.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S

May be repeated once.


BROCK &

Engineering

The College of Engineering was organized in 1918 by the consolidation of the College of Civil Engineering which was established in 1889, the College of Mechanical and Electrical Engineering established in 1891, and the College of Mining Engineering established in 1901.

The purpose of the College of Engineering is, first, to provide engineering education; second, to promote the development and utilization of the state's resources through organized research and through consultation with industry.

Students receive training in the fundamental and applied sciences in preparation for careers in their chosen branches of engineering. They receive instruction intended to develop a strong professional consciousness and they are encouraged to broaden their education by including courses in the fields of the humanities and social sciences as a part of their elective work.

The College endeavors to keep before its students the latest developments in science with a practical engineering approach to new problems, and promotes engineering research which deals with basic knowledge put to useful purposes. Students are trained to meet the high standards of ethics required of the professional engineer and to appreciate the moral responsibility of the engineer for the effects caused by the uses or misuses of his scientific inventions.

The physical plant consists of Anderson Hall, the Mining, Aeronautical, Highway, and Coal Research Laboratories; laboratories for Agricultural Engineering in the Agricultural Engineering Building, and also a temporary classroom and laboratory building. The College is engaged in a number of research projects, and students interested in such investigations will have ample opportunity to engage in work along the lines of their special fields of interest.

Admission. On entering the College of Engineering, each student must select the curriculum in which he expects to do his major work and register in the appropriate department. In addition to meeting the general requirements for admission to the University, the applicant for admission to the freshman class of the College of Engineering shall include in high school credits one unit of plane geometry and one and one-half units of algebra. It is recommended that the student offer one-half unit in solid geometry; otherwise this subject will be added to the requirements of the freshman year.

Students who have had sufficient mathematics in high school and who score high on the classification test may, by special examination, be excused from College Algebra and Trigonometry and begin their college mathematics with Analytics and Calculus I.

Students whose scores on the University classification tests are in the lower one-fourth, or those lacking in the requirements for mathematics, may enter the College of Engineering. The schedules of such students will be adjusted in accordance with their placement tests as directed by a special orientation committee of the College of Engineering and the Counseling Service.

Courses of Study and Degrees. The College of Engineering offers instruction leading to the following baccalaureate degrees:

Bachelor of Science in Agricultural Engineering
Bachelor of Science in Chemical Engineering
Bachelor of Science in Civil Engineering
Bachelor of Science in Electrical Engineering
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Metallurgical Engineering
Bachelor of Science in Mining Engineering

Options and Electives. In some of the curricula certain options or electives are allowed. All electives must be approved by the chairman of the department in which the student is taking his major work. In general the non-technical electives shall be selected from the following fields:—history, economics, government, literature, sociology, philosophy, psychology, and fine arts.

Co-operative Plan in Engineering. In addition to the regular four year course in Engineering, the co-operative plan is offered to those students in Engineering who have satisfactorily completed the freshman year in the College of Engineering or to those who present the equivalent as transfer students.

Students who can meet the requirements and so desire, may register, pay a suitable fee and enter the program. They will be permitted to alternate on the semester basis between school and work. The summers

Robert Ezekiel Shaver, C.E., is Dean of the College of Engineering.

will be used to the best advantage of the student for either school or work. The student must maintain a satisfactory standing to be continued in the program.

Those completing the Co-operative Plan will receive the bachelor's degree and will also gain valuable experience. The time required will depend upon the extent of the work program.

The University does not guaranteee employment to co-operative students; however, facilities are provided for locating suitable jobs. All jobs must be approved by the co-ordinator of the Co-operative Program. The students will submit to the co-ordinator a written report at the end of each work period.

Requirements for Graduation. To receive the Bachelor of Science degree in any one of the seven branches of engineering a student must meet the following requirements:

(a) Complete a minimum of 130 semester hours, exclusive of the basic work in military science and physical education.

(b) Attain at least a 2.0 over-all standing on all work attempted.

(c) Complete the curriculum of the department in which he is taking his major work.

Graduate Degrees. The College of Engineering offers graduate work leading to the following advanced degrees:

Master of Science in Agricultural Engineering
Master of Science in Civil Engineering
Master of Science in Electrical Engineering
Master of Science in Mechanical Engineering
Master of Science in Metallurgical Engineering
Master of Science in Mining Engineering
Master of Science in Nuclear Engineering
Doctor of Engineering (Physical Metallurgy)

The College of Engineering offers to its own graduates the following professional degrees:

Ch.E. (Chemical Engineer)
C.E. (Civil Engineer)
E.E. (Electrical Engineer)
M.E. (Mechanical Engineer)
Met.E. (Metallurgical Engineer)
E.M. (Mining Engineer)

A student intending to pursue graduate work in another institution should inform himself regarding the requirements for entrance to that particular institution and plan his undergraduate work accordingly.

For further information regarding graduate work, see the graduate school section of this bulletin.

AGRICULTURAL ENGINEERING

The curriculum in Agricultural Engineering is administered jointly by the College of Engineering and the College of Agriculture and Home Economics. The course descriptions are listed under Agriculture and Home Economics.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

Freshman Year

First Semester	Crs.
AEN 001—The Engineering Profession	0
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
CHE 110—General College Chemistry	5
ME 105—Basic Engineering Graphics	2
Military or Aerospace Science (optional)	2
PE—Physical Education	1
	18

Second Semester	Crs.
AEN 002—The Engineering Profession	0
AEN 105—Engineering in Agriculture	3
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General College Chemistry	5
Military or Aerospace Science (optional)	2
PE—Physical Education	1
	18

Sophomore Year

First Semester	Crs.
AEN 003—The Engineering Profession	0
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Lab.	2
CE 100—Plane Surveying	3
Military or Aerospace Science (optional)	2
AGR 206—Principles of Field Crop Production	3
	17

Second Semester	Crs.
AEN 004—The Engineering Profession	0
MA 212—Analytics and Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab.	2
EM 221—Statics	3
Military or Aerospace Science (optional)	2
AGR 266—Soils	4
	18

Junior Year

First Semester	Crs.
AEN 005—The Engineering Profession	0
EM 313—Dynamics	3
EE 305—Electric Circuits and Machinery	3
MA 431—Differential Equations	3
ME 400—Elements of Engineering Thermodynamics	3
ECO 251—Principles of Economics	3
Non-technical Elective	3
	18

Second Semester	Crs.
AEN 006—The Engineering Profession	0
AEN 416—Energy Sources and Machinery for Agriculture	4
CE 352 and CE 351—Fluid Mechanics and Hydraulics Laboratory OR	4
ME 330 and ME 331—Fluid Mechanics and Fluid Mechanics Laboratory	

EM 331—Strength of Materials	3
CE 301—Testing Materials	1
EE 306—Electrical & Electronic Circuits	3
Non-technical Elective	3
	18

Senior Year

First Semester	Crs.
AEN 007—The Engineering Profession	0
AEN 425—Functional Design of Agricultural Structures	4
AEN 445—Agricultural Processing and Electrification	4
AEN 435—Principles of Soil and Water Conservation Engineering	4
Technical Elective	3
Non-technical Elective	3
	18

Second Semester	Crs.
AEN 008—The Engineering Profession	0
AEN 505—Engineering Analysis	3
*AEC 514—Current Farm Management Problems	3
Technical Elective	3
AEN Elective	3
Non-technical Electives	6
	18

* AEC 518 may be substituted.

CHEMICAL ENGINEERING

FACULTY

Professor: Samuel Charles Hite (Ph.D., Purdue, 1951), CHAIRMAN. *Associate Professor:* George Franklin Crewe (Ph.D., West Virginia, 1964). *Assistant Professor:* Noel Edward Moore (Ph.D., Purdue, 1964).

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

Freshman Year

First Semester	Crs.
AS or MS—Aerospace or Military Science (optional)	2
CHE 110, 111—General Chemistry	5
CME 001—The Engineering Profession	0
ENG 101—Freshman Composition	3
ME 105—Basic Engineering Graphics	2
MA 110—College Algebra, Plane Trigonometry	5
PE—Physical Education	1
	18

Second Semester	Crs.
AS or MS—Aerospace or Military Science (optional)	2
CHE 112, 113—General Chemistry	5
CME 002—The Engineering Profession	0
ENG 102—Freshman Composition	3
MA 113—Analytics & Calculus I	4
*Non-technical Elective	3
PE—Physical Education	1
	18

Sophomore Year

First Semester	Crs.
AS or MS—Aerospace or Military Science (optional)	2
CHE 226, 227—Analytical Chemistry	3
CME 003—The Engineering Profession	0
CME 211—Chemical Engineering Calculations	4
MA 211—Analytics & Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Lab	2
	18

Second Semester	Crs.
AS or MS—Aerospace or Military Science (optional)	2
CME 004—The Engineering Profession	0
CME 341—Chemical Engineering Thermodynamics	4
EM 221—Statics	3
MA 212—Analytics & Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab	2
	18

Junior Year

First Semester	Crs.
CHE 430, 431—Organic Chemistry	4
CHE 440—Physical Chemistry	3
CHE 441—Physical Chemistry Lab	2
CME 005—The Engineering Profession	0
CME 421—Unit Operations I	3
EM 331—Strength of Materials	3
*Non-technical Elective	3
	18

Second Semester	Crs.
CHE 432, 433—Organic Chemistry	4
CHE 442—Physical Chemistry	3
CHE 443—Physical Chemistry Lab	2
CME 006—The Engineering Profession	0
CME 422—Unit Operations II	3
MET 301—Engineering Metallurgy	3
*Non-technical Elective	3
	18

Senior Year

First Semester	Crs.
CME 007—The Engineering Profession	0
CME 371—Seminar	1
CME 431—Unit Operations Lab I	2
CME 451—Chemical Engineering Process Design I	3
EE 305—Electrical Circuits & Machinery	3
*Non-technical Elective	3
*Technical Electives	6
	18

Second Semester	Crs.
CME 008—The Engineering Profession	0
CME 372—Seminar	1
CME 452—Chemical Engineering Process Design II	3
EE 306—Electric & Electron Circuits	3
CME 432—Unit Operations Lab. II	2
*Technical Elective, CHE	3
*Technical Elective	3
*Non-technical Elective	3
	18

* All electives selected must have approval of the chairman of the department.

Course Descriptions

001 *The Engineering Profession* (Freshmen). (0) I

002 *The Engineering Profession* (Freshmen). (0) II

003 *The Engineering Profession* (Sophomore). (0) I
the department.

004 *The Engineering Profession* (Sophomore). (0) II

005 *The Engineering Profession* (Junior). (0) I

006 *The Engineering Profession* (Junior). (0) II

007 *The Engineering Profession* (Senior). (0) I

008 *The Engineering Profession* (Senior). (0) II
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. CME 001-008 may be repeated indefinitely. *Staff.*

211 *Chemical Engineering Calculations.* (4) I
Calculations with emphasis on material and energy balances as applied to industrial processes. Prereq: CHE 226, PHY 231 and MA 211. *Hite.*

341 *Chemical Engineering Thermodynamics.* (3) II
Fundamentals of thermodynamics, first and second laws, properties of fluids, physical and chemical equilibria, and applications to chemical engineering. Prereq: CME 211; MA 212, PHY 232. *Hite.*

371 *Seminar.* (1) I
General discussion of chemical engineering subjects; preparation and delivery of papers and reports; extemporaneous speaking, and the abstracting of current literature. Two hours. Prereq: CME 422, CHE 432, CHE 442. *Hite.*

372 *Seminar.* (1) II
A continuation of CME 371 with a survey of the technology and economics of the chemicals industry. Prereq: CME 371. *Hite.*

395 *Special Problems in Chemical Engineering.* (1-3)
Individual work on some selected problems in the field of Chemical Engineering. May be repeated one time. Prereq: Approval of the chairman of the department. *Staff.*

421 *Unit Operations I.* (3) I
Principles of the unit physical operations of fluid flow, heat transfer, evaporation, and filtration with quantitative problems in the design and operation of chemical process equipment. Prereq: CME 211, MA 212. *Moore.*

422 *Unit Operations II.* (3) II
Continuation of CME 421. Principles of mass transfer—distillation, gas absorption, liquid extraction, drying, etc. Including quantitative problems in design and operation of chemical process equipment. Prereq: CME 421 or consent of instructor. *Moore.*

431 *Unit Operations Laboratory I.* (2) I
Quantitative study of fluid flow, heat transfer, evaporation, etc., comparing the operation of actual equipment with theory. Special consideration of problems in design and report writing; laboratory, six hours. Prereq: CME 421. *Crewe, Moore.*

432 *Unit Operations Laboratory II.* (2) II
Continuation of CME 431, covering diffusional operations such as distillation, absorption, and drying; laboratory, six hours. Prereq: CME 422, CME 431. *Crewe, Moore.*

451 *Chemical Engineering Process Design I.* (3) I
Introduction to process design calculations, optimum design and operation. Prereq: CME 422, CHE 432, CHE 442. *Crewe.*

452 *Chemical Engineering Process Design II.* (3) II
An introduction to applied chemical reaction kinetics with quantitative problems concerning chemical reactor design and a comprehensive design problem. Prereq: CHE 451. *Crewe.*

562 *Process Control.* (3) I
The theory of automatic control devices and their application in industrial chemical plants. Lecture, two hours; laboratory three hours. Prereq: Consent of the instructor. *Moore.*

565 *Petroleum Refinery Engineering.* (3) II
Application of chemical engineering fundamentals to petroleum processing methods and equipment. Prereq: CE 422 or consent of the instructor. *Hite.*

CIVIL ENGINEERING

FACULTY

Professors: David K. Blythe (M.C.E., Cornell, 1950), CHAIRMAN. Robert A. Lauderdale (Ph.D., Massachusetts Institute of Technology, 1958), Edward Everett Elsey (M.E., Kentucky, 1947), Clinton Kelly Hoffmann (C.E., Kentucky, 1947), Samuel Albert Mory, Jr. (C.E., Kentucky, 1946). *Associate Professors:* John Arthur Dearinger (M.S., Kentucky, 1948), Hans Gesund (D.Engr., Yale, 1958), Bobby Ott Hardin (Ph.D., Florida, 1961), John W. Hutchinson (Ph.D., Illinois, 1961), John R. Parker (M.S., Princeton, 1937), Laurence Chester Pendley (M.S., Purdue, 1949). *Assistant Professors:* L. Douglas James (Ph.D., Stanford, 1964), Thomas E. Morgan (M.S., Tennessee, 1954), George Pincus (Ph.D., Cornell, 1963), Teng-chung Wu (Ph.D., Case Institute of Technology, 1963). *Lecturers:* Robert C. Deen (Ph.D., Purdue, 1964), William Bright Drake (M.S., Kentucky, 1949), James Hobart Havens (A.B., Transylvania, 1942), James L. Leggett, Jr. (Ph.D., Purdue, 1953).

3-2 CO-OPERATIVE PROGRAM

The Civil Engineering Department has a 3-2 Co-operative Program with the "University of the Americas" of Mexico City, in which the student attends their University as a pre-engineer for three years and then transfers to Kentucky to complete the requirements for his BS in CE degree. The student also earns his AB degree from the University of the Americas after completing one year of full-time study at Kentucky.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Freshman Year

First Semester	Crs.
CE 001—The Engineering Profession	0
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
CHE 110—General Chemistry	5
ME 105—Basic Engineering Graphics	2
Military or Aerospace Science (optional)	2
PE—Physical Education	1
	18

Second Semester	Crs.
CE 002—The Engineering Profession	0
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General College Chemistry	5
CE 100—Plane Surveying	3
Military or Aerospace Science (optional)	2
PE—Physical Education	1
	18

Sophomore Year

First Semester	Crs.
CE 003—The Engineering Profession	0
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Lab	2
ME 106—Mech. Engr. Graphics I	2
CE 110—Engineering Problems	1
CE 210—Route Surveying	2
Military or Aerospace Science (optional)	2
	16

Second Semester	Crs.
CE 004—The Engineering Profession	0
MA 212—Analytics and Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab	2
EM 221—Statics	3
GLY 200—Elementary Geology for Engineers	3
Military or Aerospace Science (optional)	2
Non-technical Elective	2
	19

Summer Camp (4 weeks)—5 credits

CE 203—Topographic Drawing	1
CE 211—Route Surveying	2
CE 213—Control Surveys	1
CE 214—Topographic Surveys	1
	5

Junior Year

First Semester	Crs.
CE 005—The Engineering Profession	0
CE 301—Testing Materials	1
CE 352—Fluid Mechanics	3
CE 380—Theory of Structures	3
EM 313—Dynamics	3
EM 331—Strength of Materials	3
MA 431—Differential Equations	3
Non-technical Elective	3
	19

Second Semester	Crs.
CE 006—The Engineering Profession	0
CE 351—Hydraulics Lab	1
CE 355—Water Supply and Sewerage	3
CE 387—Steel Structures	3
CE 425—Soil Mechanics	3
CE 480—Theory of Structures	3
EE 305—Electrical Circuits & Machinery	3
Non-technical Elective	3
	19

Senior Year

First Semester	Crs.
CE 007—The Engineering Profession	0
CE 340—Highway Engineering	3
CE 392—Reinforced Concrete	3
ME 400—Elem. of Engineering Thermodynamics	3
Non-technical Elective	4
Technical Electives	6
	19

Second Semester	Crs.
CE 008—The Engineering Profession	0
CE 371—Seminar	1
CE 305—Contracts and Specifications	3
ARC 222—Building Construction	3
MET 303—General Elementary Metallurgy	2
Non-technical Electives	6
Technical Elective	3
	18

Non-technical Electives are to be selected from the Humanities and Social Studies in other colleges of the University and must be approved by the department chairman.

Technical Electives are to be approved by the department chairman and may be selected in specific fields such as structures, highways, sanitary engineering, or other planned objectives.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I, II
Blythe.

002 *The Engineering Profession* (Freshman). (0) I, II
Blythe.

003 *The Engineering Profession* (Sophomore). (0) I
Staff.

004 *The Engineering Profession* (Sophomore). (0) II
Staff.

005 *The Engineering Profession* (Junior). (0) I
Staff.

006 *The Engineering Profession* (Junior). (0) II
Staff.

007 *The Engineering Profession* (Senior). (0) I
Staff.

008 *The Engineering Profession* (Senior). (0) II
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely. *Staff.*

100 *Plane Surveying.* (3) I, II
Principles, field practice and calculations. General use and care of surveying instruments. Class work, two hours; field work, three hours. Prereq: MA 112. *Dearinger and Staff.*

101 *Field exercise for CE 100.*

105 *Basic Engineering Graphics.* (2) I, II, S
Freehand sketching and lettering. Orthographic and axonometric drawings and sketches. Use and care of instruments. Use of scales. Dimensioning. Auxiliary views. Sectioning. Fasteners. Pencil and ink techniques. Charts, maps and diagrams. Three two-hour periods a week. Same as EM 105. *Hoffmann and Morgan.*

106 *Civil Engineering Graphics I.* (2) I, II, S
Graphical solution of space problems by the application of the principles of descriptive geometry. Same as ME 106. Prereq: CE 105. *Hoffmann and Morgan.*

110 *Engineering Problems.* (1) I, II
Analysis and solution of basic civil engineering problems, including instruction in the use of the slide rule. Two hours per week. Prereq: MA 112. *Pendley.*

203 *Mapping and Topographic Drawing.* (1) S
Given at the Summer Camp. Construction of maps from field notes, coordinate systems, and projected route locations using topographic maps. Prereq: Approval of chairman of department. *Hoffmann.*

210 *Route Surveying I.* (2) I, II
Curves, line, grade, earthwork and theory of location as it applies to railroads, highways and pipelines. Lecture and recitation, two hours. Prereq: CE 100. *Dearinger and Staff.*

211 *Route Surveying II.* (2) S
Given at the Summer Camp, Noble, Ky. Theory, field and office practice in route-surveys including the application of aerial photographs in this work. Prereq: Approval of the chairman of the department. *Blythe and Dearinger.*

213 *Control Surveys.* (1) S
Given at the Summer Camp, Noble, Ky. Theory, field and office practice in the precise measurement of angles, distances, elevations, true azimuth and geodetic position. Prereq: Approval of chairman of department.

214 *Topographic Surveys.* (1) S
Given at the Summer Camp, Noble, Ky. Theory, field and office practice in topographic and boundary surveys.

301 *Testing Materials.* (1) I, II, S
Experimental investigations and tests of wood, metals, cement, concrete and other construction materials to verify the laws governing their behavior under given conditions. Laboratory, two hours. Prereq. or concur: EMC 331. *Pendley.*

305 *Contracts and Specifications.* (3) I, II
A study of the methods, procedures and principles involved in engineering analyses, contracts, specifications, estimates and valuations, and administration of engineering projects. Lecture and recitation, three hours. Prereq: Senior classification. *Elsey.*

328 *Foundation Engineering.* (3) II
Application of the principles of soil mechanics and structural mechanics to the design of retaining walls, bracing for excavations, footings, mat and pile foundations and to the analysis of the stability of earth slopes. Prereq: CE 425, CE 392. *Hardin.*

340 *Highway Engineering I.* (3) I, II
Highway organization, administration and finances. Planning and geometric design of highways. Soils, drainage, earthwork, soil stabilization and low type roads. Lecture, two hours; lab, three hours. Prereq: CE 211. *Dearinger and Blythe.*

341 *Laboratory for CE 340.*

351 *Hydraulics Laboratory.* (1) I, II, S
Experimental investigation and application of some of the more important principles covered in C.E. 350. Laboratory, three hours. Prereq. or concur: CE 352. *Parker.*

352 *Fluid Mechanics.* (3) I, II
Study of the behavior of liquids and gases, at rest and in motion, with particular reference to water and to problems encountered by civil engineers. Lecture and recitation, three hours. Prereq: EM 221; Prereq. or concur: EM 313. *Staff.*

355 *Water Supply and Sewerage.* (3) I, II
For general civil engineering students. Theory and design of water treatment and sewage disposal plants. Lecture, three hours. Prereq: CE 352. *Lauderdale.*

356 *Water and Sewage Treatment.* (3)
Theory of conventional and modified water and sewage treatment plants and their operation, analytical methods used in control and significance of test data. Lecture and recitation, three hours. Prereq: CE 355. *Lauderdale.*

371 *Seminar.* (1) I, II
A study of current engineering literature as related to civil engineering, assigned reading and reports. Round-table conferences. Two hours. Prereq: Senior classification. *Staff.*

380 *Theory of Structures I.* (3) I, II
Analytical and graphical analysis of stresses in simple and indeterminate structures, including beams, girders, trusses, towers and building frames. Lecture and recitation, three hours. Prereq. or concur: EM 331. *Staff.*

385 *Timber Structures.* (1) I
Design of structural beams, columns and trusses as related to timber structures. Drawing room, three hours. Prereq: CE 380. *Staff.*

387 *Steel Structures I.* (3) I, II
Design and details for various types of riveted and welded connections, riveted and welded building frames, plate girders and trusses. Lecture, one hour; drawing room, six hours. Prereq: CE 380. *Staff.*

392 *Reinforced Concrete I.* (3) I, II
Theory and design of beams, slabs, girders and columns as related to building frames and bridges. Introduction to pre-stressed concrete, elastic design and ultimate strength design. Lecture and recitation, three hours. Prereq: CE 480. *Gesund.*

395 *Independent Work in Civil Engineering.* (3)
Individually supervised study in one or more of the specialized topics of Civil Engineering which are not covered in regular courses. Independent research or design projects may also be selected. Open only to exceptional students as a technical elective. Prereq: Consent of dept. chairman and the instructor.

399 *Design of Structures.* (5) II
The analysis, design and the production of working drawings for multi-story buildings and bridges of various types. Occasional lectures by consulting engineers and architects supplement the regular lectures. Lecture, 3 hours; drawing room, 6 hours. Prereq: CE 387 and CE 392. *Mory.*

425 *Soil Mechanics.* (3) I, II
A study of soil and its utilization in foundations for structures and subgrade for highways. Stabilization and improvement of bearing values. Lectures and recitations, two hours a week; lab, three hours. Prereq: Junior classification. Prereq. or concur: GLY 200 and EM 331. *Pendley.*

426 *Laboratory for CE 425.*

440 *Highway Engineering II.* (3) I, II
Materials, construction and maintenance of intermediate and high type roads including all types of bituminous surfaces, macadams and Portland cement concrete. Lecture, two hours; lab, three hours. Prereq: CE 340. *Staff.*

441 *Laboratory for 440.*

459 *Sanitary Engineering Design.* (3) I, II
For students majoring in Sanitary Engineering. Complete design and layout of a water plant, distribution system, storm and sanitary sewer, and sewage disposal plant. Drawing room 9 hours. Prereq: CE 355. *Lauderdale.*

480 *Theory of Structures II.* (3) I, II
Continuation of CE 380, with emphasis on indeterminate structures and using the following methods: consistent deflections, moment distribution and slope-deflection. Introduction to computer programs. Lecture and recitation, three hours. Prereq. or concur: EM 331. *Staff.*

521 *Engineering Interpretation of Aerial Photographs.* (3) I, II
Fundamentals of aerial photography as applied to modern engineering surveys. Analysis and reports on soil pattern, geologic formations, and land use studies using photographs. Prereq: Consent of instructor, *Dearinger.*

542 *Traffic Engineering.* (3) I
Characteristics of traffic, drivers and vehicles. Traffic engineering investigations. Design and application of signs, signals and markings. Design of intersections, parking facilities and signal systems. Lecture and recitation, two hours; lab, three hours. Prereq: CE 340, and/or consent of instructor. *Dearinger.*

553 *Hydrology.* (2) I, II
A study of the factors affecting the occurrence, movement and utilization of water including meteorological considerations, evaporation, transpiration, runoff relationships, hydrograph analysis, ground water management, water law, and water resources projects. Prereq: CE 352 or consent of instructor. *Staff.*

566 *Public Health Engineering.* (3) II
Application of engineering principles to the control of the environment, as used by sanitary engineers in federal, state or international health agencies. Lecture, three hours. Prereq: Consent of instructor. *Staff.*

568 *Sanitary Engineering Laboratory.* (5) I
Lectures and laboratory practice in principles, application and interpretation of analytical tests used in sanitary engineering research and plant control. Lecture, three hours; lab, six hours. Prereq: Consent of instructor. *Staff.*

580 *Theory of Structures III.* (3) I, II
Plastic design of steel. Introduction to the theory of arches. Theory and design of continuous trusses. Lecture and recitation, three hours. Prereq. CE 480, MA 431. *Mory.*

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.

625 *Advanced Soil Mechanics I.* (3) I
Detailed study including experimental determination of the strength and deformation properties of granular and cohesive soils. Colloidal phenomena in soils as related to the behavior of clay soils are included. Lecture, two hours; lab, three hours. Prereq: CE 425 or consent of instructor. *Hardin and Deen.*

626 *Advanced Soil Mechanics II.* (3) I
Theoretical and experimental study of the flow of water through soils including steady seepage and consolidation. Detailed study including experimental determination of the compaction characteristics of soils and the effects of compaction on various soil properties. Lecture, two hours; lab, three hours. Prereq: CE 425, CE 625, or consent of instructor. *Hardin and Deen.*

627 *Applied Soil Mechanics.* (3) I, II
Application of Soil Mechanics to the design and analysis of earth structures. Lecture, three hours per week. Prereq: CE 625 or consent of instructor. *Staff.*

628 *Advanced Foundation Engineering.* (3)
Application of the principles of soil mechanics to the design and analysis of foundations. Lecture, three hours. Prereq: CE 625 or consent of instructor. *Staff.*

640 *Highway Administration, Economics and Finance.* (3) I, II
A study of highway administration, economics and finance; including organization of highway departments, sources and types of revenue, road costs, classification of roads, benefits from improvements, and program planning. Lecture, three hours. Prereq: CE 440 or consent of instructor. *Drake.*

642 *Advanced Highway Engineering.* (3) I, II
A study of traffic, planning and geometric design including traffic surveys, traffic control, parking and design consideration. Lecture, two hours; lab, two hours. Prereq: CE 340 or consent of instructor. *Pendley.*

645 *Highway Design, Construction and Maintenance.* (3) I, II
A study of highway design, construction and maintenance; including physical aspects of design, drainage, road types, structural pavement design, construction methods and supervision and maintenance methods. Lecture, three hours. Prereq: CE 340 or consent of instructor. *Drake.*

646 *Bituminous Paving Materials.* (3) I, II
Origin, production, use-classifications and significant engineering properties of bituminous materials; design of bituminous concrete pavements and highway wearing surfaces. Includes the most recent developments of practical and potential significance in the highway industry. Covers specifications and materials testing. Lecture, two hours; lab, three hours. Prereq: CE 440 or consent of instructor. *Havens.*

647 *Cements, Concretes and Aggregates.* (3) I, II
Origin, production, use-classifications and significant engineering properties of portland cements, concretes and mortars. Covers: precise methods of design and control of mixes; durability considerations; pozzolans; additions and admixtures; mineral aggregates; structural, paving and mass concretes; specifications and materials testing. Lecture, two hours; lab, three hours. Prereq: CE 440 or consent of instructor. *Havens.*

659 *Advanced Sanitary Engineering Design I.* (3) I, II
Application of theory of water treatment processes to the functional and hydraulic design of water treatment facilities. Lecture, two hours; lab, three hours. *Lauderdale.*

660 *Advanced Sanitary Engineering Design II.* (3) I, II
Application of theory of waste treatment processes to the functional and hydraulic design of waste treatment facilities. Lecture, two hours; lab, three hours. *Lauderdale.*

662 *Water Works and Water Treatment.* (3) I
Theory of water supply and purification, microbiology of fresh water, design of water works and water distribution systems. Lecture, three hours. Prereq. or concur: CE 568, MB 400 and 401. *Lauderdale.*

664 *Sewerage and Sewage Treatment.* (3) II
Aerobic and anaerobic methods of sewage treatment, biochemical oxygen demand, stream purification, design of sewerage and sewage treatment plants. Lecture, three hours. Prereq: CE 568, MB 400 and MB 401. *Lauderdale and King.*

681 *Dynamics of Structures.* (3) II
Behavior of materials under dynamic stresses, dynamic response of multidegree of freedom—concentrated mass systems, dynamic response of distributed mass structures, design of structures for earthquake, wind, traffic and machinery loads. Prereq: EM 513 or permission of instructor. *Gesund.*

686 *Advanced Metal Structures.* (3) I
Plastic analysis and design; shear, local and lateral buckling, compression members, welded, riveted and bolted connections, deflections and shakedown. Light gage cold-formed steel design. Strain hardening and stress concentrations; residual stresses, brittle fracture; fatigue. Torsion, thin-walled sections, multicell sections. Lecture, three hours. Prereq: CE 480. Concurrent: EM 531. *Pincus.*

690 *Suspension Bridges.* (3) I, II
Theory and application of stress analysis and design as applied to suspension bridges. Lecture, three hours. Prereq: CE 687. *Staff.*

691 *Advanced Reinforced Concrete Theory.* (3) II
Background and origin of modern reinforced concrete design procedures and codes. Comparison of American and foreign methods of analysis. Review of current research and projection to anticipated future changes in design and construction practices. Prereq: EM 531. *Gesund.*

692 *Slab and Folded Plate Structures.* (3) I, II
Design and analysis of reinforced concrete floor slabs and folded plate roofs. Elastic and inelastic methods. Lecture, three hours. Prereq: CE 580, EM 531, MA 431, or consent of instructor. *Gesund.*

693 *Shell Structures.* (3) I, II
Design and analysis of reinforced concrete shell structures, including domes, barrel shells, hyperbolic paraboloids and cylindrical tanks. Lecture, three hours. Prereq: CE 692 or consent of instructor. *Gesund.*

694 *Advanced Structural Analysis I.* (3) I, II
Theory and application of the column analogy method of stress analysis and design as applied to prismatic and haunched members is continuous structures with emphasis on arches. This method has proven itself unusually efficient for programming for electronic computers. Lecture, three hours. Prereq: CE 480 and CE 492. *Mory.*

695 *Advanced Structural Analysis II.* (3) I, II
Theory and application of stress analysis and design methods as applied to continuous unsymmetrical frames carrying horizontal loads; frames with haunched members and continuous arches on slender piers. The translatory and rotary elastic constants and stresses due to displacements are obtained by the column analogy. Lecture, three hours. Prereq: CE 694. *Mory.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. *Staff.*

771 *Seminar.* (0) I, II, S
Review of current literature in the field of Civil Engineering, general discussion and presentation of papers on departmental research. Required of all graduate students. Two hours. *Lauderdale.*

780 *Special Problems in Civil Engineering.* (3)
Individual work on some selected design problems in one of the various fields of Civil Engineering. Laboratory, six hours. May be repeated for a maximum of nine credits. Prereq: Approval of the chairman of department. *Staff.*

790 *Special Problems in Civil Engineering.* (3)
Individual work on some selected research problems in one of the various fields of Civil Engineering. Laboratory, six hours. May be repeated for a maximum of nine credits. Prereq: Approval of the chairman of department. *Staff.*

ELECTRICAL ENGINEERING

FACULTY

Professors: Harry Alex Romanowitz (Ph.D., Michigan, 1948), CHAIRMAN. Nathan B. Allison (Ph.D., Kentucky, 1948), Prasad Krishna Kadaba (Ph.D., U.C.L.A., 1950), Charles Thomas Maney (M.S., Kentucky, 1949). *Associate Professors:* John Sterling Jackson, Jr. (M.S., California Institute of Technology, 1954), Silvio O. Navarro (Ph.D., Texas A. & M., 1955),. *Assistant Professors:* Lyle Newton Back (M.S., Kentucky, 1962), Eugene Bradford Bradley (Ph.D., Vanderbilt, 1964), Peter John Graham (M.A., Toronto, 1950), Martin C. Krimm (M.S., Kentucky, 1962), Russell Elwood Puckett (M.S., Kentucky, 1960). *Supervisor of Laboratories:* P. C. Magoun.

CURRICULA LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Freshman Year

First Semester	Crs.
EE 001—The Engineering Profession	0
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
CHE 110—General College Chemistry	5
ME 105—Basic Engineering Graphics	2
Physical Education	1
	16
Military or Aerospace Science (optional)	2
	18

Second Semester	Crs.
EE 002—The Engineering Profession	0
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General College Chemistry	5
Physical Education	1
*Non-technical Elective	3
	16
Military or Aerospace Science (optional)	2
	18

Sophomore Year

First Semester	Crs.
EE 003—The Engineering Profession	0
PHY 231—General College Physics	3
PHY 241—General College Physics Lab.	2
MA 211—Analytics and Calculus II	4
ENG 203—Composition for Technical Students	3
EE 211—Introduction to Electrical Engineering	3
EE 251—Introduction to Use of Digital Computers	2
	17
Military or Aerospace Science (optional)	2
	19

Second Semester	Crs.
EE 004—The Engineering Profession	0
PHY 232—General College Physics	3
PHY 242—General College Physics Lab.	2
MA 212—Analytics and Calculus III	4
EM 221—Statics	3
EE 221—Circuits I	3
EE 222—Electrical Engineering Lab. I	2
	17
Military or Aerospace Science (optional)	2
	19

Junior Year

First Semester	Crs.
EE 005—The Engineering Profession	0
EE 467—Elec. & Magnetic Fields	3
EE 461—Electronics & Communications I	3
EE 462—Electrical Engineering Laboratory II	2
EE 535—Circuits III	3
ME 250—Shop Theory	1
MA 431—Differential Equations	3
*Non-technical Elective	3
	18

Second Semester	Crs.
EE 006—The Engineering Profession	0
EE 415—Electrical Machinery I	3
EE 416—Electrical Engineering Laboratory II I	2
EE 420—Engineering Analysis I	3
**EE Electives	3
EM 331—Strength of Materials	3
*Non-technical Elective	3
	17

Senior Year

First Semester	Crs.
EE 007—The Engineering Profession	0
EE 371—Seminar	1
EE 507—Electrical Controls I	3
**EE Electives	6
ME 400—Elements of Engineering Thermodynamics	3
ENG 181—Basic Public Speaking	3
*Non-technical Elective	3
	19

Second Semester	Crs.
EE 008—The Engineering Profession	0
EM 313—Dynamics	3
MET 461—Physical Metallurgy	3

***EE Electives	8
*Non-technical Elective	3
	17

* A list of approved non-technical electives is available at the Electrical Engineering Office.
** EE 508, 511, 520, 562, 517, 537, 567, 580.
*** EE 523, 538, 563, 564, 565, 566, 572, 585.

Course Descriptions

001 *The Engineering Profession* (Freshman). (0) I

002 *The Engineering Profession* (Freshmen). (0) II

003 *The Engineering Profession* (Sophomore). (0) I

004 *The Engineering Profession* (Sophomore). (0) II

005 *The Engineering Profession* (Junior). (0) I

006 *The Engineering Profession* (Junior). (0) II

007 *The Engineering Profession* (Senior). (0) I

008 *The Engineering Profession* (Senior). (0) II
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely.

211 *Introduction to Electrical Engineering.* (3) I, II, S
Fundamental laws and principles; interpretations, physical concepts; background for linear circuit analysis study. Prereq: MA 113. Concurrent: PHY 231, 241, MA 211. *Staff.*

221 *Circuits I.* (3) I, II
Elementary circuit analysis. Study of series and parallel R-L-C circuits with single-phase sinusoidal driving functions. Recitation, 3 hours. Prereq: EE 211, PHY 231; MA 212. Concurrent: EE 222. *Back.*

222 *Electrical Engineering Laboratory I.* (2) I, II
Laboratory exercises in the use of measuring instruments. Experiments in R-L-C circuit analysis. Lecture, one class hour; lab, three hours. Concur: EE 221. *Back.*

223 *Laboratory for EE 222.*
Staff.

251 *Introduction to the Use of Digital Computers.* (2) I, II
Introduction to digital computers. Brief description of their internal organization. Programming with problem-oriented languages. Applications of computers to the solution of scientific problems. Lecture, one hour; laboratory, two hours per week. Prereq: MA 211. *Staff.*

301 *Fundamentals of Electrical Machinery.* (3) I, II
A study of direct current and alternating current circuits, machinery controls and illumination equipment. Lecture, 2 hours; lab, 2 hours.

303 *Electrical Laboratory for Mining Engineers.* (1) II
A laboratory study of circuits and equipment used in the servicing and operation of industrial equipment, with special emphasis on mining applications. Lab, 3 hours.

305 *Electrical Circuits and Machinery.* (3) I, II
Study of d-c circuits, machines and control; analysis of single-phase and three-phase circuits. Three class hours. Prereq: MA 212, PHY 232. *Krimm.*

306 *Electrical and Electronic Circuits.* (3) I, II
Krimm three-phase circuits, a-c machinery, electronics principles and applications. Three class hours. Prereq: EE 305. *Staff.*

371 *Seminar.* (1) I, II
Weekly meetings with staff for oral reports on term papers. Discussion of modern practices in electrical engineering. Two class hours. Prereq: ENG 181. *Staff.*

372 *Seminar.* (1) I, II
Continuation of EE 371. Two class hours. Prereq: EE 371. *Staff.*

415 *Electrical Machinery I.* (3) I, II
A study of construction, operating characteristics (by mathematical analysis), and applications of electrical machines. Three class hours. Prereq: EE 414, 221. Concur: EE 416. *Krimm, Maney.*

416 *Electrical Engineering Laboratory III.* (2) I, II
Laboratory practice and experimental studies related to EE 415. Lecture, one hour; lab, three hours. Prereq: EE 407. Concur: EE 415. *Krimm.*

417 *Laboratory for EE 416.*
Staff.

420 *Engineering Analysis I.* (3) I, II
A study of engineering analysis stressing fundamental mathematical and physical principles; electrical duals, electrical-mechanical analogs; series solution of differential equations; Bessel and hyperbolic functions, Fourier analysis. Lecture and recitation, three hours. Prereq: MA 431; Concur: EE 461. *Allison, Graham.*

435 *Circuits III.* (3) I, II
Fundamentals of network theory in communications circuits; transmission lines and wave filters. Three class hours. Prereq: EE 221. *Graham, Back.*

461 *Electronics and Communications I.* (3) I, II
Thermionic emission; vacuum-tube and transistor characteristics. Graphical and mathematical analysis of audio amplifiers; rectifiers and smoothing filters as power supplies. Recitation, three class hours. Prereq: EE 221, PHY 232, MA 212. Concur: EE 467, 462. *Puckett.*

462 *Electrical Engineering Laboratory II.* (2) I, II
Experimental exercises in vacuum-tube and transistor characteristics; basic A-F circuits, as voltage and power amplifiers, oscillators and rectifiers. Lecture, one class hour; lab, three hours. Prereq: EE 222. Concur: EE 461. *Puckett, Back.*

463 *Laboratory for EE 462.*
Staff.

467 *Electric and Magnetic Fields.* (3) I, II
Field laws and theorems in vector form; fields in dielectric and magnetic media. Forces, moments, energy power. Brief introduction to time-varying fields. 3 class hours. Prereq: PHY 232, MA 212. Concur: MA 431. *Romanowitz.*

507 *Electrical Controls I.* (3) I, II
Design and analysis of open-loop control components and systems. Three class hours. Prereq: EE 420. Prereq. or concur: EE 415, 416. *Jackson, Maney.*

508 *Electrical Engineering Laboratory IV.* (2) I, II
Laboratory study of control methods and systems employing magnetic and electronic components; analog computers. Lecture, one hour; lab, three hours. Prereq: EE 507. Concur: EE 572. *Staff.*

509 *Laboratory for EE 508.*
Staff.

511 *Information Theory.* (3) I
Time and frequency domains; sampling theorems; review of AM-FM; pulse modulation; probability and random signal theory; autocorrelation; entropy, coding schemes; channel capacity; noise. 3 class hours. Prereq: MA 431 and consent of instructor. *Staff.*

517 *Electrical Machinery II.* (3) I, II
Electro-mechanical energy conversion systems studies. Development of generalized equivalent circuits for various conditions of operation. Prereq: EE 415, 416. *Maney, Krimm.*

520 *Engineering Analysis II.* (3) I, II
Investigation of transient and steady-state conditions in electrical and mechanical systems, using Laplace transform methods; network analysis and synthesis. Feedback system stability criteria. Lecture and recitation, three hours. Prereq: EE 420. *Distler, Graham.*

523 *Electrical Equipment Problems.* (2) I, II
A creative design study of comprehensive engineering problems, primarily electrical but related to engineering in general. One class hour, five hours by appointment. Prereq: Senior classification. *Maney.*

537 *Electric Power Transmission I.* (3) I
Transmission line parameters, generalized circuit constants; analysis of line performance. Three class hours. Prereq: EE 415, 416. *Maney, Krimm.*

538 *Electric Power Transmission II.* (3) II
Per-unit studies; symmetrical components; experimental studies on a-c network analyzer. Three class hours. Prereq: EE 537. *Maney, Krimm.*

562 *Electronics and Communications II.* (3) I, II
Feedback amplifiers, tuned and untuned amplifiers; oscillators, AM and FM transmitters. Three class hours. Prereq: EE 461, 462. *Puckett.*

563 *Transistor Circuit Design.* (3)
Small- and large-signal amplifier design, cascaded amplifiers; stability, feedback; pulse circuits, switching; currently developed devices. Lecture and recitation, three class hours. Prereq: EE 562 or equivalent. *Staff.*

564 *Electronics and Communications III.* (3) I, II
Timing, scanning, trigger and pulse circuits; video and broad-band R-F amplifiers. Generation, transmission and radiation of V-H-F and U-H-F energy. Three class hours. Prereq: EE 467, 562. *Allison, Graham.*

565 *Electrical Engineering Laboratory V.* (2) I, II
Laboratory practice and experiment exercises relating to studies in EE 564. Lecture, one hour; lab, three hours. Concur: EE 564. *Kadaba, Graham.*

566 *Magnetic Amplifiers.* (3) II
Wave-form analysis of circuits with nonlinear magnetic elements; saturable reactors and self-saturating magnetic amplifiers in steady-state and transient operation; some characteristics of semiconductor diodes including Zener types; effects of negative and positive feedback on magnetic amplifiers. Three class hours. Prereq: EE 415, 461. *Distler.*

567 *Fields and Waves.* (3) I, II
Fundamental theory of electrostatic and magnetostatic fields using vector methods of analysis; Maxwell's equations. Time-varying fields, wave equations. Prereq: EE 414, 420. *Allison, Bradley.*

568 *Laboratory for EE 565.*
Staff.

572 *Electrical Controls II.* (3) I, II
Analytical and graphical techniques applied to the design of linear feedback control systems, emphasizing a root-locus method. Nonlinear systems are briefly discussed. Three class hours. Prereq: EE 520, 507. Concur: EE 508. *Jackson.*

580 *Logical Design of Analog and Digital Systems.* (3)
Computation elements; analysis and synthesis of systems, Boolean functions and applications to relay and electronic circuits; circuit logic, memory elements; design of counters, sequential devices, digital devices; brief treatment of programming. Three class hours. Prereq: EE 221. *Graham.*

585 *Molecular Engineering.* (3) II
Molecular approach to the behavior of gaseous conductors, semiconductors, dielectrics and magnetic materials; emphasis on modern semi-conductor electronic devices such as masers, lasers, Esaki diodes, Zener diodes, and micromodules. Three class hours. Prereq: MA 431, EE 467. Prereq. or concur: EE 520. *Kadaba, Bradley.*

595 *Independent Problems.* (1) I, II
For electrical engineers. A problem, approved by the head of the department, provides an objective for study and research. May be repeated twice for a total of three credits. *Staff.*

596 *Independent Problems.* (2) I, II
Same conditions as EE 595. May be repeated twice for a total of six credits. *Staff.*

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.

601 *Electromagnetic Energy Conversion I.* (3) I
General dynamical theories are developed for electromechanical energy systems. Various constraints are applied to the generalized equations of energy transfer. Lecture and recitation, three hours. Prereq: EE 517, 567 or equivalent. *Maney.*

602 *Electromagnetic Energy Conversion II.* (3) II
Continuation of EE 601, with special attention to specific areas of machine types. Lecture and recitation, three hours. Prereq: EE 601 or equivalent. *Maney.*

606 *Electric Power Transmission.* (3)
The theory underlying the calculation and operation of long distance transmission circuits. Special attention to relay control. Prereq: EE 538. *Maney, Navarro.*

611 *Linear Circuit Analysis I.* (3)
Laplace and Fourier transform methods of analysis of linear lumped constant systems under transient and steady state conditions; feedback amplifiers; filter networks; stability and physical realizability. Prereq: EE 520, 535. *Distler, Graham.*

612 *Linear Circuit Analysis II.* (3)
Continuation of EE 611 with an introduction to non-linear systems. Prereq: EE 611. *Distler, Graham.*

613 *Servomechanisms.* (3)
Analysis and synthesis of linear and non-linear closed-loop control system; analog computer and phase-plane techniques; root-locus and Laplace transform methods applied to linear systems. Prereq: EE 572. *Jackson.*

622 *Gaseous Conducting Electronic Devices.* (3)
Atomic energy level diagrams; photo-electric emission and devices; electric arcs and glow discharges, plasmas and boundaries, sheaths and probes; industrial devices. Prereq: EE 461, 467. *Romanowitz.*

623 *Lines and Wave Guides.* (3)
Open-wire and coaxial lines, standing waves, stub matching; impedance transformation, rectangular and circular wave guides. Prereq: EE 535, 564, 467. *Allison, Kadaba.*

624 *Solid State Electronics.* (3) I, II
Bose and Fermi statistics. Semiconductor theory; solid-state devices; electrical properties of insulators; theory and applications of magnetic materials, including ferrites. Lecture and recitation, three hours. Prereq: EE 585 or equivalent. *Kadaba, Bradley.*

626 *Microwave Engineering.* (3)
Generation, detection and measurement of microwave energy; vacuum tubes at ultra high frequencies, the klystron and the magnetron. Prereq: EE 467, 564, 565. *Allison, Kadaba.*

627 *Electromagnetic Fields.* (3)
Advanced studies in electromagnetic fields; antennas, radiation and propagation of energy. Prereq: EE 567. *Allison, Kadaba.*

631 *Discrete Information Theory I.* (3)
Entropy, Markov sources, algebra of codes, classification of codes, Shannon's theorems, compact codes, linear codes, error detection and error correction, syndrome vectors. 3 class hours per week. Prereq: EE 511 or consent of instructor. *Distler, Allison.*

632 *Discrete Information Theory II.* (3)
Plotkin, Gilbert and other bounds, Hamming codes, Reed-Muller and other linear codes, cyclic codes, Bose-Chandhuri codes, sequential decoding, convolution encoding. 3 class hours per week. Prereq: EE 631. *Distler, Allison.*

680 *Advanced Logical Design.* (3)
Boolean Matrices; bridge circuits; bilateral, cascaded, and iterative networks; secondary assignment methods for the design of sequential circuits. Design of actual digital computers. Prereq: EE 580. *Navarro.*

711 *Network Synthesis I.* (3) I

The first of a two-semester sequence of courses giving a comprehensive treatment of modern network synthesis. Prereq: EE 611, 612 or equivalent. *Graham.*

712 *Network Synthesis II.* (3) II

The second of a two-semester sequence of courses giving a comprehensive treatment of modern network synthesis. Prereq: EE 711. *Graham.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S

1-9 weeks residence. Maximum of 9 weeks can be applied toward master's degree with thesis. May be repeated once. *Romanowitz.*

771 *Seminar.* (0)

Review of current literature in the field of Electrical Engineering, general discussion and presentation of papers on departmental research. Required of all graduate students. Two class hours. *Romanowitz.*

781 *Special Problems in Electrical Engineering.* (1)

Open to graduate students only. Individual work on an assignment approved by the chairman of the department. May be repeated once for a total of two credits. *Staff.*

782 *Special Problems in Electrical Engineering.* (2)

Open to graduate students only. Individual work on an assignment approved by the chairman of the department. May be repeated twice for a maximum of six credits. *Staff.*

783 *Special Problems in Electrical Engineering.* (3)

Open to graduate students only. Individual work on an assignment approved by the chairman of the department. May be repeated twice for a total of nine credits. *Staff.*

ENGINEERING MECHANICS

FACULTY

Professor: Maurice A. Jaswon (Ph.D., Birmingham, 1949), CHAIRMAN. *Associate Professors:* Staley Fields Adams (M.S., Kentucky, 1947), William Jackson Barber (M.S., Michigan, 1936). *Assistant Professors:* Peter Paul Gillis (Ph.D., Brown, 1964), George Land, Jr. (M.S., Kentucky, 1955), Horst Edgar Krause (Ph.D., Institute of Technology, Brunswick, Germany, 1962), David J. Shippy (Ph.D., Iowa, 1963), George Hawley White (M.S., Kentucky, 1962). *Visiting Professors:* Alfred Bishara (D.Sc., Paris, 1950); Emanuel Ben-Zvi (C.E., Israel, 1931).

The Department of Engineering Mechanics is, at present, a service department functioning for the benefit of all the other departments offering degrees in the College of Engineering.

Course Descriptions

221 *Statics.* (3) I, II, S

A study of forces, vectors, couples, moments of areas and masses, center of gravity, and their application to engineering structures in two and three dimensions. Lecture and recitation, 3 hours. Prereq: PHY 231. Prereq. or concur: MA 211. *Staff.*

313 *Dynamics.* (3) I, II, S

(For Mechanical Engineers) Motion of a particle, dynamics of moving bodies, impulse and momentum, work and energy, balancing, gyroscopy, advanced dynamics of rigid bodies. Prereq: EM 221. MA 211. *Staff.*

331 *Strength of Materials.* (3) I, II, S

A study of stress and strain due to direct forces, shear, bending, torsion, eccentric loads and combined stresses. Lecture and recitation, 4 hours. Prereq: EM 221. Prereq. or concur: MA 212. *Staff.*

332 *Strength of Materials Laboratory.* (1) I, II

Experimental verification of Strength of Materials Theory; bending, torsion, tension of bars; loading of simple frame structures or machine parts including fatigue, time effects and limit loads. Prereq: EM 221; Concurrent: EM 331. *Staff.*

351 *Experimental Solid Mechanics.* (3) I, II

The fundamentals of mechanical measurement with illustrative experiments; an introduction to Photoelasticity with laboratory demonstrations; the design and performance of relatively complex Solid Mechanics Experiments. Lecture, two hours; laboratory, three hours. Prereq: EM 221, EM 313, EM 331, EM 332. *Staff.*

503 *Theory of Elasticity.* (3) I

A modern study of the classical theory of the linear elastic solid; state of stress and strain; formulation of the general three dimensional boundary value problem; virtual work and variational principals; beams, torsion, plane stress and strain. Lecture and recitation, three hours. Prereq or concur: MA 432 (undergraduates admitted only with consent of instructor).

513 *Mechanical Vibrations.* (3) I, II

Vibrations of systems of one and several degrees of freedom, critical speeds and torsional and lateral vibrations of shafts. Lecture and recitation, three hours. Prereq: EM 331 and EM 313. Prereq. or concur: MA 331. *Barber.*

531 *Advanced Strength of Materials.* (3) I, II

Unsymmetrical bending of beams, thin plates, stress analysis of thick walled cylinders, and rotating discs. Theory of elastic energy, curved beams, stress concentration and fatigue. Lecture and recitation, three hours. Prereq: EM 331.

603 *Theory of Plasticity.* (3) II

The modern phenomenological theory of a perfectly plastic solid; application to beams, torsion, axially symmetric problems; introduction to Limit Analysis. Prereq: MA 432, EM 503. *Staff.*

771 *Bio-Mechanics Seminar.* (1) I

A weekly meeting of the staff and graduate students in Engineering, Physiology, Biophysics, Psychology, etc. for the discussion of research and recent developments in Biomedical Engineering such as Biodynamics. May be repeated two (2) times. Prereq: Consent of instructor. *Lange, Krause.*

MECHANICAL ENGINEERING

FACULTY

Professors: Willis Merle Carter (Ph.D., Michigan, 1953), CHAIRMAN. Karl O. Lange (Dr.-Ing, Darmstadt Institute of Technology, 1930), Orville Watson Stewart (M.S., Kentucky, 1955). *Associate Professors:* James Ellis Funk (Ph.D., Pittsburgh, 1960), Oliver William Gard (M.S., Georgia Institute of Technology, 1952), Maurice Keith Marshall (M.S., Kentucky, 1956), James Francis Lafferty (M.S., Southern California, 1957), Randolph Bruce Renda (Ph.D., Purdue, 1959), James F. Thorpe (Ph.D., Pittsburgh, 1960), Warren Ware Walton (M.S., Kentucky, 1953). *Assistant Professors:* Roy Donald Burberry (M.A., Kentucky, 1958), James McCleland Elliott (M.S., Kentucky, 1959), Harry Louis Mason (M.S., Kentucky, 1959), Orval Christy Stewart (M.S., West Virginia, 1961). *Lecturers:* Deh Chang Tao (Ph.D., Purdue, 1951), John Potts Hobart (E.E., Cincinnati, 1921).

CURRICULUM LEADING TO A BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING DEGREE

Freshman Year

First Semester	Crs.
CHE 110—Gen. College Chemistry	5
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
ME 001—The Engineering Profession	0
PE—Physical Education	1
Military or Aerospace Science (optional)	2
*Non-technical Elective	3
	19

Second Semester	Crs.
CHE 112—Gen. College Chemistry	5
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
ME 002—The Engineering Profession	0
ME 105—Basic Engineering Graphics	2
Military or Aerospace Science (optional)	2
*Non-technical Elective	3
	19

Sophomore Year

First Semester	Crs.
EE 251—Introduction to the Use of Digital Computers	2
MA 211—Analytics and Calculus II	4
ME 003—The Engineering Profession	0
ME 106—Mechanical Engineering Graphics I	2
ME 250—Shop Theory	1
ME 251—Shop Practice	1
PE—Physical Education	1
PHY 231—General College Physics	3
PHY 241—General College Physics Laboratory	2
Military or Aerospace Science (optional)	2
	18

Second Semester	Crs.
EM 221—Statics	3
MA 212—Analytics and Calculus III	4
ME 004—The Engineering Profession	0
ME 240—Mechanical Engineering Graphics II	2
ME 252—Manufacturing Methods	2
PHY 232—General College Physics	3
PHY 242—General College Physics Laboratory	2
Military or Aerospace Science (optional)	2
	18

Junior Year

First Semester	Crs.
ECO 251—Principles of Economics	3
EM 313—Dynamics	3
EM 331—Strength of Materials	3
MA 431—Differential Equations	3
ME 005—The Engineering Profession	0
ME 241—Mechanisms	3
ME 320—Engineering Thermodynamics I	3
	18

Second Semester	Crs.
ME 006—The Engineering Profession	0
ME 310—Mechanical Laboratory I	2
ME 321—Engineering Thermodynamics II	3
ME 330—Fluid Mechanics	3
ME 331—Fluid Mechanics Laboratory	1
ME 340—Machine Design I	3
MET 301—Adaptive Metallurgy for Engineers	3
*Non-technical Elective	3
	18

Senior Year

First Semester	Crs.
EE 305—Electrical Circuits & Machinery	3
ME 007—The Engineering Profession	0
ME 311—Mechanical Laboratory II	2
ME 341—Machine Design II	3
ME 525—Elements of Heat Transfer	3
Mechanical Engineering Design Elective I (Choose one)	
1. ME 510—Introduction to Nuclear Engineering	3
2. ME 530—Fluid Dynamics	4
3. ME 550—Motion and Time Study	4
4. ME 560—Internal Combustion Engines	4
5. ME 580—Air Conditioning, Heating & Ventilating	4
6. ME 590—Elements of Aerospace Tech.	4 4
*Non-technical Elective	3
	18

Second Semester	Crs.
EE 306—Electrical & Electronic Circuits	3
EM 513—Mechanical Vibrations	3
ME 008—The Engineering Profession	0
ME 312—Mechanical Laboratory III	2
ME 371—Seminar	1
†Technical Elective	3
Mechanical Engineering Design Elective II (Choose one)	
1. ME 511—Elements of Nuclear Design	3
ME 512—Lab for ME 511 (Prereq: ME 510)	1
2. ME 564—Propulsion System Design (Prereq: ME 530)	3
3. ME 552—Plant Layout (Prereq: ME 550)	3
4. ME 562—Reciprocating Engine Design (Prereq: ME 560)	3
5. ME 581—Air Conditioning, Heating & Ventilating Design (Prereq: ME 580)	3
6. ME 592—Aerospace Component Design (Prereq: ME 590)	3 3
*Non-technical Elective	3
	18

* Non-technical electives must be selected from the Humanities and Social Studies in other colleges and must be approved by the student's advisor.

† Technical Elective must be selected from departments of engineering, mathematics, chemistry or physics, and must be approved by the student's advisor.

Course Descriptions

001 *The Engineering Profession* (Freshmen). (0) I
Staff.

002 *The Engineering Profession* (Freshmen). (0) II
Staff.

003 *The Engineering Profession* (Sophomore). (0) I
Staff.

004 *The Engineering Profession* (Sophomore). (0) II
Staff.

005 *The Engineering Profession* (Junior). (0) I
Staff.

006 *The Engineering Profession* (Junior). (0) II
Staff.

007 *The Engineering Profession* (Senior). (0) I
Staff.

008 *The Engineering Profession* (Senior). (0) II
Lectures on professional growth, conduct and ethics. Activities of the student branch of the American Society of Mechanical Engineers. *Staff.*

105 *Basic Engineering Graphics.* (2) I, II
Freehand sketching and lettering. Orthographic and axonometric drawings and sketches. Use and care of instruments. Use of scales. Dimensioning. Auxiliary views. Sectioning. Fasteners. Pencil techniques. Charts, maps and diagrams. Three two-hour periods a week. Same as CE 105. *Burberry, Hobart.*

106 *Mechanical Engineering Graphics I.* (2) I, II
Graphical solution of space problems by the application of the principles of descriptive geometry. Same as CE 106. Prereq: ME 105 or CE 105. Drawing room, six hours. *Burberry.*

110 *Engineering Problems.* (1) I, II
Slide rule instruction with applications. Theory and application of the slide rule. Two recitations per week. Prereq: MA 112. *Staff.*

240 *Mechanical Engineering Graphics II.* (2) I, II
Technical sketching and working drawings of machines and machine parts. Prereq or concurrent: ME 106, ME 250 and ME 251. Drawing room, six hours. *Hobart.*

241 *Mechanisms.* (3) I, II
Movement of machine parts such as crank and link motions. Cams, gears, straight line and quick return motions. Prereq: PHY 211 or 231. ME 240. Lecture, two hours, laboratory, three hours. *Barber.*

250 *Shop Theory.* (1) I, II
This course deals with machine shop theory and covers the various machines and tools used in shop work with emphasis on their uses and limitations. Lecture and visual aids, two hours. Prereq: Sophomore standing. *Stewart, O. C.*

251 *Shop Practice.* (1) I, II
The purpose is to introduce the student to actual machine shop practice to provide a basic background in manufacturing. Machine shop, three hours. Prereq or concurrent: ME 250. *Stewart, O. C.*

252 *Manufacturing Methods.* (2) I, II
This course covers other manufacturing processes including foundry practice, forging, sheet metal work, powder metallurgy, plastic molding and cold forming of metal, production machines and processes. Plant visitations. Lecture and visual aids, three hours. Prereq: Sophomore standing. *Stewart, O. C.*

299 *Analysis of Experimental Data.* (2) I, II
A study of problems and methods used in deriving empirical equations from experimental data, including periodic functions. Graphical and numerical methods of integration and differentiation. Design of special slide rules and nomographs. Prereq. or concur: MA 113; ME 110. *Staff.*

310 *Mechanical Laboratory I.* (2) I, II
Fundamentals of mechanical engineering laboratory practice. Laboratory, four hours. Prereq: ME 320, ENG 102. *Staff.*

311 *Mechanical Laboratory II.* (2) I, II
Performance tests on heating, ventilating and power plant equipment. Lab, four hours. Prereq: ME 310. *Staff.*

312 *Mechanical Laboratory III.* (2) I, II
Continuation of ME 311. Lab, four hours. Prereq: ME 310. *Staff.*

320 *Engineering Thermodynamics I.* (3) I, II
Fundamental principles of thermodynamics. Lecture and recitation, three hours. Prereq: PHY 232. Concur: MA 431. *Staff.*

321 *Engineering Thermodynamics II.* (3) I, II
Continuation of ME 320. Lecture and recitation, three hours. Prereq: ME 320 and MA 431. *Staff.*

330 *Fluid Mechanics.* (3) I, II
Fundamental principles of fluid flow. Lecture and recitation, three hours. Prereq: ME 320. *Elliott.*

331 *Fluid Mechanics Laboratory.* (1) I, II
Laboratory exercises and demonstrations of fundamental fluid mechanics phenomenon. Laboratory, two hours. Prereq or concurrent: ME 330. *Elliott.*

340 *Machine Design I.* (3) I, II
Design of machine and structural elements. Lecture and recitation, three hours. Prereq: ME 240, ME 252, EM 331. *Mason, Carter.*

341 *Machine Design II.* (3) I, II
Continuation of ME 340. Lecture and recitation, one hour. Drawing room, six hours. Prereq: ME 340. *Mason, Carter.*

342 *Laboratory for ME 341.*

350 *Safety Engineering.* (3)
A study of industrial accidents prevention, accident statistics, industrial and general hazards, fire protection, codes and standards of safety. The course is designed for those who may enter the fields of design or production engineering. Lecture and recitation, three hours per week. Prereq: ME 251 and CHE 101 or 106. *Gard.*

371 *Seminar.* (1) I, II
Studies of current engineering literature, preparation and presentation of bibliographies and reports through the use of the Engineering Index and Industrial Arts Index. Two hours a week. Prereq: Senior classification. *Staff.*

400 *Elements of Engineering Thermodynamics.* (3) I, II
(For Civil, Electrical and Mining Engineers). General energy equations, mixtures of gases and vapors, flow of fluids, vapor power cycles, internal combustion cycles, and refrigeration cycles. Recitation, three hours. Prereq: PHY 232 and MA 212. *Staff.*

401 *Mechanical and Electrical Equipment for Buildings I.* (2) I
A course for Architecture students. The principles of water supply, plumbing and drainage, air conditioning, electrical engineering, lighting and acoustics are studied. Lecture and recitation, two hours. Prereq: PHY 232. *Stewart, O. W.*

402 *Mechanical and Electrical Equipment for Buildings II.* (2) II
Continuation of ME 401. Lecture and recitation, two hours. Prereq: ME 401. *Stewart, O. W.*

510 *Introduction to Nuclear Engineering.* (3)
An introduction to the application of radioactivity and nuclear energy in engineering. Measurements, process control, power production and elementary nuclear design of neutron chain reactors. Lecture, three hours. Prereq: PHY 232, MA 331 or 431. *Lafferty, Funk.*

511 *Elements of Reactor Design.* (3) II
Characteristics of reactor materials; heat removal requirements; determination of reactor size; composition and configuration to satisfy the nuclear, thermal, hydraulic and mechanical design requirements. Lecture, three hours. Prereq: ME 510. *Lafferty.*

512 *Lab for ME 511.* (1) II

525 *Elements of Heat Transfer.* (3) I, II
Fundamental principles of heat transfer. Lecture and recitation, three hours. Prereq: ME 321, MA 331. *Elliott, Walton.*

530 *Fluid Dynamics.* (4) I
Thermodynamics of flow of compressible fluids. Isentropic flow, diabatic flow, flow with friction, wave phenomena, and experimental techniques and measurement. Lecture and recitation, three hours. Lab, two hours. Prereq: ME 321 and ME 330. *Marshall.*

531 *Laboratory for ME 530.*

550 *Motion and Time Study.* (4) I, II
Principles and uses of motion economy and fundamentals of time study. Lecture and recitation, three hours; lab, two hours. Prereq: ME 250, 251, 252. *Gard.*

551 *Laboratory for ME 550.*

552 *Plant Layout.* (3) I
Selection of processes and machines, material handling systems, and plant requirements. Lecture, two hours; drawing room, three hours. Prereq: ME 550. *Gard.*

553 *Laboratory for ME 552.*

554 *Tool Design.* (3) II
An introduction to Tool Engineering which embodies the fundamental principles of designing jigs, fixtures, cams, gauges, punches, dies and automatic machine tools. Lecture, two hours; drawing room, three hours. Prereq: ME 341. *Mason, Gard and Carter.*

555 *Laboratory for ME 554.*

560 *Internal Combustion Engines.* (4) II
A study of internal combustion engine cycles and the characteristics and performance of actual engines, valve gears, and materials of construction. Lecture and recitation, three hours; lab, two hours. Prereq: ME 321 or ME 400. *Stewart, O. W.*

561 *Laboratory for ME 560.*

562 *Reciprocating Engine Design.* (3) I
A brief review of basic thermodynamics of internal combustion engine cycles and a comprehensive analysis of the construction of reciprocating engines. Calculation of physical data for given design requirements. Assembly drawings of components designed. Lecture and recitation, one hour. Drawing room, six hours. Prereq: ME 560. *Stewart, O. W.*

563 *Laboratory for ME 562.*

564 *Propulsion System Design.* (3) II
Design of systems for aircraft or missile propulsion. Centrifugal compressors, axial-flow compressors, turbine and exhaust systems, and combustion chambers. Lecture, one hour. Drawing room, six hours. Prereq: ME 530. *Marshall.*

565 *Laboratory for ME 564.*

566 *Power Plant Engineering.* (3) II
Study of the characteristics of steam and internal combustion engineering generating power stations. Lecture and recitation, three hours. Prereq: ME 321. *Stewart, O. W.*

580 *Air Conditioning, Heating and Ventilating.* (4) I
Theory of air conditioning and the mechanical equipment of buildings. Lecture and recitation, four hours. Prereq: ME 321. *Walton.*

581 *Air Conditioning, Heating and Ventilating Design.* (3) II
Continuation of ME 580 and the complete design and layout of a year-round air conditioning system. Drawing room, nine hours. Prereq: ME 580; prereq. or concur: ME 582. *Walton.*

582 *Refrigeration.* (3) I
A course which deals with compression and absorption refrigeration machines and installations. Lecture and recitation, three hours. Prereq: ME 321 or ME 400. *Walton.*

590 *Elements of Aero-Space Technology.* (4) I
Flight performance of airborne and ballistic vehicles. Space vehicle propulsion and structures. The space environment. Lecture, three hours. Lab, two hours. Prereq: ME 321 and ME 330. *Lange.*

591 *Laboratory for ME 590.*

592 *Aero-Space Component Design.* (3) II
Preparation of formal proposal on a given requirement in the aero-space field. Execution of the design. Testing of a prototype under proper environmental conditions. Lecture, one hour. Drawing room, six hours. Prereq: ME 590. *Lange.*

593 *Laboratory for ME 592.*

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 Mechanical Engineering or its equivalent.

610 *Nuclear Reactor Analysis.* (3) I
A lecture and problem course covering the use of the one-velocity Fermi Age group and elementary transport models in the design and analysis of reactor systems. Lecture, three hours. Prereq: ME 510. Prereq. or concur: PHY 554, MA 432. *Lafferty, Funk.*

615 *Plasma Dynamics.* (3) II
A lecture course dealing with the study of basic laws of plasma physics, hydrodynamics, and electromagnetic theory in association with transport phenomena. Application of these principles to energy conversion systems. Lecture, three hours. Prereq: MA 432, ME 620 and consent of instructor. *Renda.*

620 *Advanced Engineering Thermodynamics I.* (3) I
Critical treatment of the laws of thermodynamics, temperature scales; applications of theory to compressors and internal combustion engines; frequent reference to research papers. Lecture, three hours. Prereq: ME 321 or consent of instructor. *Walton, Carter.*

621 *Advanced Engineering Thermodynamics II.* (3) II
Continuation of ME 620. Prereq: ME 620. *Walton.*

625 *Advanced Heat Conduction.* (3) I
Comprehensive study of heat conduction; derivation of governing physical and subsidiary equations; discussion of the various boundary conditions; review of classical heat conduction solutions; discussion of current problems, methods of solution and engineering applications of heat conduction. Lecture, three hours. Prereq: ME 525 or equivalent or concurrent, MA 432. *Thorpe.*

626 *Advanced Heat Convection.* (3) II
Comprehensive study of heat convection; derivation of equations of convection of mass, momentum, and energy boundary layer equations; classical solutions of laminar convection problems; review of turbulent convection; analogies between momentum and energy. Lecture, three hours. Prereq: ME 625. *Thorpe.*

627 *Radiation Heat Transfer.* (3) II
Study of thermal radiation; discussion of Planck distribution function and Stefan-Boltzmann Equation; definition of black and gray radiators; study of geometry of radiation; angle factors; study of distributed radiators. Lecture, three hours. Prereq: ME 525 or equivalent, or concurrent, MA 432. *Thorpe.*

630 *Advanced Fluid Mechanics I.* (3) I
Derivation of basic equations for continuous media. Some exact solutions of Navier-Stokes equations. Potential flow. Theory of turbulence and boundary layers. Lecture, three hours. Prereq: ME 330 or equivalent, or concurrent, MA 432. *Renda.*

631 *Advanced Fluid Mechanics II.* (3) II
One, two, and three dimensional compressible flow of fluids. Free-turbulence; jets and wakes. Superfluids. Surface phenomena. Molecular flow of gases. Lecture, three hours. Prereq: ME 630. *Renda.*

632 *Advanced Fluid Mechanics III.* (3)
Conference course permitting latitude in choice of topics. Lecture, three hours. Prereq: ME 630 and consent of instructor. *Renda.*

640 *Advanced Machine Design.* (3)
The application of the principles of mechanics of materials, dynamics, and kinematics to the design of complete machines. This involves a knowledge of shop practice and methods of construction. Prereq: 341. *Carter.*

641 *Advanced Gear Design.* (3)
Fundamentals of gearing; involute trigonometry; design of planetary gear systems and transmission; study of gear forms such as bevel, helical, worm and spiral; study of gear manufacturing methods. Lecture and recitation, three hours. Prereq: ME 341; consent of instructor. *Carter.*

642 *Advanced Kinematics of Machinery I.* (3)
Fundamentals in the analysis and synthesis of mechanisms including couple curves, guided plane systems and linkage design. Lecture, three hours. Prereq: Approval of director of graduate study. *Tao.*

643 *Advanced Kinematics of Machinery II.* (3)
A continuation of ME 642, dealing with the motion of rigid planes passing through 2,3,4,5 or more specified positions. Theory and application. Ability of reading technical German or Russian is preferred but not required. Lecture and recitation, three hours per week. Prereq: ME 642. *Tao.*

644 *Advanced Dynamics of Machinery.* (3) II
An advanced course in the study of dynamics of machine elements. Application of Lagrange's equations, Euler's angles, Coriolis acceleration and other dynamic principles to mechanisms, rotating and reciprocating devices. Lecture, three hours. Prereq: Consent of instructor, EM 313, ME 340 and MA 432. *Carter.*

660 *Power Plant Engineering.* (3)
Advanced work in the design, selection, layout and operation of heat-power plant equipment. Prereq: ME 566. *Stewart, O. W.*

661 *Steam Turbines.* (3)
Steam turbine cycles, flow of steam through nozzles and blades; internal losses; re-heat factor; regenerative feed-heating; turbine performance at varying loads; mixed-pressure turbines; construction of nozzles and diaphragms. Prereq: Approval of head of department. *Stewart, O. W.*

662 *Gas Turbines and Jet Propulsion.* (3)
Momentum, energy, and thermodynamics of gas flow; performance calculations; centrifugal, axial-flow, and Lysholm compressors; gas turbine cycles and characteristics; combustion chamber; aircraft, stationary, marine, and locomotive power plants; rockets. Prereq: Approval of head of department. *Marshall.*

680 *Heating, Ventilating and Air Conditioning I.* (3)
Theoretical analysis of complex refrigeration cycles and treatment of advanced refrigeration topics; intermittent heating; advanced psychometrics and air conditioning techniques. Prereq: Consent of instructor. *Walton.*

681 *Heating, Ventilating and Air Conditioning II.* (3)
Analysis of panel heating and cooling systems; theoretical developments of exact radiation equations involving multiple reflections; configuration factor analysis; exact and simplified design techniques. *Walton.*

682 *Heating, Ventilating and Air Conditioning III.* (3)
Advanced work in the design, selection, layout and operation of heating, ventilating and air conditioning equipment with emphasis on industrial application and heat pump design. *Walton.*

690 *Advanced Aeronautical Meteorology.* (3) II
Atmospheric thermodynamics, and dynamics. Adiabatic changes of moist air through vertical motion, effects on aircraft. Energy equations; equations of motion on rotating globe; rocket-spectographic studies. Lecture and recitation, three hours. *Lange.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. *Carter.*

771 *Seminar.* (0)
Review of current literature in the field of Mechanical Engineering, general discussion and presentation of papers on departmental research. Required of all graduate students. Two hours. *Staff.*

780 *Special Problems in Mechanical Engineering.* (3)
For graduate students having research ability. Each course consists of individual work in one of the various fields of Mechanical Engineering. Lab, six hours. May be repeated three times for a total of twelve credits. Prereq: Approval of instructor. *Staff.*

MINING & METALLURGICAL ENGINEERING

FACULTY

Professors: Richard Shelby Mateer (Ph.D., Pittsburgh, 1950), CHAIRMAN. Roy Erwin Swift (D.Engr., Yale, 1949). *Associate Professors:* James Graham Morris (Ph.D., Purdue, 1956), William Hayden Roll (E.M., Kentucky, 1950). *Assistant Professors:* Robert J. DeAngelis (Ph.D., Northwestern, 1964), Robert Carlisle Duncan (M.S., Kentucky, 1957), Frank D. Hoyt (M.S., Pennsylvania State, 1957). *Instructor:* William C. Setzer (M.S., Kentucky, 1963).

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING

Freshman Year

First Semester	Crs.
MET 001—The Engineering Profession	0
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
ME 105—Basic Engineering Graphics	2
CHE 110—General Chemistry	5
Military or Aerospace Science (optional)	2
Physical Education	1
	18

Second Semester	Crs.
MET 002—The Engineering Profession	0
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General Chemistry	5
Military or Aerospace Science (optional)	2
Physical Education	1
Non-technical Elective	3
	18

Sophomore Year

First Semester	Crs.
MET 003—The Engineering Profession	0
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Lab.	2
CHE 226—Analytical Chemistry	3
CME 211—Chem. Engr. Calculations	4
Military or Aerospace Science (optional)	2
	18

Second Semester	Crs.
MET 004—The Engineering Profession	0
MA 212—Analytics and Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab.	2
ECO 251—Principles of Economics	3
MET 261—Elem. of Physical Metallurgy	3
Military or Aerospace Science (optional)	2
	17

MINING & METALLURGICAL ENGINEERING

Junior Year

First Semester	Crs.
MET 005—The Engineering Profession	0
CHE 446—Physical Chemistry for Engineers	4
MA 431—Differential Equations	3
MET 363—The Science of Metals	3
EM 221—Statics	3
MET 321—Melting, Fabrication and Testing of Metals	3
EE 305—Electrical Circuits and Machinery	3
	19

Second Semester	Crs.
MET 006—The Engineering Profession	0
CHE 448—Physical Chemistry for Engineers	4
MET 351—Metallurgical Thermodynamics	3
MET 361—Physical Metallurgy	3
EM 331—Strength of Materials	3
EE 306—Electric and Electronic Circuits	3
Non-technical elective	2
	18

Senior Year

First Semester	Crs.
MET 007—The Engineering Profession	0
MET 451—Metallurgical Thermodynamics	3
MET 461—Physical Metallurgy	3
MET 371—Seminar	1
MET 341—Extractive Metallurgy	3
*Technical Elective	3
*Non-technical Electives	6
	19

Second Semester	Crs.
MET 008—The Engineering Profession	0
MET 453—Metallurgical Kinetics	3
MET 463—Structure of Alloys	3
MET 372—Seminar	1
MET 443—Minerals Beneficiation	3
MET 444—Minerals Beneficiation Laboratory	1
*Technical Elective	3
*Non-technical Electives	5
	19

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN MINING ENGINEERING

Freshman Year

First Semester	Crs.
MIN 001—The Engineering Profession	0
ENG 101—Freshman Composition	3
MA 111—College Algebra	3
MA 112—Plane Trigonometry	2
CHE 110—General College Chemistry	5
ME 105—Basic Engineering Graphics	2
Military or Aerospace Science (optional)	2
Physical Education	1
	18

Second Semester	Crs.
MIN 002—The Engineering Profesion	0
ENG 102—Freshman Composition	3
MA 113—Analytics and Calculus I	4
CHE 112—General College Chemistry	5
CE 100—Plane Surveying	3
Military or Aerospace Science (optional)	2
Physical Education	1
	18

Sophomore Year

First Semester	Crs.
MIN 003—The Engineering Profession	0
MA 211—Analytics and Calculus II	4
PHY 231—General College Physics	3
PHY 241—General College Physics Lab.	2
GLY 200—Elem. Geology for Engr.	3
CHE 226—Analytical Chemistry	3
Military or Aerospace Science (optional)	2
	17

Second Semester	Crs.
MIN 004—The Engineering Profession	0
MA 212—Analytics and Calculus III	4
PHY 232—General College Physics	3
PHY 242—General College Physics Lab.	2
GLY 202—Elem. Geology for Engr.	3
MIN 121—Elements of Mine Surveying	2
EM 221—Statics	3
Military or Aerospace Science (optional)	2
	19

Junior Year

First Semester	Crs.
MIN 005—The Engineering Profession	0
EM 331—Strength of Materials	3
MIN 241—Elements of Mining	3
EE 305—Electrical Circuits & Machinery	3
ECO 251—Principles of Economics	3
GLY 212—Mineralogy	3
*Non-technical Elective	3
	18

Second Semester	Crs.
MIN 006—The Engineering Profession	0
MET 301—Engineering Metallurgy	3
MET 443—Minerals Beneficiation	3
MET 444—Minerals Beneficiation Lab.	1
EE 306—Electrical & Electronic Circuits	3
ME 400—Elem. of Engr. Thermodynamics	3
CE 301—Testing Materials	1
*Non-technical Elective	3
	17

Senior Year

First Semester	Crs.
MIN 007—The Engineering Profession	0
CE 351—Hydraulics Laboratory	1
CE 352—Fluid Mechanics	3
CE 380—Theory of Structures	3
MIN 461—Mineral Industries Administration	3
MIN 441—Mining Methods	3
*Non-technical Elective	3
*Technical Elective	3
	19

Second Semester	Crs.
MIN 008—The Engineering Profession	0
MIN 091—Mine Rescue & First Aid	0
MIN 471—Mine Ventilation	3
MIN 481—Mine Plant & Machinery	3
MIN 561—Valuation of Mineral Prop.	2
MIN 371—Seminar	1
*Non-technical Electives	6
*Technical Elective	3
	18

* All electives selected must have the approval of the chairman of the department.

Course Descriptions

001 *The Engineering Profession* (Freshmen). (0) I
Mateer.

002 *The Engineering Profession* (Freshmen). (0) II
Mateer.

003 *The Engineering Profession* (Sophomore). (0) I
Duncan.

004 *The Engineering Profession* (Sophomore). (0) II
Duncan.

005 *The Engineering Profession* (Junior). (0) I
Duncan.

006 *The Engineering Profession* (Junior). (0) II
Duncan.

007 *The Engineering Profession* (Senior). (0) I
Duncan.

008 *The Engineering Profession* (Senior). (0) II
Lectures on professional growth, conduct and ethics. Activities of the student branches of the corresponding professional societies. May be repeated indefinitely. *Duncan.*

10 *Elements of Metallurgy.* (0) S
Basic metallurgy including various methods of heat treatment and other pertinent data. Eight weeks at two hours per week.

261 *Elements of Physical Metallurgy.* (3) II, S
Phase diagrams through ternary metal systems; dependence of physical, mechanical, and electrical properties on microstructure and alloy distribution; structures developed in fabrication and interpretation in terms of service performance. Lecture and recitation, three hours. Prereq: CHE 110 or 112 and PHY 231. *Duncan.*

301 *Adaptive Metallurgy for Engineers.* (3) I, II
Principles of production and treatment of metals and alloys; correlation of structures, properties and applications for Mechanical and Chemical Engineers. Lecture and recitation, three hours. Prereq: Freshman Chemistry and Sophomore Physics. *Setzer, Duncan.*

303 *General Elementary Metallurgy.* (2) I, II
Lecture and recitation, two hours. Co-req: EM 331 and CE 301. *Duncan.*

305 *Engineering Materials.* (4) I, II
Interpretation of mechanical, chemical and physical properties of alloy, ceramics and organic materials in terms of atomic bonding, crystal structure, grain and fibre formation in aggregates. Laboratory techniques in X-ray diffraction, microscopy and engineering property tests. Lecture, two hours; recitation, one hour; lab, three hours. Prereq: PHY 232. *Mateer and Setzer.*

321 *Melting, Fabrication and Testing of Metals.* (3) I
Conventional foundry operations in aluminum, bronze and cast iron; sand control, arc-furnace refining of steel, vacuum melting of reactive metals; welding, rolling, forging, x-ray radiographic inspection and mechanical testing. Lecture, one hour; lab, six hours. Prereq: MET 261. *Duncan.*

341 *Extractive Metallurgy.* (3) I
The principles and processes employed in the production, treatment and preparation of the various economic metals, both ferrous and non-ferrous, including a consideration of their strategic and economic importance. Lecture and recitation, three hours. Prereq: CHE 446. importance. Lecture and recitation, three hours. Prereq: CHE 446; MET 351. *Swift.*

351 *Metallurgical Thermodynamics I.* (3) II
Application of the first, second and third laws of thermodynamics to metallurgical systems. Discussion and analysis of energy, concept of equilibrium, heat capacity, enthalpy, entropy and free energy of alloys phases. Lecture and recitation, three hours. Prereq: CHE 446. *Mateer.*

361 *Physical Metallurgy I.* (3) II
Crystal structure, bonding in metal crystals, lattice movements in elastic and plastic deformation, x-ray diffraction and pole figures. Lecture, two hours; lab, three hours. Prereq: MET 363. *Mateer.*

363 *Structure of Alloys.* (3) I
Elastic and plastic deformation, recovery and recrystallization of alloys; heat treatment of steel. Lecture, two hours; lab, three hours. Prereq: MET 261 or 301. *Morris.*

371 *Seminar.* (1) I
General discussions of metallurgical subjects; preparation and delivery of papers and reports; extemporaneous speaking, and the briefing of technical books and articles in current literature. Two hours. Prereq: Permission of instructor. *Swift.*

372 *Seminar.* (1) II
A continuation of MET 371. Two hours. Prereq: Permission of instructor. *Swift.*

395 *Independent Work in Metallurgical Engineering.* (3) I, II, S
Research for undergraduate departmental honors students. Prereq: Major and approval of departmental chairman. May be repeated three times for a total of 12 credits. *Morris.*

443 *Minerals Beneficiation.* (3) II
Principles and mechanics of beneficiation involved in the preparation of mine products, principles of plant design and current developments. Lecture and recitation, three hours. Prereq: PHY 232. *Swift.*

444 *Minerals Beneficiation Laboratory.* (1) II
Application of the principles studied in MET 443. Lab, three hours. Prereq: or Concur: MET 443. *Swift.*

451 *Metallurgical Thermodynamics II.* (3) I
Application of fugacity, activity and equilibrium constants to metallurgical systems. Analysis of ideal, non-ideal and regular solutions and their relation to non-metallic solutions at elevated temperatures, molten salt solutions and slags. Discussion and application of the phase rule to metal systems. Lecture, three hours. Prereq: MET 351, *Mateer.*

453 *Metallurgical Kinetics.* (3) II
Rate processes in heat and mass transfer, nucleation and growth. Fluid flow in molten metal systems. Lecture, three hours. Prereq: MET 451. *Morris.*

461 *Physical Metallurgy II.* (3) I, II
High purity metals, nuclear alloys, powder metallurgy techniques. Lecture, 2 hours; lab, 3 hours. Prereq: MET 361 or concur: MA 431. *DeAngelis.*

463 *Structures of Alloys II.* (3) II
Age hardening and diffusion in metal systems. Laboratory concerned with senior thesis type problems. Lecture, two hours; lab, three hours. Prereq: MET 363. *Morris.*

521 *The Casting of Metals.* (3) I, II
Ferrous and non-ferrous foundry practice. Theory and metallurgy of metal castings. Application of engineering principles to the design and production of castings. Lecture and recitation, three hours. Prereq: MET 301 or 303 or 201. *Duncan.*

531 *Powder Metallurgy.* (3) I, II
The production and testing of metal powders. The theory of sintering without and with a liquid phase. The practice and theory of compacting metal powders into useful forms. Lecture and recitation, three hours. Prereq: Consent of instructor. *Swift.*

535 *Metals at High Temperature.* (3) I, II
Fundamental considerations involved in high temperature behavior of metals. Test methods and equipment for elevated temperature testing. A review of the commercial alloys for high temperature use and study of current literature. Lecture, three hours. *DeAngelis.*

561 *Advanced Physical Metallurgy.* (3) I, II
Study of theory of phase transformation in metallic systems. Analysis of rate controlling processes for classical phase changes and for order-disorder reactions. Lecture, three hours. Prereq: CHE 446, 448, MET 451 (or equivalent). Co-req: MET 463. *Morris.*

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 Metallurgical Engineering or its equivalent. The Doctor of Engineering degree is offered in the field of physical metallurgy.

633 *Special-Purpose Alloy Steels.* (3) I, II
Fundamental principles of the more complicated and special alloy steels and their heat treatment. Carbon, mild alloy, N.E., S.A.E., tool and super alloys are included. Alternate alloy steels for application are considered. Lecture, three hours. *Swift.*

637 *Materials Engineering.* (3) I, II
Factors in specification and testing of materials. Materials for lightweight construction, mechanical and electrical applications, and severe service conditions are treated. Material failures, trouble shooting and testing are discussed. Lecture, two hours; lab, three hours. *Mitchell.*

639 *Nuclear Metallurgy.* (3) I, II
The metallurgy of such materials as are used in the various components of nuclear reactors with special emphasis on their physical metallurgy. Scientific principles in their broadest sense are emphasized. Material applicable to nuclear-reactor components in the ceramics, metal-ceramics, and other fields. Lecture and recitation, three hours. Prereq: B.S. in Metallurgical Engineering or permission of instructor. *Mateer.*

641 *Advanced Production Metallurgy.* (3) I, II
Principles and practices used in the production of alloys with special stress upon any particular group of alloys that the student may choose. Reference reading and laboratory work are emphasized. Lecture, two hours; lab, three hours. *Swift.*

643 *Advanced Ore Dressing I.* (3) I
Ore dressing plant design and original research in concentration problems. Lecture and recitation, one hour. Lab, six hours. *Swift.*

645 *Advanced Ore Dressing II.* (3) II
Continuation of MET 643. Lecture and recitation, one hour. Lab, six hours. *Swift.*

651 *Corrosion.* (3) I, II
Corrosion mechanisms, including the electro-chemical theory, fundamentals of oxidation and tarnish, passivity and effects of crystal orientation on corrosion. Corrosion of engineering materials in various environments, and testing. Lecture, two hours; lab, three hours. *Swift.*

657 *The Physical Chemistry of Steel Making.* (3) I, II
Reactions involved in steel making processes. Slag constitution, slag control, and effects of additions to liquid metal. Influences of melting, refining, and deoxidizing practices on properties of finished steel. Lecture, three hours. *Staff.*

659 *Advanced Phase Diagrams.* (3) I, II
Review of thermodynamic fundamentals and application to binary pressure-temperature-composition diagrams. Construction and interpretation of ternary temperature-composition diagrams. Review and discussion of important ternary diagrams. Lecture and recitation, three hours. Prereq: CHE 644. *Mateer.*

663 *Theoretical Structural Metallurgy.* (3) I, II
Interatomic forces of crystal bonding; free electron; zone theory; equilibrium and rate of approach thereto; thermal behavior, structure and free energy of alloy phases; equilibrium diagrams; diffusion; order-disorder change; nucleation and phase growth. Lecture, three hours. *Morris.*

665 *X-ray Metallography.* (4) I, II
Crystallography; x-ray theory. Laue, rotation-crystal, powder x-ray diffraction methods; special cameras; structure-factor equations; reciprocal lattice; stereographic, gnomonic projections; pole figures; stress-strain analysis, phase diagrams; electron diffraction. Lecture, three hours; lab, three hours. Prereq: MET 361. *Mateer.*

667 *Crystal Plasticity.* (3) I, II
Fundamentals of plastic deformation in metals; Crystallography, slip, twinning, strain hardening, recovery, cold working, cold-worked and recrystallization textures; Heyns stresses and creep. Lecture and recitation, three hours. *Fields.*

745 *Carbonization of Coal.* (3) I, II
The production of coke, char, gas and chemical by-products. Determination of the quality of coals and the yields of by-products of low, medium and high temperature processes. Lecture and recitation, two hours; lab, three hours. *Swift.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
(1 to 9 weeks residence). May be repeated once.

769 *Residence Credit for the Doctor's Degree.*
(1 to 18 weeks residence). May be repeated indefinitely.

771 *Seminar.* (1) I, II, S
Review of current literature in the field of metallurgical engineering and presentation of papers on departmental research. Group and panel discussions. Required of all graduate students. May be repeated three times for a maximum of 4 credits.

781 *Special Problems, Literature and Laboratory.* (1-3) I, II
Literature research and planning of research programs; shop problems and technical writing, including a term paper, are required. Consultation, laboratory and lecture by appointment. May be repeated for a total of nine credits. *Staff.*

782 *Special Problems, Literature and Laboratory.* (3) I, II
A continuation of MET 781. Lab, 6 hours; consultation and lecture by appointment. May be repeated twice for a maximum of 9 credits.

MINING ENGINEERING

001 *The Engineering Profession* (Freshman). (0) I, II
Mateer.

002 *The Engineering Profession* (Freshman). (0) II
Staff.

003 *The Engineering Profession* (Sophomore). (0) I
Staff.

004 *The Engineering Profession* (Sophomore). (0) II
Staff.

005 *The Engineering Profession* (Junior). (0) I
Staff.

006 *The Engineering Profession* (Junior). (0) II
Staff.

007 *The Engineering Profession* (Senior). (0) I
Staff.

008 *The Engineering Profession* (Senior). (0) II
Lectures on professional growth, conduct, and ethics. Activities of the student branch of the American Institute of Mining and Metallurgical Engineers. May be repeated indefinitely. *Staff.*

091 *Mine Rescue Training and First Aid.* (0) II

Required of mining engineers. Fundamental principles of mine rescue training and first aid. Given on University campus by Kentucky Department of Mines and Minerals, U.S. Bureau of Mines, or both in collaboration. *Roll.*

111 *Problems in Mining Engineering.* (1) II

An introduction to the engineering method of solving problems in mining; the use of the slide rule and the engineering library; field trips; engineering reports. Lab, three hours.

121 *Elements of Mine Surveying.* (2) I

Surface and underground methods for coal and metal mine surveys. Tunnel surveys and shaft plumbing. Lecture and recitation, one hour; practical work, three hours. Prereq: CE 100. *Roll.*

241 *Elements of Mining.* (3) I

Fundamental mining operations, prospecting and mine development. Lecture and recitation, three hours. Prereq: CHE 112, PHY 231, GLY 200. *Staff.*

371 *Seminar.* (1) I, II

The preparation and delivery of papers and reports on mining subjects, extemporaneous speaking and the briefing of technical books and articles in the current literature. Two hours. Prereq: Senior classification. Consent of instructor. *Swift.*

395 *Independent Work in Mining Engineering.* (3) I, II, S

Research for undergraduate departmental honors students. Prereq: Major and approval of departmental chairman. May be repeated three times for a total of 12 credits. *Swift.*

441 *Mining Methods.* (3) I

Surface and underground mining of coal, metallic ores and nonmetallic minerals. Economic, engineering and operating factors. Lecture and recitation, three hours. Prereq: MIN 241. *Hoyt.*

461 *Mineral Industries Administration.* (3) I

The engineering aspects of mineral industries administration and management, including safety engineering. Lecture and recitation, three hours. Prereq: Junior classification. *Swift.*

471 *Mine Ventilation.* (3) II

The principles and methods of mine ventilation and air conditioning; the control of dangerous impurities. Lecture and recitation, two hours; lab, three hours. Prereq: MIN 241. *Roll and Hoyt.*

481 *Mine Plant and Machinery.* (3) II

Theory and practice of mine haulage, hoisting, drainage, pumping and compressed air as power. Application of engineering principles to the mineral industries. Lecture and recitation, two hours; lab, three hours. Prereq: MIN 241. *Roll and Hoyt.*

536 *Ceramic Engineering.* (3) I, II

Materials and equipment used in the ceramics industry. Physical and chemical principles relating to the manufacture of ceramic products such as pottery, tile, brick, white-ware, refractories, glass and enamels on metals. Calculations involving formulas, batches of materials and the drying and firing of ceramic ware. Lecture and recitation, three hours. Prereq: B.S. in Engineering. *Swift.*

541 *Coal Preparation I.* (3) I

Principles and practice of coal preparation and associated operations. Lecture and recitation, two hours; lab, three hours. Prereq: MET 443. *Swift.*

542 *Coal Preparation II.* (3) II

A continuation of MIN 541. Lecture and recitation, two hours; lab, three hours. *Swift.*

561 *Valuation of Mineral Properties.* (2) II

Methods of appraising the value of deposits of ores, mineral fuels and non-metallics. Lecture and recitation, two hours. Prereq: ECO 251, MIN 241. *Roll.*

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 Mining Engineering or its equivalent.

621 *Advanced Prospecting.* (3) I, II

Study of the principles involved in the geophysical investigation of the minerals of the earth's crust. Lecture and recitation, two hours; lab, three hours. *Staff.*

645 *Preparation and Uses of Industrial Minerals.* (3) I, II

Sources, processing, marketing, utilization and economics of nonmetallic minerals, and product specifications. Clay, limestone, asbestos, refractories. Lecture and recitation, three hours. Prereq: B.S. degree in Engineering. *Swift.*

651 *Fuels and Their Combustion.* (3) I, II

Available fuels in the solid, liquid, and gaseous states. Emphasis will be on the utilization of fuels in the mineral industries. Technology of fuels. Physics and Chemistry of combustion. Combustion calculations. Lecture and recitation, three hours. *Staff.*

661 *Mine Organization.* (3) I, II

Detailed study of the structure and function of a mining enterprise from both the financial and the engineering standpoint. Lecture and recitation, three hours. *Roll.*

681 *Advanced Mine Engineering.* (3) I, II

Procedure and methods of collecting and recording data for the systematic development and exploitation of a mining property. Lecture and recitation, one hour; drawing and mapping, six hours. May be repeated for a total of six credits. *Roll.*

768 *Resident Credit for the Master's Degree.* (0) I, II, S

(1 to 9 weeks residence). May be repeated once.

771 *Seminar.* (0)

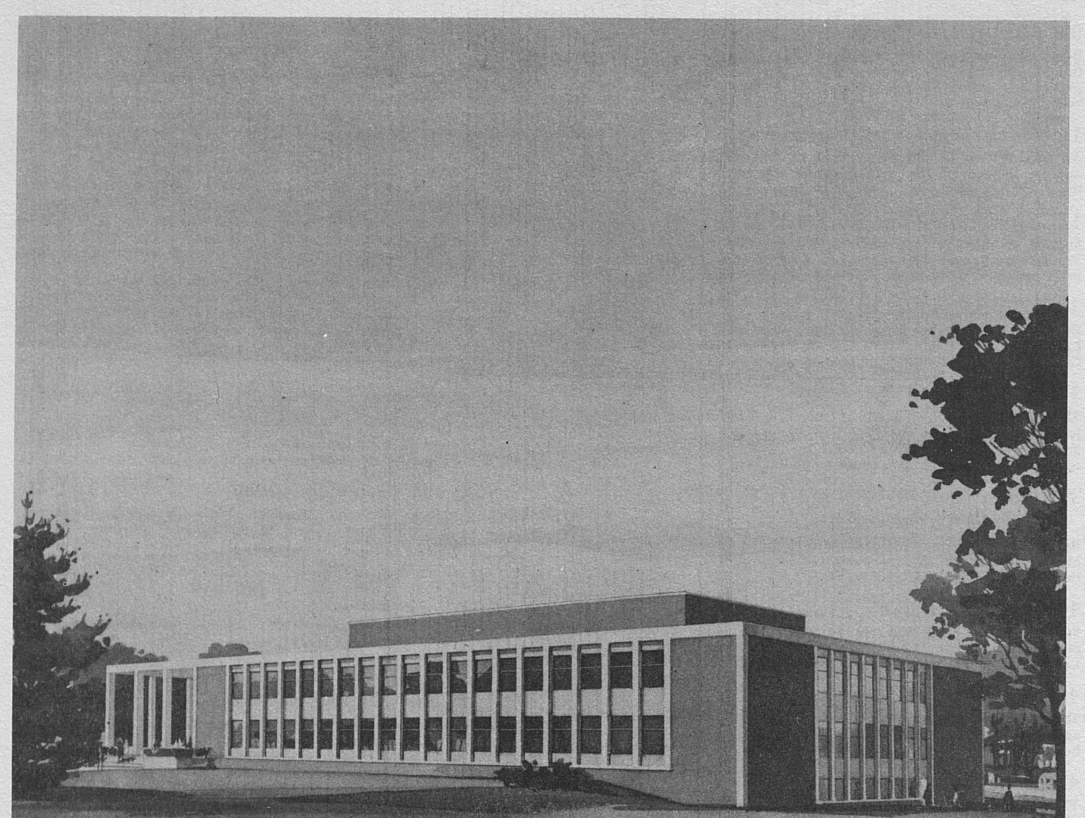
Review of current literature in the field of Mining Engineering and presentation of papers on departmental research. Required of all graduate students. *Swift.*

780 *Special Problems in Mining Engineering.* (3) I, II, S

Open to graduate students who have the ability to carry on research. Each course consists of individual work in one of the various fields of mining engineering. May be repeated twice for a maximum of 9 credits. *Roll and Swift.*

790 *Special Problems in Mining Engineering.* (3) I, II, S

Open to graduate students who have the ability to carry on research. Each course consists of individual work in one of the various fields of mining engineering. May be repeated twice for a maximum of 9 credits. *Staff.*



Law

THE COLLEGE OF LAW was established September 1, 1908, and the first class graduated in 1910. Through the years, as an integral part of the University, it has served the Commonwealth by sending out many graduates who have become leaders in the profession. It is a tradition of the College, however, that its opportunity for service is not limited in scope and its program is designed so that graduates of the school can practice their profession on a local, regional and national level.

The College of Law is accredited by all agencies which establish standards for law schools, including the Court of Appeals of Kentucky, the Association of American Law Schools, the American Bar Association and the bar admission authority in all 50 states.

The instructional program centers in a three-year general law curriculum designed to be completed in six 16-week semesters. Eighty-three (83) semester hours in law are necessary to qualify for the LL.B. degree. The aim of the program is to provide the individual student with a foundation education in law of lasting quality. This involves a great deal more than the mere study of substantive legal principles; and the program is arranged to assist the student in acquiring the myriad skills that solution of modern legal problems demands, to acquaint him with related and interdependent fields of knowledge, to make certain that he has an appreciation for and understanding of the legal, social and political institutions on which the administration of justice rests, to prepare him for the policy and ethical decisions he must make on behalf of the community in practicing his profession; in short, to give him broad, practical, basic legal training of unmatched excellence that will permit unlimited development of his legal capacities throughout his career.

The Faculty. The program of the College is conducted by a full-time faculty and staff composed of thirteen instructors and five library and secretarial personnel. They are assisted by various part-time teaching associates and research associates employed periodically. Members of the teaching faculty are well qualified by formal training and experience to teach law, to guide students in the solution of legal problems and to add to legal knowledge through research. All have done graduate work in law and have practiced law successfully; a majority have taught in a number of different law schools.

The Library. The College maintains an excellent and carefully selected law library collection of more than 70,000 volumes, one of the larger law libraries in the South. It is housed in the law building as an integral part of the school and includes an especially comprehensive collection of Anglo-American case and statutory materials. It also contains more than 8,000 treatises and textbooks, all major legal reference works, and some 200 legal periodicals received annually, as well as special collections in jurisprudence and international law. The law library is growing at about 1,800 volumes per year.

The Law Building. The College of Law now in Lafferty Hall, located near the center of the main University campus across the walk and to the northwest of the Margaret I. King Library, expects to occupy its new building on South Limestone Street, now under construction, by September 1965.

Other Facilities and Information. The College has had a chapter of the Order of the Coif since 1931. This is the academic honorary in law to which senior students are elected because of outstanding legal scholarship. Some 40 of the 136 American law schools have been granted Coif chapters on the basis of excellence in the academic program. Since 1912 the College has published continuously the Kentucky Law Journal, a leading legal periodical and the tenth oldest American law review. The Journal is published by a student staff under faculty supervision and election to the staff is based on high academic achievement and the proved ability to write and conduct research. The Journal publishes articles, notes and comments written by legal scholars, attorneys and students, and is subscribed to by members of the bar as well as all leading domestic and foreign law libraries. Practical training in trial and appellate advocacy is provided every student in Practice Court and the Appellate Moot Court Program. The former was established as an integral part of the curriculum

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William Lewis Matthews, Jr., A.B., LL.B., LL.M., S.J.D., is Dean of the College of Law.

very soon after the College itself was created and the latter is provided through eight student-managed Law Clubs. Teams representing these clubs compete annually to qualify as the College representative in the National Moot Court Competition. An extensive and distinctive program of training in legal research and writing is provided for every student through regular course work (described in the course offerings listed below) and through extracurricular prize projects such as the Will Drafting Competition and the Abstract of Title Competition, for which cash prizes are awarded by various corporate sponsors. In addition to these prizes, a number of valuable law books are awarded annually by law publishing companies to students receiving the highest grade in particular courses and achieving other academic honors. The College of Law has a modest scholarship fund maintained by contributions from alumni and members of the bar. A committee of the Kentucky State Bar Association selects the recipients of these "Kentucky Law Scholarships" from among the applications made. The scholarships are awarded as funds permit on the basis of scholarship, character and need. Information concerning scholarships and how to apply for them can be obtained by writing the Dean of the College of Law.

THE SUMMER SESSION

A number of courses in law are offered in the summer session of the University. Credit in the summer session is counted toward a degree and one-half semester of credit and residence may be acquired in each summer session. No beginning students are accepted for the summer session.

ADMISSION

In addition to the general requirements for admission to the University, an applicant for admission to the College of Law must be at least eighteen years of age and have completed at least three years of acceptable college work (90 semester credit hours, at least six of which must be in English and not more than nine of which may be in nontheory courses). In addition, the applicant must have made a grade point average of at least 2.3 (on a 4-point scale: A = 4, B = 3, C = 2, D = 1, E = 0) or its equivalent on *all* prelaw college work taken, provided, however, that an applicant with a grade point average between 2.0 and 2.3 may be considered for admission and may be admitted upon demonstration of special legal aptitude. An applicant who has been previously enrolled in another law school will be admitted only if he is in good standing in a law school which is a member of the Association of American Law Schools, if he meets the requirements for beginning students at the College of Law of the University of Kentucky, and if he has made an academic average in law which, had it been made in the College of Law of the University of Kentucky, would entitle him to continue his studies here.

In considering applicants who seek admission without a grade point average of at least 2.3, the demonstration of special legal aptitude involves the following factors and is determined by the University Dean of Admissions with the advice of the Law faculty: (1) The applicant must have an undergraduate degree or have completed prelaw requirements on a combined degree curriculum; (2) The grade point average on *all* prelaw work must be at least 2.0 and the nearer it is to 2.3 the better; (3) The academic record should have improved toward the end of the prelaw work, and (4) The applicant must have taken the National Law School Admission Test and scored well on it.

Beginning law students are accepted only for the first semester of the academic year, except that admission for the second semester may be granted in rare instances if the applicant holds an undergraduate degree or is on a combined degree program and has a prelaw grade point average of at least 2.5. Any applicant seeking second semester admission should consult the Dean of the College of Law in advance.

Procedure for Application. The Dean of Admissions and Registrar of the University of Kentucky is the admitting officer for the College of Law. Application for admission is made by submitting to his office a completed application form together with supporting transcript. *The application form can be obtained by writing to the Dean of Admissions and Registrar or to the Dean of the College of Law.*

The application, and supporting transcripts of all completed prelaw college work may be submitted on or before March 1 in the year when admission is sought. If the applicant's transcript of completed work is received by this date and meets admission requirements, he will be granted provisional admission for the following fall term by May 1, subject only to satisfactory completion of his remaining prelaw work. Applications received after March 1 will be evaluated as promptly as possible and usually the applicant will be notified of his admission status within 30 days after the final transcript is received. Applications received after August 1 each year will not be considered for fall term admission except with permission of the Dean of Admissions and the Dean of the College of Law.

National Law School Admission Test. All applicants must submit a national Law School Admission Test score. Achievement of a particular test score *is not* a condition of admission for the applicant whose academic average on *all* prelaw work taken is 2.3 or better (on a 4-point scale). The test score *is* an important factor in determining admission of the applicant whose prelaw average is less than 2.3, and these applicants must have received their college degree.

The LSAT is prepared, given, and scored by the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, and application to take it is made

directly to the Service by mail. It is given in November, February, April, and July of each year at testing centers throughout the country according to a schedule of dates and places published well in advance by the Educational Testing Service. The University of Kentucky in Lexington usually is a testing center for all scheduled dates of the test. The test application to the Educational Testing Service should be received in Princeton at least two weeks prior to the next testing date. College of Law applicants who have not taken the test during their final year of prelaw work usually can arrange to take it in Lexington in July of each year.

PRELEGAL STUDY

No special prescribed curriculum or course (with the exception of six semester hours of English) is required for admission to this law school or to American law schools generally. However, prospective law students should keep in mind that a broad, basic and liberal education will equip one to study law and also prepare him for a vital role in the community once he has acquired his professional training. Thus he should pursue a *degree program* in prelaw in which he will learn to think clearly, will form sound study habits and will have an opportunity to master the methodology and knowledge of a particular field under the guidance of good instructors. The importance of a sound background in use of the English language cannot be stressed too greatly. The attention of prelaw students is further directed to the bulletin of the College of Law, which may be obtained from the Dean of the College of Law.

Combined Degree Program. Since at least a total of six years of college work (three years' prelaw and three years' law) is required for the LL.B. degree, particular attention is called to the Arts-Law combined degree program whereby both the A.B. and LL.B. degrees can be earned in six years. In this program the first year of law work (28 semester hours) is credited to both the A.B. degree earned in the College of Arts and Sciences and the LL.B. degree earned in the College of Law. Under this program, if the prelaw student during his first three years (in the College of Arts and Sciences) earns 100 hours of required work (plus physical education) for the A.B. degree, he is admitted to the College of Law at the beginning of his fourth year and receives the A.B. degree at the end of that year. He then continues in the College of Law for two more years and receives the LL.B. degree. Entrance into the College of Law with only 90 hours of work in the first three years will not satisfy the requirements of this program, and the student receives only the LL.B. degree at the end of the six years. College of Arts and Sciences degree requirements and detailed information as to the first three years of the combined program may be found in the Arts and Sciences section of this catalogue.

A combined degree program which gives the undergraduate degree (A.B. or B.S.) and the law degree (LL.B.) in six years frequently can be worked out by the prelaw student who does not take his prelaw work at the University of Kentucky. If the undergraduate college concerned is willing, the University will make available to it the 28 semester hours of work in law which the student earns in his first year of law study here. If the other undergraduate degree requirements have been satisfied before admission to law school, the first year of law normally will furnish enough "elective" hours to complete the degree. Since the undergraduate degree is awarded by the undergraduate college and not by the College of Law, prelaw students should consult their college dean or prelaw adviser about arranging this program.

THE DEGREE OF BACHELOR OF LAWS

Students admitted to the College of Law as regular students will be eligible for the degree of Bachelor of Laws (LL.B.) upon completion of a minimum of three academic years (six semesters) of residence, and 83 semester hours of courses, in the College of Law, with academic standing of 2.0 (a numerical academic average of 60) or better.

Courses Offered in the College of Law

FACULTY

Professors: William L. Matthews, Jr. (S.J.D., Michigan, 1950), DEAN. Richard Davenport Gilliam, Jr. (LL.B., Virginia, 1924), Willburt D. Ham (LL.M., Harvard, 1941), Thomas P. Lewis (S.J.D., Harvard, 1964), Roy Mitchell Moreland (S.J.D., Harvard, 1942), Paul Oberst (LL.M., Michigan, 1942), James R. Richardson (LL.M., Yale, 1955), Frederick W. Whiteside, Jr. (LL.B., Cornell, 1936). *Associate Professors:* John Randolph Batt (LL.M., Yale, 1960), W. Garrett Flickinger (J.D., Michigan, 1953), Eugene F. Mooney, Jr. (LL.M., Yale, 1963), Dorothy Salmon (LL.B., Kentucky, 1938). *Assistant Professor:* John E. Kennedy (LL.M., Yale, 1964). *Adjunct Instructor:* Charles G. Williamson (LL.M., Georgetown, 1961).

The 83 semester hours for the LL.B. degree include certain required courses, certain required courses in legal research and writing, at least 2 seminars (one from a group of 4 in the second year and one from a group of 3 in the third year) and certain elective courses. The total number of hours taken in six semesters by the degree candidate can vary from 83 to 88.

All courses (including seminars and electives) are offered each year with an occasional exception to meet special needs. The fall semester offerings and the spring semester offerings are the same each year (with rare exceptions), but the courses taught in the summer sessions will vary. Except when special permission is granted to make a particular schedule, all of the courses in the first three semesters are required courses. In the fourth and fifth semesters some of the courses are

required and others are elective. Sixth semester courses are primarily elective. In general the courses should be taken in the sequence created by their classification as first year, second year, or third year courses.

A faculty committee assists all students with special schedule problems.

Course Descriptions

(All courses are lecture and recitation unless otherwise noted.)

FIRST YEAR SUBJECTS

300 *Legislation.* (2-3) II

Nutting and Elliott's Cases.
Nature and scope of legislative power; organization of legislative bodies; legislative process; legislation and the courts; interpretation of statutes. *Staff.*

301 *Legal Method.* (2) I

Dowling, Patterson and Powell, Materials for Legal Method (2nd ed.). Hodges' Harbrace Handbook.
An introductory course for first year law students, covering the sources and forms of American law, legal reasoning in judicial precedents, how to solve a legal problem, and legal writing. *Gilliam, Flickinger, and Kennedy.*

501,502 *Contracts I-II.* (3, 2) I, II

Patterson and Goble's Cases (3rd ed.).
Formation of contracts, offer, acceptance, consideration. Statute of Frauds, parol evidence rule, contracts for benefit of third persons, assignments, performance of contracts, express and implied conditions, impossibility of performance, discharge and illegal contracts. *Ham and Mooney.*

503,504 *Torts I-II.* (3, 3) I, II

Seavey, Thurston and Keeton's Cases.
Intentional torts and defenses, negligence, causation, duties of occupants of land and manufacturers and vendors of chattels, contributory negligence, strict liability, deceit, defamation, malicious prosecution, interference with advantageous relations. *Oberst and Williamson.*

505,506 *Property I-II.* (4) II

Casner and Leach's Cases.
Basic course in property: possession, gifts, bona fide purchasers of personalty. Estates, uses, easements, and rights incident to ownership. *Matthews.*

507 *Procedure.* (3) I

Common law forms, theory of the case, composition of pleadings, demurrer, aider, duplicity, traverses, pleas, motions; Code and Federal Rule pleading, claims, answers, objection and correction of pleadings, parties and joinders of actions. *Richardson.*

509 *Criminal Law.* (2) I

Hall and Glueck's Cases on Criminal Law and Its Enforcement.
Jurisdiction; the criminal act, complete and incomplete; criminal intent, actual and constructive; duress and mistake of fact, of law; justification; parties in crime; crimes against the person and crimes against property. *Moreland.*

510 *Criminal Procedure.* (2) II

Hall and Glueck's Cases on Criminal Law and Its Enforcement.
Arrest, preliminary examination, bail, methods of prosecution, the grand jury, indictment and information, arraignment and pleas, *nolle prosequi* and motions to quash, trial and verdict, motions after trial. *Moreland.*

511 *Legal Bibliography.* (1) I

Practical problems in the use of statutes, reports, digests, encyclopedias, annotated cases, citation books, periodicals, reference tables, and indices. *Salmon.*

512 *Local Government Law.* (2) II

Fordham's Local Government Law.
Legislative control over municipal corporations; municipal powers—in general; licenses and franchises; appropriation of municipal funds; municipal contracts, indebtedness, torts, property, special assessments. *Staff.*

534 *Equity.* (3) II

Chafee and Re's Cases (4th ed.)
The traditional equity materials. *Moreland.*

SECOND YEAR SUBJECTS

326 *Damages.* (2-3) S

McCormick's Cases.
Nature of damages, voidable consequences, counsel fees, certainty, compensation, damage for nonpecuniary injuries, interest, damages for death, and eminent domain. *Richardson.*

329 *Constitutional Law I.* (2-3) I, II

Governmental powers under the Constitution of the United States; federal judiciary—powers and jurisdiction; powers of Congress; powers of the President; powers of the state in areas of federal authority; intergovernmental relations. *Oberst.*

330 *Constitutional Law II.* (2-3) I

Rights, privileges, and immunities under the Constitution. National citizenship, due process, and equal protection. Procedural and substantive rights. Freedom of expression, enterprise, and religion. *Mooney.*

331 *Creditors' Rights.* (2-3) II

Hanna and McLachlan's Cases (4th Ed.)
Enforcement of judgments; fraudulent conveyances; general assignments; creditors' agreements; receiverships; bankruptcy, assets, and distribution. *Whiteside.*

520 *Commercial Law.* (4) I

The study of commercial law principles with special emphasis on the law of negotiable instruments and the law of sales, especially as governed by the Uniform Commercial Code. *Mooney.*

521 *Trial and Appellate Procedure.* (3) I

Hays' Civil Procedures (3d ed.)
Venue, service of summons, provisional remedies, discovery and pretrial practice, summary judgment, trials, verdict, judgment and appeals, including final judgment rule, and appeal practice; *res judicata;* correction of judgments; extraordinary remedies. *Richardson.*

522 *Property III.* (3) I

Casner and Leach's Cases.
Titles and conveyancing. Contract for sale of land, deeds, the recording system, title registration, title insurance. Restrictions on the use of land: covenants, easements and constitutional limitations. *Gilliam.*

523 *Evidence.* (4) II

Morgan and Maguire's Cases (3d ed.)
Rules of admissibility, real, circumstantial, testimonial and documentary evidence, witnesses, hearsay rule and its exceptions, procedure of admissibility, law and fact, judge and jury, burden of proof and presumption, judicial notice, and parol evidence rule. *Richardson.*

524 *Insurance.* (2-3) II

Goble's Cases.
Nature of contract, insurable interest, making the contract, concealment, representations, warranties, implied conditions of forfeiture, waiver and estoppel, rights under the contract, and construction of the policy. *Mooney.*

525 *Oil and Gas.* (2) I

Kulp's Cases (3rd ed.).
Oil and gas leases—infants, married women, life tenants, and others as parties; the granting clause—lessee's interest, lessee's right to ejectment; the habendum clause—duration of lease; etc. *Moreland.*

528 *Agency-Partnership.* (2-3) I

Conard's Cases on Business Organization (2d ed.)
A study of traditional agency concepts and selected materials on partnership law, including the vicarious liability relationship in tort and contract, the fiduciary concept, the organization and liquidation of partnerships. *Ham.*

530 *Credit Transactions.* (3) I

Sturges' Cases (4th ed.).
Mortgages: creation, assignment, priority, foreclosure, redemption. Pledges, suretyship rights, suretyship defenses, Statute of Frauds. *Staff.*

532 *Taxation I.* (3) II

Bittner's Cases on Federal Taxation.
Problems in federal and state income taxation. *Whiteside.*

536 *The Federal Courts and the Federal System.* (3) I

The nature of the federal judicial function and its development, distribution of power among federal and state courts, Supreme Court review of state court decisions, the law applied in federal district courts, federal question and diversity jurisdiction, federal habeas corpus, removal jurisdiction and procedure. *Lewis.*

543 *The Legal Profession.* (1) II

Cheatham's Cases and Materials.
A study of professional problems including: ethics, discipline, unauthorized practice, duty to court and client, bar admission and organization, fees and office procedure. *Gilliam.*

547 *Corporations I.* (4) II

A study of basic corporation law principles, including: organizing the corporation; defective incorporation; pre-incorporation transactions; control and management of the corporation (with emphasis on the special problems of the close corporation); the corporate entity concept; duties of directors and controlling shareholders; shareholders' derivative suits and right of inspection. *Ham.*

565 *International Legislation.* (2) II

Bierly's Law of Nations (5th ed.)
Seminar on the development and codification of international law. History of codification; promotion of codification under League of Nations and United Nations; international law and war criminal trials; genocide pact; Universal Declaration and Covenant of Human Rights and other similar topics. Political Science 150, International Law, recommended as prerequisite. *Gilliam.*

THIRD YEAR SUBJECTS

302 *Practice Court.* (1) I

Busch's Law and Tactics in Jury Trials (students' ed.).
This course, conducted mainly under the Kentucky code (but treated to give a fair understanding of like work in other states) is designed to fit students for actual court practice following training in substantive law. *Richardson.*

303 *Legal Research and Writing.* (1-3) I, II, S

Independent study of legal problems under faculty supervision, and supervised training in legal aid, moot court, and legal writing. (May be repeated twice for a total of six credits.) *Staff.*

304 *Law Journal Note Editing.* (1-2) I, II

This course, required of all senior members of Law Journal staff, consists of study and criticism of the notes and comments prepared for publication by the student editors of the Law Journal. (May be repeated once for a total of four credits.) *Staff.*

508 *Domestic Relations.* (2) II

Compton's Cases.
Contracts to marry; the marriage status; annulment, divorce and separation; parent and child; infants and incompetent persons. *Batt.*

527 *Modern Social Legislation.* (2-3) II

Aaron's Employment Relation and the Law.
A study of statutes, administrative reports, regulations, legislative hearings and judicial decisions relating to modern social legislation, including Social Security, Workmen's Compensation, medical care insurance, unemployment insurance, wages and hours, and public assistance. *Gilliam.*

533 *Taxation II.* (2) I

Bittker's Cases on Federal Income Taxation.
Advanced income tax problems of business organization—of corporations and their shareholders connected with dividends and other distributions, liquidation and reorganization; of partners and partnerships; and of trusts and estates. *Whiteside.*

540 *Conflict of Laws.* (3) II

Cheatham, Dowling, and Goodrich's Cases (4th ed.)
Nature of the subject, penal laws, procedure, judgments, domicile, capacity, form, particular subjects, litigation, family law, inheritance, foreign administrators. *Moreland.*

541 *Trusts.* (3) I

Scott's Cases, (4th ed.)
Uses and Statute of Uses; trusts creation; elements; transfer of beneficiary's interest; administration, termination, and modification; charitable trusts; resulting and constructive trusts; powers. Types of future interests; construction problems; limitations to classes, rule against perpetuities, illegal restraints and conditions. *Matthews.*

542 *Administrative Law.* (3) II

Gellhorn and Byse's Cases (4th ed.)
Establishment of administrative tribunals, limits on discretion. Notice and hearing, orders, methods of judicial relief, scope of judicial review. *Oberst.*

544 *Labor Law.* (3) I

Smith's Cases and Materials (2nd Ed.)
History, organization, and structure of American labor unions; obligations and prerogatives of employers; questions of representation; privileges and obligations of unions; collective bargaining and dispute settlement. *Lewis and Mooney.*

545,546 *Estate Planning I-II.* (3-4; 2-3) I, II

Casner's Estate Planning (2nd)
Donative transfers of property, including *inter vivos* transfers and wills; income, estate and gift tax consequences of the various methods of disposition; administration of estates. Future interests in property, including an intensive study of construction problems and the rule against perpetuities. *Whiteside and Flickinger.*

548 *Corporations II.* (3) I

A study of selected problems in advanced corporation law, including: corporate promotion and capitalization (with special emphasis on senior securities and their characteristics); corporate distributions (dividends); recapitalizations (elimination of accrued dividends); public regulation of security issues (Securities Act of 1933 and state Blue Sky laws). *Ham.*

575 *Seminar.* (2-3) I, II

Seminar in selected legal problems. Normally, each seminar is centered upon a particular field of legal learning, such as Office Practice, Current Constitutional Litigation, etc. (May be repeated four times for a total of ten credits.) *Staff.*



Education

THE COLLEGE OF EDUCATION was established by the University to provide for the education of teachers, administrators, and other school personnel. The curricula of the College give students an opportunity to equip themselves for the kind of educational work in which they are interested.

Students in elementary education have observation and student teaching in the schools of nearby communities. Students in preparation for junior and senior high school teaching have observation and student teaching in the University High School and in other secondary schools. Each student is given an opportunity to learn accepted and desirable methods and to develop skill in teaching.

Through the cooperation of various county boards of education, students preparing to teach agriculture and home economics have an opportunity to observe and do their student teaching in the high schools near Lexington which offer vocational agriculture and vocational home economics. Students in both agriculture and home economics teach under skilled supervisors in their respective fields.

Admission. Requirements for admission to the College of Education, as a freshman, or with advanced standing, or as a special student, are the same as those outlined on the preceding pages for admission to the University.

REQUIREMENTS FOR ADMISSION TO THE TEACHER EDUCATION PROGRAM

All students, regardless of the college in which they enroll, must apply for admission to the Teacher Education Program if they expect to complete the program and be approved for certification. Application to the Teacher Education Program is made during the semester in which the student is enrolled in Education 202, Human Development and the Curriculum. Announcements as to the exact time for making application will be made in all classes in the College of Education by the Coordinator of Admissions. Transfer students should apply for admission the first semester they are enrolled in the College of Education, if they enroll after the sophomore year. To be admitted to the program, the student must have satisfactory standing (2.0 grade-point average on a 4.0 scale) in all of his college work, including his major teaching field, his minor teaching field, professional education, and over-all. He must also have completed work successfully in speech or voice development or have been approved through a proficiency test at the University Speech Clinic. Further, the student is required to secure recommendations from his advisor in his teaching field and in professional education. The student must be approved by the Committee on Admissions in the College of Education and present satisfactory scores on such examinations as may be required by the committee.

A minimum of three semesters of study is required in the regular Teacher Education Program. Admission to the program does not guarantee completion. If, for any reason, the faculty decides that the student should not continue in the Teacher Education Program, he may be required to withdraw at any time before completion. It should be noted that the action of the admissions committee is final.

REQUIREMENTS FOR ADMISSION TO STUDENT TEACHING

A student may enroll in student teaching in one of the prescribed curriculums of the College of Education (elementary education, special education, junior high, senior high), provided he has spent one semester in residence on the campus, has completed at least 18 semester hours in the field in which the student teaching is to be done, and has satisfied the following requirements:

1. Has completed all prerequisites in professional education.
2. Has a standing of 2.0 or above for his entire college program.
3. Has a standing of 2.0 or above in professional education courses.
4. Has a standing of 2.0 or above in the area of concentration or in his majors and minors.

Lyman Vernon Ginger, M.A., Ed.D., is Dean of the College of Education.

5. Has applied and been accepted for enrollment in student teaching the semester prior to the one in which he plans to do student teaching.
6. Has a schedule of not more than 15 hours of college work to be carried during student teaching.
7. Has presented evidence of having had a thorough physical examination by University physicians.

The student teacher is expected to follow the calendar of the school in which he is to do his student teaching.

Student teaching during the summer session is open only to students who have had previous experience in teaching in public schools.

Transient students and graduate students in agricultural education may take student teaching without having done a semester in residence on the campus. These students must have an over-all standing of 2.5 for the entire college period, but may not have had other courses in education. They take 18 semester hours of work the semester student teaching is done—in agricultural education, which includes student teaching.

In order to take student teaching in home economics, a student must have completed 3 hours in technique of teaching home economics.

CERTIFICATION

The University of Kentucky offers curricula for most certificates issued by the State Department of Education on the basis of four years of college education. Upon graduation from the College of Education the student is eligible for either the Provisional High School Certificate or the Provisional Elementary Certificate. In order to obtain the certificate desired, the student must make application to the State Department of Education. Application blanks may be obtained from the Dean's Office. Students desiring to teach agriculture or home economics should enroll in the College of Agriculture and Home economics and pursue curricula leading to these certificates.

ACCREDITATION

The University of Kentucky is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel with the doctor's degree as the highest degree approved.

SPECIAL FACILITIES AND SERVICES

Special facilities and services of the College of Education include the Education Library and the Curriculum Laboratory. Also parts of the College are the Bureau of School Service and the Audio-Visual Services. The Bureau publishes reports and research studies of the College of Education, conducts school surveys, and serves as a center for information about schools for staff, students, and the public. The Audio-Visual Services, a part of the Bureau of School Service, provides film projection services for classes on campus and rents educational films to schools throughout the state. Students have access to all these facilities and services as they need them in study, research, or student teaching activities.

VOCATIONAL EDUCATION

Agriculture. The Federal Vocational Education Act, known as the Smith-Hughes Act, passed by Congress in 1917, makes provision for the education of teachers of vocational agriculture in schools below college level. The University of Kentucky has been designated as the state institution to educate white teachers for this work.

Students who complete the work for a bachelor's degree in agriculture and who present 18 semester hours in education as prescribed in the state plan for vocational education will be entitled to a state certificate to teach vocational agriculture in the public schools of Kentucky.

Home Economics. The Federal Vocational Education Act of 1917 also provides for the education of teachers of vocational home economics in schools below college level.

Students who complete the work for a bachelor's degree in home economics and who present 18 semester hours in education as prescribed in the state plan for vocational education will be entitled to a state certificate to teach vocational home economics in the public schools in Kentucky.

Industry. The Federal Vocational Education Act of 1917 also provides for the education of teachers for unit-trade and part-time programs in industrial education and for general continuation school classes. The University of Kentucky has been designated as the state institution responsible for the education of teachers for this work.

A five-year program of preparation for educational training directors and other educational training personnel for schools, business, and industry is offered in the College of Education. The last three years of this program are on a "cooperative" basis with students spending alternate semesters at the University and in work-training situations on the job in business or industry.

Distributive Occupations. The George-Barden Act of 1946 provides for the education of teachers of distributive occupations. The University of Kentucky has been designated as the state institution responsible for this service.

GRADUATION REQUIREMENTS

The College of Education grants the degree of Bachelor of Arts in Education to students who are enrolled in the College of Education, who have completed their majors and minors in approved teaching fields, and who have completed their requirements in professional education. Students who complete the

curriculum for elementary teachers also are eligible for this degree.

To graduate from the College of Education, a student must, while meeting specified requirements, complete 128 semester hours (exclusive of generally required physical education) with a standing of at least 2.0. He must also satisfy the University's residence requirements.

The University permits as many as 32 semester hours to be taken by correspondence and/or extension toward the Bachelor's degree. The student must, however, complete 30 of the last 36 hours on the campus. This means that after a student has completed 92 semester hours he may do only 6 semester hours by correspondence or extension, or at another institution.

The student may pursue his work to prepare to teach on either the elementary, junior high, or senior high school level. The requirements for each are given in pages that follow.

Graduate Record Examinations will be required of all seniors beginning with the class of 1965 and the fee must be paid by the graduating senior.

Pre-professional Preparation recommended for all prospective teachers.

It is desirable that the student select a sequence of 12 to 18 hours from the courses listed below if he has not taken them as a part of the General Education pattern. Other courses may be substituted with approval of the advisor.

Choose from the following:

	Sem. Hrs.
1. Psychology 100—Introduction to Psychology	4
Psychology 200—Child Psychology	3
Psychology 520—Mental Hygiene	3
Psychology 544—Social Psychology	3
Psychology 201—Individual Differences	3
Psychology 507—Psychology of Learning	4
Psychology 535—Psychological Testing	3
2. Sociology 151—Introductory Sociology	3
Sociology 220—The Community	3
Sociology 509, 510—The Family	6
Sociology 538—Juvenile Delinquency	3
3. Anthropology 121—Introduction to Cultural Anthropology	3
Anthropology 524—Mythology	3
Anthropology 525—Applied Anthropology	3
Anthropology 526—Culture and Personality	3
4. Philosophy 200—Introduction to Philosophy	3
Philosophy 220—Elementary Logic	3
Philosophy 230—Ethics	3
Philosophy 500—History of Philosophy—Ancient and Medieval	3
Philosophy 510—History of Philosophy—Modern	3
Philosophy 511—The Making of the Modern Mind	3
Philosophy 512—Representative Modern Philosophers	3
Philosophy 515—Contemporary Philosophy	3
Philosophy 540—Great Religions	3

Curricula

REQUIREMENTS FOR ELEMENTARY SCHOOL TEACHING

The requirements for preparation to teach in the elementary schools are outlined below:

	Sem. Hrs.
Professional Education Requirements—Total hours required	30
EDU 101—The Teacher in American Schools	3
*EDU 202—Human Development and the Curriculum	4
EDU 324—Teaching Science and Social Learnings in the Elementary School	4
EDU 329—Teaching Communicative Skills in the Elementary School	4
EDU 331—Teaching Arithmetic in the Elementary School	3
EDU 333—Student Teaching in the Elementary School and Seminar	12
	30
EDU 543—Teaching in the Kindergarten (Required of Kindergarten Majors)	3

No more than two required Professional Education courses may be taken concurrently and all are prerequisite to student teaching.

Electives in Professional Education

(May be taken upon recommendation of advisor)

EDU 120—Arts and Crafts in the Elementary School	3
EDU 325—Teaching in the Elementary School	3
EDU 544—Visual Teaching	3
EDU 548—Educational Psychology	3
EDU 550—The Role of the Teacher and the Principal in Guidance	3

* EDU 202 and formal admission to the teacher education program are prerequisites to EDU 324, 329, and 331.

General Education Requirements—Total hours required	73-82
Art	4-6
ART 170, 172—Public School Art	3 each
EDU 120 may be substituted for one of these Art courses (see advisor)	
Suggested elective: Humanities 203, ART 105	
English and Related Areas	18
ENG 101,102—Freshman Composition (required)	3 each
ENG 181—Basic Public Speaking or ENG 291—Voice Development or Pass a Proficiency Test or Recommendation from advisor	
Nine hours selected from the following. (One course in Literature is required.):	
ENG 161—Introduction to Literature	3
ENG 512—Grammar of Structure and Usage	3
ENG 555—Modern American Novel	3
ENG 560,561—Comparative Literature	3 each
ENG 573—General Introduction to Folklore	3
ENG 574—American Folklore	3
ENG 597—Survey of Theatre Principles	3
Foreign Languages (Consult Advisor)	6
HUM 200—Classicism: Graeco-Roman; Modern European	2
HUM 201—Romanticism: The Renaissance to the Present	2

HUM 202—Realism and Naturalism: The Contemporary 2
HUM 203—Art: The Renaissance to the Present 2
HUM 204—Music: The Renaissance to the Present 2
HUM 205—Aspects of Oriental Culture 2
HUM 206—Aspects of Middle Eastern Culture 2

Health and Physical Education 8-9
PE Service Courses (1 hour each) 2
HE 401—Principles of Nutrition 3
PE 360—Physical Education in the Elementary School 2
HYG 101—Personal and Community Health or 1-2
HYG 109—Fundamentals of Health

Library Science 3
LS 537—Children's Literature and Related Materials 3

Mathematics 3
MA 201—Fundamentals of Elementary Mathematics 3
(For those graduating in 1968 and later, 6 hours in Elementary Mathematics will be required)

Music 4-6
MUS 260—Music Education in the Primary Grades 3
MUS 261—Music Education in the Intermediate Grades 3
Suggested elective: HUM 204—Music: The Renaissance to the Present

Psychology (Recommended) 4
PSY 100—Introduction to Psychology
(Psychology 100, if taken by elementary majors,, will NOT reduce the over-all science requirement; however, the laboratory taken may be used to meet the laboratory requirement in science.)
Suggested electives:
PSY 200—Psychology of the Child
PSY 520—Mental Hygiene

Science (12 hours selected from the following)
(One lab course required) 12
Biological Sciences:
BOT 125—General Plant Biology 3
ZOO 202—Nature Study 4
ANTH 100—Introduction to Physical Anthropology 3
Physical Sciences:
PHY 151,152—Introduction to Physics 3 each
GLY 104,105—Outlines of Geology 3 each
MA 191—Descriptive Astronomy 3

Social Science 21
History and Political Science 6
Choose two from the following:
HIS 108—History of U.S. Through 1865 or 3
HIS 524—Social and Cultural History of U.S. to 1865
HIS 109—History of U. S. Since 1865 or 3
HIS 525—Social and Cultural History of U. S. Since 1865
PS 151—American Government 3
Geography 6
Choose two from the following:
GEO 151—Elements of Geography 3
GEO 153—Societies Around the World 3
GEO 252—Introduction to Weather and Climate or 3
GEO 544—Climatology
Sociology and Anthropology 3
SOC 151—Introductory Sociology 3
SOC 220—The Community 3
SOC 551—Principles of Sociology 3
ANT 121—Cultural Anthropology 3
Electives 6
Choose two from the following (One course should be above 400 in number):
HIS 104,105—European History 3 each
HIS 240—History of Kentucky 3
HIS 590—Modern Europe 3
HIS 596—The Far East Since 1900 2
PS 311—Current Public Affairs 2
SOC 509 or 510—The Family 3
SOC 525—Religion and Culture 2
An advanced regional geography course.

For correct use of elective hours, consult advisor.

Needed to graduate (including all elective and required courses) 130

REQUIREMENTS FOR TEACHING IN JUNIOR HIGH SCHOOLS

The following decisions have been reached by the Kentucky State Board of Education relative to the preparation-certification of junior high school teachers.

Beginning September 1, 1966, teachers in the junior high school grades (7, 8, and 9) will be required to have a Provisional Junior High School Certificate.

The Junior High School Certificate issued after September 1, 1966 will be valid in grades 7, 8, and 9 for non-departmentalized classes and for the *majors, semi-majors,* and *minors* which appear on the certificate and may also be valid for grades 5 and 6.

Teachers of art, music, physical education, and all vocational subjects will be eligible to teach in junior high school, provided they hold a certificate valid for high school or 12-grade teaching.

Professional Educational Requirements—
Total hours required 29

	Sem. Hrs.
EDU 101—The Teacher in American Schools	3
EDU 202—Human Development and the Curriculum	4
*EDU 340—Teaching in the Junior High School	4
*EDU 520—The Secondary School Pupil (adolesc. psych.)	3
*EDU 541—The Teaching of Reading in the Junior and Senior High School	3
—Student Teaching	9
EDU 564—Student Teaching Seminar	3

* EDU 202 and formal admission to the Teacher Education Program are prerequisites to EDU 340, EDU 520, and EDU 541.

For those students who enter the program as juniors, seniors, or graduate students, EDU 301, American Public

Education, 3 hours, may be substituted for EDU 101. The minimum time recommended for completion of the program is 4 semesters. However, EDU 301, and EDU 202 may be taken concurrently if the student has only 3 academic periods for the completion of his work.

General Education Requirements—Total hours required 49

General Requirements 7
- Health and Physical Education 3
- Psychology 100 (Recommended) 4

Communications and Humanities 18
- Required 9-12
  - English 101, 102—Freshman Composition 6
  - Literature 3-6
- Electives 6-9

Appropriate courses may be selected from English, literature, philosophy, speech, and fine arts (music, art, drama and religion).

Mathematics and Natural Science (6 hours must have lab) 12

Group I—
- Chemistry
- Geology
- Mathematics
- Astronomy
- Physics

Group II—
- Anatomy
- Anthropology (physical)
- Bacteriology
- Botany
- Microbiology
- Physiology
- Zoology

Introduction to Psychology may be counted as a science and if with a lab, the lab may be used. The student is required to have one biological science and one physical science; the other science requirements may be elected from either biological or physical science.

Social Science 12

Appropriate courses may be selected from the following: Selection must include at least two fields.
- History
- Anthropology (Cultural)
- Economics
- Geography
- Political Science
- Sociology

Preparation Plans for Academic Teaching

Each student preparing for junior high school teaching is required to meet the requirements of one of three plans for majors, minors, and semi-majors. Appropriate courses taken in the *general education field* may be used in the teaching major, semi-major, and minor. Subjects may be counted ONLY one time in the teaching major, semi-major, or minor areas.

One of the following plans must be followed:

Plan 1. Two majors of at least 24 semester hours each and one semi-major of 12 semester hours.

Plan 2. One major of at least 24 semester hours and three semi-majors of 12 semester hours each.

Plan 3. One major of at least 30 semester hours, one minor of 18 semester hours, and one semi-major of 12 semester hours.

The subject areas shall total 60 semester hours in the combination of majors, minors, and semi-majors.

Subjects from which Majors May Be Chosen for

Junior High Teaching

- Biology
- Biology (18 hours) and Health (6 hours)
- Chemistry
- Dramatics (6 hours) and Speech (18 hours)
- Economics (6 hours) and Sociology (18 hours)
- *English and Communications
- French
- Geography
- German
- History
- History (18 hours, including Amer. History (6)) and Political Science (6 hours)
- *Humanities and Fine Arts
- *Languages
- Latin
- *Mathematics
- Physics
- Political Science
- *Science
- *Social Science
- Spanish

* These are new majors, developed for the junior high school preparation-certification and apply ONLY to that certificate. A description of these majors is given below.

Biological Sciences: 24 semester hours. Three semester hours of Botany and 3 semester hours of Zoology must be taken as a part of the Biological Sciences requirement. The remainder is to be recommended by the advisor.

English and Communications: 24-30 semester hours to be made up of composition, 6 semester hours; linguistics, advanced composition or phonetics, 3 semester hours; books and literature for adolescents, 3 semester hours; literature, 9 semester hours (American Literature to be included).

Humanities and Fine Arts: 24 semester hours with a minimum of 6 semester hours in each of three fields to be chosen from the following: Music, Art, Humanities, appropriate Philosophy and appropriate Literature courses. The remaining 6 semester hours are to be electives from any of these fields.

Languages: 24 semester hours made up of any two languages with 12 semester hours or two full years of study each.

Mathematics: 24 semester hours including 6 semester hours of work designed especially to present the newer concepts of mathematics, including algebra. The remainder will be chosen from the regular, planned curriculum.

Science: 24-30 hours with a minimum of 6 semester hours in each of three fields chosen from the following: Physics, Chemistry, Biological Sciences, and Earth Science. The student will be required to have at least 6 semester hours in Physical Science (Physics or Chemistry) and 6 semester hours in Biological Science.

Social Science: 24-30 semester hours with a minimum of 6 semester hours in each of three fields to be chosen from the

following: History (required), Geography (required), Political Science or Government, Economics, Social Anthropology, and Sociology.

Subjects from which minors may be chosen for Junior High teaching. Eighteen semester hours required in one subject.

Biology
Chemistry
Speech
Sociology
French
Geography
German
History
Latin
Mathematics (6 semester hours in newer concepts of math)
Physics
Spanish

Subjects from which semi-majors may be chosen for Junior High teaching: Eighteen hours are required in all semi-majors which include a combination of subjects with at least 12 semester hours in one. Twelve semester hours are required in a single subject for a semi-major.

Any Foreign Language
Biology
Chemistry
Dramatics (6 hours) and Speech (12 hours)
Geography
Geography (12 hours) and Geology (6 hours)
History
History (12 hours) and Political Science (6 hours)
Mathematics (6 hours in newer concepts of math)
Physics

Only one semi-major (12 hours) may be chosen from the following:

Art
Dramatics
Economics
Health
Journalism
Political Science
Psychology
Sociology
Speech

REQUIREMENTS FOR TEACHING IN SENIOR HIGH SCHOOLS

Requirements for preparation to teach in the high schools, including detailed requirements for teaching in special areas or subjects in grades one through twelve, are outlined below:

Sem. Hrs.

Professional Education Requirements—Total hours required 23

Students majoring in regular subject matter areas (excluding such special areas as Business Education, Vocational Agriculture and Home Economics, and Special Education) may follow one of two sequences, A or B:

A. Regular sequence for students who enter the program as freshmen or sophomores:

EDU 101—The Teacher in American Schools (freshmen or sophomores) 3
EDU 202—Human Development and the Curriculum (sophomores or juniors) 4
EDU 344—Teaching in the Senior High School 4
Prereq: EDU 202 and formal admission to the Teacher Education Program
Student Teaching 9
EDU 564—Student Teaching Seminar 3

It is recommended that one of the following electives be chosen after the completion of EDU 202:

EDU 550—Role of the Teacher and the Principal in Guidance 3
EDU 548—Educational Psychology 3
EDU 544—Visual Teaching 3
EDU 522—Educational Tests and Measurements 3

B. Sequence for those who enter the program as juniors, seniors, or graduate students:

EDU 301—American Public Education 3
EDU 202—Human Development and the Curriculum 4
EDU 344—Teaching in the Senior High School 4
Prereq: EDU 202 and formal admission to the Teacher Education Program
Student Teaching in the Senior High School 9
EDU 564—Student Teaching Seminar 3

The minimum time recommended for sequence B is 4 semesters. However, EDU 301 and EDU 202 may be taken concurrently if the student has only 3 academic periods for the completion of his work.

Note: In either sequence EDU 344 should be taken the last semester prior to student teaching. No course from the required sequence can be taken with EDU 344 or with student teaching.

Professional Courses for Business Education Majors

The following courses should be taken in sequence during the junior and senior years.

EDU 210—Foundations of Business Education in the High School—taught during the fall semester 3
EDU 202—Human Development and the Curriculum 4
EDU 512—Teaching Bookkeeping and Accounting—taught during the fall semester 3
EDU 514—Teaching General Business subjects in secondary schools—taught during the spring semester 3
EDU 393—Student Teaching 9
Student Teaching Seminar 3
EDU 511—Teaching Secretarial Subjects (elective) 3

Twelve-grade Certificate in Music, Art, or Physical Education

In addition to Professional Sequence A or B, students seeking a twelve-grade certificate in Music, Art, or Physical Education must take EDU 325—Teaching in the Elementary School—after they have earned Junior classification. This means that EDU 325 may be taken concurrently with other courses in the Professional Sequence, but the course should be completed prior to student teaching in Music, Art, or Physical Education. Also required is a course in materials and methods in the special subject at the elementary and/or 12-grade level. Half of student teaching *must be done* in an elementary school and half in a secondary school.

General Education Requirements—Total hours required 45

Communications and Humanities 18
ENG 101,102—Freshman Composition (required) 3 each
Literature (3 hours required) 3-6
(The Literature requirement may be met by taking either Literature courses approved by the advisor, or Humanities. If the Humanities are offered, select two from 200, 201, and 202, plus either 203 or 204.)

Electives	6-9
Foreign languages (one year of any language)	6
PHI 200—Introduction to Philosophy	3
PHI 230—Ethics	3
ENG 181—Basic Public Speaking or	3
ENG 291—Voice Development	
ENG 283—Argumentation and Debate or	3
ENG 288—Oral Interpretation	
ENG 540—Nineteenth Century British Novel	3
JOU 201—Etymology	3
JOU 203—Principles of News Writing	3
Religion	3
Fine Arts	3
ART 554—Ancient Art	
ART 556—Medieval Art	
MUS 280—History of Music	
MUS 281—History of Music	
Mathematics and Natural Science (6 hours must have lab)	12
Group I. Six hours must be chosen from the following:	
*CHE 110,112—General Chemistry	5 each
*GLY 100—Elementary Geology	3
GLY 104,105—Outlines of Geology (Credits will not be given for both GLY 100 and 104)	3 each
*GLY 110—Laboratory Work in Geology	1
MA 111—College Algebra	3
MA 191,192—Descriptive Astronomy	3 each
MA 201—Fundamentals of Elementary Mathematics	3
PHY 151,152—Introduction to Physics	3 each
PHY 211,213—General Elementary Physics	3 each
Group II. Six hours must be chosen from the following:	
ANT 100—Introduction to Physical Anthropology	3
ANT 101—Osteometric Techniques	1
#ANA 206—Elementary Anatomy	4
*MB 100,102—Elementary Microbiology	4 each
*MB 200—Principles of Bacteriology	4
*BOT 101—General Botany	4
BOT 125—General Plant Biology	3
#*PGY 206—Elementary Physiology	3
#*ZOO 100—General Zoology or	4
*ZOO 202—Nature Study	

It is recommended that all students take PSY 100, Introduction to Psychology. If PSY 100 is taken, it may be counted as a science and the lab may be used to meet a lab requirement. The student is required to have one biological science and one physical science; the other science requirement may be elected from biological science, physical science, or mathematics.

* Courses with laboratory.
# Required in Physical Education Major or Area of Concentration.

Social Science	12
Group I. Six hours must be chosen from the following freshman courses:	
ANT, GEO, or SOC 153—Societies Around the World	3
GEO or SOC 154—Societies Around the World	3
HIS 104,105—European History	3 each
HIS 108,109—American History	3 each
PS 151—American Government	3
Group II. Six hours must be chosen from the following advanced courses:	
ANT or SOC 526—Culture and Personality	3
ART 554—Ancient Art	3
ANT 121—Introduction to Cultural Anthropology	3
ART 556—Medieval Art	3
ECO 251,252—Principles of Economics	3 each
HIS 202,203—History of the British People	3 each
MUS 280,281—History of Music	3 each
PS 571,572—Political Theory	3 each
#SOC 220—The Community	3
#SOC 240—Collective Behavior	3
Health and Physical Education	3-4
HYG 101—Personal and Community Health or	1-2
HYG 109—Fundamentals of Health	
Physical Education Service Courses (Only 2 hours of Physical Education Service courses may count in the minimum of 130 hours required for a degree.)	2
Needed to graduate (including all electives and required courses)	130

One required for PE major or Area of Concentration.

REQUIREMENTS FOR MAJORS, MINORS, AND AREAS OF CONCENTRATION

Senior High School Curriculum majors must prepare themselves by intensive study in selected areas. They have the following options in the choice of curriculums leading to certificates for teaching in special subject fields: (1) an area of concentration with a minimum of 48 semester hours; or (2) majors, or (3) one major and two minors, or (4) one major and one minor when credit in both totals at least 48 semester hours.

BEGINNING WITH THE GRADUATING CLASS OF MAY 1967 AND THEREAFTER, THE MAJORS AND MINORS MUST TOTAL 54 SEMESTER HOURS.

An area of concentration shall consist of 48 semester hours unless otherwise specified.

A major shall consist of 24 semester hours with the following exceptions:

1. In a combination of subjects, 30 semester hours are required with not less than 8 semester hours in each subject.
2. English (36 hours). One course in linguistics or equivalent required.
3. Spanish, French, German (30 hours). MFL 553 is recommended as one of the courses.

A minor shall consist of 18 semester hours with the following exceptions:

1. In a combination of two subjects, 24 semester hours are required with *not less* than 6 semester hours in each subject.
2. English (24 hours). One course in linguistics or equivalent required.
3. Spanish, French, German (24 hours). MFL 553 is recommended as one of the courses.

STUDENTS WHO OFFER GEOGRAPHY, POLITICAL SCIENCE, PSYCHOLOGY, SOCIOLOGY OR ECONOMICS AS A MAJOR OR MINOR MUST HAVE ANOTHER MAJOR IN WHICH STUDENT TEACHING SHALL BE DONE.

Subject Fields in which Areas of Concentration may be chosen:

Art
Business Education
English
Health, Physical Education and Recreation
Languages
Music
Sciences
Social Studies

Subject Fields in which Majors may be chosen:

In a combination of subjects for majors, not less than 8 semester hours shall be in each subject within the major.

Agriculture (60 hours)
Art
Biological Sciences
Business Education
*Accounting
*General Business
*Secretarial Practice
Chemistry
Economics and Sociology (30 hours)
English (36 hours)
French (30 hours)
Geography
German (30 hours)
Health and Physical Education (30 hours)
History
History and Political Science (30 hours)
Home Economics
Latin
Mathematics
Physical Education
Physics
Political Science
Spanish (30 hours)
Special Education
Speech and Dramatics (30 hours)

Subject Fields in which Minors may be chosen:

In a combination of subjects for minors, not less than 6 semester hours shall be in each subject within the minor.

Agriculture
Any Foreign Language (24 hours)
Art
Biological Sciences
Business Education
*Accounting
*General Business
*Secretarial Practice
Chemistry
Economics
Economics and Sociology (24 hours)
English (24 hours)
Geography
Geography and Geology
History
History and Political Science (24 hours)
Latin
Journalism
**Library Science
Mathematics
Physical Education (men only)
Physics
Political Science
Psychology
Sociology
Special Education
Speech
Speech and Dramatics (24 hours)

* A major in each subject in business education shall require 24 semester hours or a major in a combination of two of these subjects shall require 30 semester hours. A minor in each subject shall require 18 semester hours or a minor in a combination of two of these subjects shall require 24 semester hours.

** A minor in library science shall require, in addition to the required semester hours, a minimum of 3 semester hours in library practice as a part of student teaching or in addition to student teaching.

Areas of Concentration:

(1) *Art Education*

Prereq: ART 100, 101, 110, 130, 200, 210	12
Advanced courses:	
ART 554, 556, 558, 560, 562, 564 (choose 2)	6
ART 509	1
ART 236 or 237, 242, 310, 330, 336	12
Art Education: ART 170, 171, 172, 173, 577	9
Electives: Two of three studio areas—Painting and Printmaking, Sculpture and Ceramics, Design	8

(2) *Business Education*

A teaching area in Business Education includes all courses which are listed for a major in Business Education plus 14 additional hours in Commerce to be selected by the student with the approval of his advisor.

(3) *English:* A teaching area in English shall consist of 18 hours chosen from the following courses in addition to those selected to meet the requirements for the major.

One additional course from those listed with the major, or:	
ENG 161, 207, 501, 502, 504, 505, 525, 532, 555, 556, 570, 571, 573, 574	3
Dramatic Arts: ENG 291, 590, 591, 592, 593 596, 597	3
Speech: ENG 181, 283, 285, 288, 580, 582, 583, 584, 588, 589	
Journalism: JOU 201, 203, 507, 513	

(4) *Health, Physical Education and Recreation:* A teaching area in health, physical education and recreation shall consist of 48 semester hours.

(5) *Languages:* A teaching area in foreign languages shall consist of at least 48 semester hours, distributed among the languages as follows: 18 semester hours in the leading language, 12 semester hours in each of two other languages, and 6 semester hours elective. (The 6 hours should be in one of these languages.)

(6) *Music:* A teaching area in music shall consist of at least 55 semester hours, distributed as follows:

Music Performance:	
Major	14
Minor	10
Music Theory:	
Elements of Music Theory	6
Aural Theory	4
Written Theory	4
Instrumentation	2
Musical Analysis	3
Ensemble	8
Conducting	4

(7) *Sciences:* A teaching area in science may consist of at least 48 semester hours, 15 (or more) of which shall be in Biology, Chemistry of Physics, 12 (or more) in each of the other two of these fields (Biology, Chemistry, Physics), 3 semester hours (or more) in Geology. The remainder shall be selected from the sciences.
A teaching area in science may consist of 48 semester hours which includes chemistry, physics, and mathematics, with no fewer than 15 semester hours in each.

(8) *Social Studies:* A teaching area in social studies shall consist of a minimum of 48 semester hours distributed as follows: 18 semester hours in history, including 6 semester hours in American History and 6 semester hours in European History; 30 semester hours selected from political science, economics, sociology, and geography (cultural anthropology may be included in this area) with a maximum of 12 semester hours and a minimum of 6 semester hours in each of these subjects.

Majors and Minors:

There are many combinations of majors and minors that may be selected by majors in the senior high school curriculum; it is, therefore, difficult to set up a definite pattern of courses for all students. Below are certain suggested patterns of courses to be followed by students. Majors and minors must be taken from these curriculums. Substitutions may be made in exceptional cases upon *recommendation* of the academic advisor and with the *approval* of the Dean of the College of Education.

Art:

	Sem. Hrs.
ART 110—Beginning Drawing and Painting	2
ART 130—Basic Design	2
ART 330—Advanced Sculpture and Design	2
Studio	4
ART 210—Intermediate Drawing and Painting	2
ART 236—Beginning Sculpture (Wood) or	2
ART 237—Beginning Sculpture (Clay)	
Art History	6
ART 100,101—Orientation in Art	1 each
ART 200—Art History Survey	2
ART 201—Art History Survey	2
Art Education	8
ART 170,172—Public School Art	3 each
ART 577—Art in Secondary Schools	2

Biological Sciences:

Botany 101 and Zoology 100 or Biology 101 and 102 are required.

Students cannot take for credit Biology 101, 102, and Botany 101 and Zoology 100.

*ANA 206—Elementary Anatomy and	4
*PGY 206—Elementary Physiology	3
MB 100,102—Elementary Microbiology	8
MB 200—Principles of Bacteriology	4
BIL 101,102—Biology	8
BOT 101—General Botany	4
BOT 103—Plant Kingdom	3
BOT 201—Local Flora	3
BOT 219—Dendrology	2
BOT 125—General Plant Biology	3
BOT 530—Introduction to Heredity	3
ZOO 100—General Zoology	4
ZOO 200—Comparative Anatomy	4
ZOO 202—Nature Study	4
ZOO 206—Invertebrate Zoology	4
ZOO 208—Vertebrate Zoology	4
ZOO 502—Animal Ecology	3
ZOO 504—Heredity	3
ZOO 508—Evolution	3

* Physical Education majors must take ANA 206 and PGY 206.

Business Education:

Secretarial Sequence:

*COM 107—Principles of Accounting	3
*COM 108—Principles of Accounting or	3
*COM 109—Secretarial Accounting	
*COM 112, 113, and 114—Secretarial Practice, Shorthand	9
*COM 117, 118—Secretarial Practice, Typewriting	4
*COM 119—Office Appliances and Procedures	3
ECO 251—Principles of Economics	3
COM 445—Office Management	3

To complete a 30-hour major a student should select from the following courses listed as suggested electives.

Suggested Electives:

ECO 252—Principles of Economics	3
COM 260—Principles of Marketing	3
COM 262—Principles of Advertising	3
COM 509—Business Law	3
COM 573—Automatic Data Processing	3

General Business Sequence:

*COM 107—Principles of Accounting	3
*COM 108—Principles of Accounting	3
*COM 117,118—Secretarial Practice—Typewriting	4
*ECO 251—Principles of Economics	3
*ECO 252—Principles of Economics	3
*COM 260—Principles of Marketing	3
COM 437—Business Management or	3
COM 445—Office Management	
COM 509—Business Law	3

To complete a 30-hour major a student should select from the following courses listed as suggested electives.

Suggested Electives:

COM 119—Office Appliances and Procedures	3
COM 262—Principles of Advertising	3
COM 573—Automatic Data Processing	3

* Required for an 18-hour minor.

Accounting Sequence:

*COM 107—Principles of Accounting	3
*COM 108—Principles of Accounting	3
*COM 296—Intermediate Accounting	3
*COM 297—Intermediate Accounting	3
*ECO 251—Principles of Economics	3
*ECO 252—Principles of Economics	3
COM 518—Cost Accounting	3
COM 547—Income Tax Procedure	3
COM 117,118—Secretarial Practice—Typewriting	4

To complete a 30-hour major a student should select from the following courses listed as suggested electives.

Suggested Electives:

COM 437—Business Management	3
COM 445—Office Management	3
COM 509—Business Law	3
COM 119—Office Appliances and Procedures	3
COM 573—Automatic Data Processing	3

* Required for an 18-hour minor.

Chemistry:

Beginning courses for those who have not had high school chemistry:

CHE 102,104—Elementary General Chemistry	8
CHE 226—Analytical Chemistry	5

Beginning courses for those who have had high school chemistry:

CHE 110,112—General College Chemistry	10
CHE 226—Analytical Chemistry	3

All students will complete requirements from the following:

CHE 430,431,432,433—Organic Chemistry	10
CHE 436—Organic Chemistry	4
CHE 444—Physical Chemistry	5
CHE 510—Advanced Inorganic Chemistry	3
CHE 520—Elementary Radiochemistry	2

Economics and Sociology:

(Required: 15 hours of Economics and 15 hours of Sociology)

ECO 251,252—Principles of Economics	6
ECO 402—Labor Economics	3
ECO 504—Public Finance	3
ECO 505—Money and Banking	3
SOC 153,154—Societies Around the World	6
SOC 509,510—The Family	6
SOC 220—The Community	3
SOC 551—Principles of Sociology	3
SOC 538—Juvenile Delinquency or SOC 521—Industrial Sociology	3

English:

Prerequisites 12

ENG 101 (or 105), 102 (or 106)—Freshman Composition	6
ENG 221,222—Survey of English Literature	6

Early English Literature 3

ENG 520—Chaucer	3
ENG 522—English Literature: 1500-1600	3
ENG 523—English Literature: 1600-1660	3
ENG 528—Milton	3
ENG 530—Age of Pope	3
ENG 531—Age of Johnson	3
ENG 533—Eighteenth-Century British Novel	3

Later English Literature 6

ENG 535—English Romantic Poetry or ENG 536—English Romantic Prose	3
ENG 538—Victorian Literature: 1830-1860 or ENG 539—Victorian Literature: 1860-1900	3
ENG 540—Nineteenth-Century British Novel or ENG 541—Twentieth-Century British Novel	3
ENG 542—Twentieth-Century British Poetry	3
ENG 560—Comparative Literature I or ENG 561—Comparative Literature II	3
ENG 568—History of Literary Criticism I or ENG 569—History of Literary Criticism II	3
ENG 563—Modern Drama	3
ENG 565—The Lyric in English	3

American Literature 6

ENG 551—American Literature Before 1860	3
ENG 552—American Literature After 1860	3

Shakespeare 3

ENG 526—Shakespeare: The Comedies or ENG 527—Shakespeare: The Tragedies	3

Composition 3

ENG 509—Composition for Teachers (normally required)	

Linguistics 3

ENG 510—Modern British and American English	3
ENG 512—Grammar of Structure and Usage	3

Speech and Dramatic Arts: Required Semester Hours 3-6

ENG 181—Basic Public Speaking	3
ENG 291—Voice Development	3
ENG 288—Oral Interpretation	3
ENG 597—Survey of Theatre Principle	3
ENG 584—Teaching of Speech	3
ENG 582—Persuasion	3

Geography: *Semester Hhours*

GEO 152—Regional Geography of the World	3
GEO 153,154—Societies Around the World	6
GEO 155—Economic Geography of the World	3
GEO 544—Climatology	3
GEO 520—Regional Geography of Anglo-America	2
GEO 522—Geography of Kentucky	2
GEO 521,523—Special Problems	2
GLY 104,105—Outlines of Geology	6

History:

HIS 104,105—European History	6
HIS 108,109—History of the United States	6
HIS 228—The Ancient World	3
HIS 240—History of Kentucky	3
HIS 202,203—History of the British People	6
HIS 583—Europe Since 1919	3
HIS 590—Modern Europe	3
HIS 505—Colonial America	3
HIS 525—Social and Cultural History of the United States Since 1865	3
HIS 549—Recent History of the United States	3

Latin (Classics):

CL 101—Beginning Latin	3
CL 102—Elementary Latin Reading	3
CL 203—Intermediate Latin	3
CL 204—Intermediate Latin	3
CL 205—Latin Prose Selections	3
CL 206—Horace	3
CL 209,210—Selections from Latin Literature	6
CL 217—Medieval Latin	3
CL 218—Plautus	3
CL 509,510—Latin Literature	6
CL 511,512—Studies in Roman Philology	6
CL 514,515—Latin Composition	2
CL 530—The Teaching of Latin	3

Languages, Modern Foreign:

French

MFL 101,102—Elementary French	6
MFL 201,202—Intermediate French	6
MFL 203—French Conversation and Composition (May be repeated for total of 4 credits)	2 each
MFL 204,205,206—French Novel and Drama	9
MFL 207,208—French Phonetics	6
MFL 502,503—French Literature of the Nineteenth Century	6
MFL 506,507—Advanced French Grammar	6
MFL 510,511—French Literature of the Twentieth Century	6
MFL 512—Advanced French Conversation (May be repeated for total of 4 credits)	2 each

MFL 553—The Teaching of Modern Foreign Languages 3
(Recommended for all prospective teachers)

German

Simple German Reading and Pronunciation 3
MFL 121,122—Elementary German 3
MFL 221,222—German Translation and Rapid Reading 6
MFL 123—Elementary Aural-Oral Practice in German 1
MFL 230—Introduction to Classical and Nineteenth Century German Literature 3
MFL 231—Introduction to Modern German Literature 3
MFL 524-531—Proseminars 3 each
MFL 538—Advanced German Conversation and Composition 3
MFL 534,535—Life and Works of Goethe 3 each
MFL 553—The Teaching of Modern Foreign Languages 3
(Recommended for all prospective teachers)

Spanish

MFL 141,142—Elementary Spanish 6
MFL 241,242—Intermediate Spanish 6
MFL 143—Elementary Aural-Oral Practice in Spanish 1
MFL 243,244—Spanish Novel and Drama 6
MFL 246—Spanish Conversation and Composition 3 each
(May be repeated for total of 6 credits)
MFL 247—Civilization of Spain and Spanish America 2
MFL 541,542—Advanced Spanish Grammar and Composition 6
MFL 545,546—Spanish Literature of the Twentieth Century 6
MFL 549,550—Spanish Literature of the Nineteenth Century 6
MFL 553—The Teaching of Modern Foreign Languages 3
(Recommended for all prospective teachers)

Library Science (Minor only):

LS 513—Organization and Administration of the School Library 3
LS 529—Cataloging and Classification 3
LS 533—Reference and Bibliography 3
LS 536—Literature and Related Materials for Young People 3
LS 537—Children's Literature and Related Materials 3
LS 539—Library Practice 3
LS 521—Libraries and Librarianship 3
LS 586—Visual Teaching 3

Mathematics:

MA 110—Algebra and Trigonometry 3
MA 111—College Algebra 3
MA 112—Plane Trigonometry 2
MA 113—Analytics and Calculus I 4
MA 211—Analytics and Calculus II 4
MA 212—Analytics and Calculus III 4
MA 201—Fundamentals of Elementary Math 3
MA 261—Introduction to Number Theory 3
MA 262—Linear Algebra 3
MA 341—Topics in Geometry 3
MA 361—Foundations of Mathematics 3
MA 401—Historical Development of Mathematics 3
MA 407—College Geometry 3
MA 421—Elementary Computational Methods 3
MA 431—Differential Equations 3
MA 432—Applied Calculus 3
MA 433—Applied Calculus 3
MA 561—Introduction to Modern Algebra 3
MA 565—Introduction to Matrices 3
MA 571—Introduction to Analysis 3

Physical Education (see page 188)

Physics:

*PHY 231,232,241,242—General College Physics 10
PHY 504—Theoretical Mechanics 3
PHY 511—Electricity and Magnetism 3
PHY 515—Theory of Measurements 3
PHY 554—Fundamental Atomic and Nuclear Physics 3
PHY 555—Fundamental Atomic and Nuclear Physics 3

* Required.

Note: It is recommended that students who wish to have a teaching major in Physics take at least 14 semester hours of "500" courses—preferably those listed above.

Political Science:

PS 151—American Government 3
PS 552—Municipal Government 3
PS 280—State Government
or 3
PS 574—Kentucky Government & Constitution
PS 559—American Constitutional Development
or 3
PS 560—American Constitutional Development
PS 572—Modern Political Theory
or 3
PS 575—Contemporary American Political Thought
PS 555—Comparative Government—Parliamentary Democracies 3
PS 566—The United Nations 3
PS 570—Political Parties 3
PS 571—Early Political Theory 3
PS 576—Legislative Process 3
PS 577—Introduction to Public Administration 3
ECO 251—Principles of Economics 3

Speech and Dramatic Arts:

Nine to 15 hours from this group:
ENG 181—Basic Public Speaking 3
ENG 183—Parliamentary Usage 2
ENG 283—Argumentation and Debate 3
ENG 285—Applied Phonetics 3
ENG 287—Speeches for Special Occasions 3
ENG 288—Oral Interpretation 3
ENG 580—Discusssion
or
ENG 584—Teaching of Speech 3
or
ENG 582—Persuasion
Nine to 15 hours from this group:
ENG 191—Stagecraft
or 2
ENG 192—Staging Techniques
ENG 291—Voice Development 3
ENG 591—Theatre Directing 3
ENG 592—Theatre Production 3
ENG 593—Scenic Design 3
ENG 596—History of the Stage 3
ENG 597—Survey of Theatre Principles 3
Six to nine hours from this group:
ENG 525—Elizabethan Drama Exclusive of Shakespeare 3

Physical Education—Men

	Year	P.E. Minor 18 Hrs.	P.E. Major 24 Hrs.	Health & P.E. Major 30 Hrs.	Health, P.E. & Rec. Area 48 Hrs.
PE 061—Field Trip	Jr	0	0	0	0
PE 141, 142, 143, 144—Football, Basketball, Track, Baseball					6*
PE 150—PE & Rec. Activities	Fr	2	2	2	2
PE 151—PE & Rec. Activities	Fr	2	2	2	2
PE 152—Tech. of Swimming	Sr			2**	2**
PE 250—PE & Rec. Activities	So	2	2	2	2
PE 251—PE & Rec. Activities	So	2	2	2	2
PE 280—Recreation Leadership	Sr				2
PE 281—Camp Leadership	So			2	2
PE 343—Hist. & Prin. of PE	Jr		3	3	3
PE 344—PE in Secondary School	Jr	3	3	3	3
PE 356—Sports Officiating	Sr			1***	1
PE 360—PE in Elementary School	Jr	2	2	2	2
PE 370—Safety, Training, First Aid	Jr	2	2	2	2
PE 520—Physiology of Exercise	Sr			3	3
PE 540—Org. & Adm. of PE	Sr		3	3	3
PE 545—Intro. to Tests & Meas.	Sr				3
PE 572—Kinesiology & Its Applica.	Sr				4
Electives (Approved by advisor)****		3	3	1	4

* One 2-hour athletic coaching course may be omitted.
** Or PE 252.
*** Or PE 357.
**** Selected from 300-courses or above.
Note: HE 401—Principles of Nutrition, is required in all PE majors and areas of concentration.

Physical Education—Women

	Year	P.E. Major 24 Hrs.	Health & P.E. Major 30 Hrs.	Health, P.E. & Rec. Area 48 Hrs.
PE 061—Field Trip	Jr	0	0	0
PE 150—PE & Rec. Activities	Fr	2	2	2
PE 151—PE & Rec. Activities	Fr	2	2	2
PE 132—Tech. of Swimming	Sr		2*	2*
PE 250—PE & Rec. Activities	So	2	2	2
PE 251—PE & Rec. Activities	So	2	2	2
PE 280—Recreation Leadership	Sr		2	2
PE 281—Camp Leadership	So		2	2
PE 343—Hist. & Prin. of PE	Jr	3	3	3
PE 344—PE in Secondary School	Jr	3	3	3
PE 358—Sports Officiating for Women	Sr		1	1
PE 359—Sports Officiating for Women	Jr			1
PE 360—PE in Elementary School	Jr	2	2	2
PE 370—Safety, Training & First Aid	Jr	2	2	2
PE 491—Dance in Education	Jr		4	4
PE 520—Physiology of Exercise	Sr			3
PE 540—Org. & Adm. of PE	Sr	3	3	3
PE 545—Intro. to Tests & Meas.	Sr			3
PE 572—Kinesiology & Its Applica.	Jr			4
Electives (Approved by advisor)**	Jr			5

* Or PE 252.
** Selected from 300-courses or above.
Note: HE 401—Principles of Nutrition, is required in all PE majors and areas of concentration.

ENG 526—Shakespeare: The Comedies or	3
ENG 527—Shakespeare: The Tragedies	
ENG 532—Restoration & Eighteenth Century Drama	3
ENG 563—Modern Drama	3
PSY 553—Speech Mechanisms	3

REQUIREMENTS FOR TEACHING VOCATIONAL AGRICULTURE (SUMMARY)

College of Agriculture and Home Economics	Sem. Hrs.
Prescribed courses in agriculture	22
Group requirements in agriculture	36
Electives in agriculture	2-15
Total agriculture	60-73
Prescribed courses in other subjects (not Education)	9
Group requirements in other subjects (not Education)	37-39
Specialty support (Education or related science)	3-6
Agricultural Education (EDU 580-581)	18
Electives in other subjects	10
Total other subjects	67-80
Total required for graduation	140

a) Agricultural Education 580-581 and 672 are required for certification. They should be taken as a graduate student; however, 580 and 581 may be taken as an undergraduate.

b) When Agricultural Education 580 and 581 are taken as an undergraduate, the 18 credits are to be used as electives at the undergraduate level.

c) The student should complete at least 9 credits in agricultural engineering, 3 credits in agricultural entomology, 6 credits in education, 3 credits in literature, and 3 credits in health and physical education as an undergraduate.

REQUIREMENTS FOR HOME ECONOMICS TEACHING (SUMMARY)

College of Agriculture and Home Economics
Effective entering freshmen, 1960

	Sem. Hrs.
General requirements (see *General Catalogue*, general curriculum) in core	42-48
Core in home economics (see *General Catalogue*)	42
Prescribed additional courses in home economics	12-13
*HE 227—Clothing Construction	
HE 228—Clothing and Pattern Design	
HE 550—Child Guidance	
HE 536—Interior Decoration Projects or	
HE 568—Household Equipment	
General requirements beyond general requirements in core	12
Literature, humanities, foreign languages, philosophy, religion—5 sem. hrs.	
Anthropology, geography, government, history—3 sem hrs.	
Bacteriology, botany, zoology—4 sem. hrs.	

* May be omitted by passing test.

Professional Education	18-19
EDU 202—Human Development and the Curriculum or	
EDU 301—American Public Education	
EDU 586—Techniques of Teaching Home Economics	
*EDU 362—Student Teaching in Home Economics	
*EDU 588—Adult Education in Home Economics	
General electives	2-10
Total required for graduation	136

* Should be scheduled in same semester—either semester in senior year.

STUDENT TEACHING IN VOCATIONAL AGRICULTURE AND HOME ECONOMICS

Transient students and graduate students in agricultural education may take student teaching without having done a semester in residence on the campus. All students who take student teaching must have an over-all standing of at least 2.5 for the entire college period but are not required to have had other courses in education. Those transferring to the University must also have a standing of at least 2.5 for all college work done before the semester of student teaching. They take 18 semester hours of work the semester student teaching is done—in agricultural education, which includes student teaching.

In order to take student teaching in home economics, a student must have completed 3 hours in techniques of teaching home economics and have an average standing of 2.5. Student teaching and adult education are carried on in off-campus teaching centers. Students live in the community for approximately one-half semester and carry on the activities of a teacher of the community under the guidance of a trained supervising teacher.

REQUIREMENTS FOR SPECIAL EDUCATION TEACHING

The College of Education offers programs designed to prepare teachers to work with the mentally retarded, the orthopedically disabled (including the cerebral palsied), the hard-of-hearing, the deaf, and the speech deviate. Prospective special education teachers are required to meet the general education requirements of all teachers in the elementary, junior high, or senior high school field. Those preparing to be teachers of the orthopedically handicapped, the hard-of-hearing, the deaf, and the mentally retarded are required to meet the professional-education requirements of the elementary, junior, or senior high school program. Those programs are designed to enable the undergraduate student to obtain a broad base upon which the special education preparation can be built. Opportunity is provided for a combining of student teaching in a regular class and in a special class. Thus, within the framework of the undergraduate program the student can earn certification in elementary, junior, or senior high school *plus* certification in a special field.

All students in Special Education with the exception of those in speech and hearing must meet the general requirements for certification as elementary, junior high, or senior high school teachers.

Additional courses in Special Education are being planned. Consult with the advisor in Special Education for the complete list.

Curriculum for Teachers of the Orthopedically Disabled, Including the Cerebral Palsied	Sem. Hrs.
EDU 375—Introduction to Education of Exceptional Children	3
EDU 540—Problems in Diagnostic and Remedial Reading	3
EDU 525—Methods and Materials in Teaching the Orthopedically Handicapped, including the cerebral palsied	3
PSY 550—Speech Pathology: A Survey	3
PE 572—Kinesiology	3
EDU 527—Survey of Physical Defects	3
EDU 358—Observation and Practicum in Special Education	3
EDU 359—Student Teaching (Special Education; remainder in Elementary, Junior or Senior High School)	3 to 6

Curriculum for Speech and Hearing	
EDU 375—Introduction to Education of Exceptional Children	3
PSY 550—Speech Pathology: A Survey	3
PSY 551—Speech Correction: An Introduction to Therapy	3
PSY 552—Stuttering and its Correction	3
PSY 553—Speech Mechanisms	3
PSY 560—Introduction to Clinical Audiology	3
PSY 561—Audiometry	3
PSY 562—Introduction to Hearing Disorders	3
EDU 358—Observation and Practicum in Special Education	3
EDU 359—Student Teaching	3 to 6

Curriculum for Teachers of the Mentally Retarded	
EDU 375—Introduction to Education of Exceptional Children	3
EDU 530—Nature and Needs of Retarded Children	3
EDU 526—Methods and Materials of Teaching the Mentally Retarded	3
EDU 522—Educational Tests and Measurements	3
EDU 540—Problems in Diagnostic and Remedial Reading	3
PSY 521—Abnormal Psychology	3
EDU 358—Observation and Practicum in Special Education	3
EDU 359—Student Teaching (Special Education; remainder in Elementary, Junior, or Senior High School)	3 to 6

Curriculum for Teachers of the Hard-of-Hearing	
EDU 375—Introduction to Education of Exceptional Children	3
PSY 550—Speech Pathology: A Survey	3
PSY 560—Introduction to Clinical Audiology	3
PSY 561—Audiometry	3
PSY 562—Introduction to Hearing Disorders	3
PSY 563—Adv. Clinical Methods for Aurally Handicapped	3
EDU 358—Observation and Practicum in Special Education	3
EDU 359—Student Teaching (Special Education; remainder in Elementary, Junior, or Senior High School)	3 to 6

Note: A balanced sequence of courses in the area of the Deaf is not now offered. The courses listed under the above headings, however, are applicable toward partial fulfillment of the state requirements.

Curriculum for Teachers of the Deaf	
EDU 375—Introduction to Education of Exceptional Children	3
PSY 560—Introduction to Clinical Audiology	3
PSY 561—Audiometry	3
PSY 562—Introduction to Hearing Disorders	3
EDU 575—Methods of Teaching Language to the Deaf	3
EDU 576—Methods of Teaching Speech to the Deaf	3
EDU 358—Observation and Practicum in Special Education	3
EDU 359—Student Teaching (Special Education; remainder in Elementary, Junior, or Senior High School)	3 to 6
Electives: PSY 550—Speech Pathology: A Survey	3
PSY 563—Clinical Audiology	3

GRADUATE PROGRAMS LEADING TO THE 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 his adviser. In cases of deficient preparation the committee, with the approval of the Dean, determines prerequisite undergraduate courses to be taken.

The following persons have been designated to guide graduate students in their work toward the master's degree in education.

Area	Persons
Elementary Teachers—	Moore, Ramsey, and Sudduth
Secondary Teachers	
General—	Lurry, Manker, Miller, Ravitz, Reed, Shipman, and Tatum
Agriculture—	Binkley and Lamar
Art—	Haines
Business Education—	Musselman and Humphreys
Home Economics—	Gorman
Industrial Education—	Baker
Music—	Holroyd and Shipman
Physical Education—	Seaton, Clay, Carr, Gilb, and Huff
Special Education—	Levy
Elementary Principal—	Moore and Swanson
Guidance Counselors—	Auvenshine, Carse, and Wilkie
Secondary Principal—	Cierley, Kincheloe, and Powell
Supervisor—	Ogletree
Attendance Officer—	Ogletree
Superintendent—	Cierley, Kincheloe, and Ogletree
Higher Education—	Chamberlain and Martin

The candidate for the master's degree must complete the requirements for this degree under one of the two plans which follow. The second plan is permissible only with the approval of the Dean of the Graduate School, the Dean of the College of Education, and the student's adviser.

PLAN I

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 15 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 Educational Administration and Vocational Agriculture. It is expected that students in Educational Administration and Vocational Agriculture will have six hours outside education. (Note: This requirement is effective for all students entering the Graduate School the second semester 1954-55 or after and for all students after September 1, 1957.)
5. At least 36 weeks of residence must be acquired as a University of Kentucky graduate student.
6. No student may satisfy more than one-half of the residence requirements for advanced degrees by part-time work. This limitation does not apply to intensive courses.
7. The total number of semester hours presented in education, undergraduate and graduate, must be at least 30.
8. A standing of 3.0 (an average of B) or better must be made on all graduate work.
9. Six semester hours (if approved by the graduate adviser) may be completed in off-campus study (that is, extension work). In such case, however, a minimum of 30 weeks of *resident-on-campus* work is required for the Master's degree.
10. The Graduate Record Examination is required of all candidates for graduate degrees. It is to be taken the first semester the student is enrolled as a full time student in the Graduate School. The National Teachers Examination will be required of all candidates for the degree of Master of Arts in Education or Master of Science in Education. The student should consult with his advisor to determine the proper time to take this Examination. In exceptional cases an additional examination, either written or oral, may be required. In this case, these examinations are to be taken just prior to or during the session in which the degree is to be conferred.
11. All graduate students must meet the requirements for a teaching certificate in Kentucky as established by the State Department of Education of Kentucky. These requirements are outlined under the undergraduate program. If deficiencies are found, they should be overcome before proceeding with graduate work. The work required to overcome these deficiencies is in addition to the minimum graduate requirements for the degree.

PLAN II

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.
4. At least 12 semester hours must be outside the field of education, except for majors in Educational Administration and Vocational Agriculture. It is expected that students in Educational Administration and Vocational Agriculture will have six hours outside education. (Note: This requirement is effective for all students entering the Graduate School the second semester 1954-55 or after and for all students after September 1, 1957.)
5. At least 36 weeks of residence must be acquired as a University of Kentucky graduate student.
6. No student may satisfy more than one-half of the requirements for an advanced degree by part-time work. This limitation does not apply to intensive courses.
7. The total number of semester hours presented in education, undergraduate and graduate, must be at least 30.
8. A standing of 3.0 (an average of B) or better must be made on all graduate work.
9. Six semester hours and nine weeks of residence may be done in extension classes, off-campus study, or independent work courses with the permission of the student's advisor and the Dean of the Graduate School.
10. The Graduate Record Examination is required of all candidates for graduate degrees. It is to be taken the first semester the student is enrolled as a full time student in the Graduate School. The National Teachers Examination will be required of all candidates for the degree of Master of Arts in Education or Master of Science in Education. The student should consult with his advisor to determine the proper time to take this examination. In exceptional cases an additional examination, either written or oral, may be required. In this case, these examinations are to be taken just prior to or during the session in which the degree is to be conferred.
11. All graduate students must meet the requirements for a teaching certificate in Kentucky as established by the State Department of Education of Kentucky. These requirements are outlined under the undergraduate program. If deficiencies are found, they should be overcome before proceeding with graduate work. The work required to overcome these deficiencies is in addition to the minimum graduate requirements for the degree.

Consult the College of Education bulletin and your College of Education advisor for your final course plan.

REQUIREMENTS OF THE MASTER'S DEGREE PROGRAM IN ADMINISTRATION AND SUPERVISION

A. *Counseling and Guidance* (3 hours required):

*EDU 756—Fundamentals of Guidance

B. *Foundations* (3 hours required):

Three additional hours such as:
EDU 645—Foundations of Education or
EDU 661—Educational Sociology

C. *Curriculum and Instruction* (6 hours required):

*EDU 732—Principles of Curriculum Construction

For candidates with background in secondary education:
EDU 712—The Elementary School

For candidates with background in elementary education:
EDU 714—The Secondary School or
EDU 717—The Junior High School

D. *Behavioral Sciences* (9 hours required):

*Sociology 542—Human Relations in Administration

Six additional hours such as:
Sociology 544—Social Psychology, or
Sociology 551—Principles of Sociology, or
Anthropology 526—Culture and Personality

E. *Administration and Supervision* (9 hours required):

*EDU 99—Orientation (no credit)

*EDU 633—The Administration of the Teaching Personnel, and

*EDU 634—Administrative Problems in Today's Education (Offered together in block of 6 hours)

(Prerequisite: Admission to the program in Administration)

*EDU 639—Supervision of Instruction

(Prerequisite: EDU 633 and 634 and at least three years of teaching experience)

* Required.

It is recommended that students plan their programs in accordance with the undergraduate certificate held. For example, elementary leadership programs should be planned for teachers holding elementary certificates and secondary leadership programs should be planned for teachers holding secondary certificates.

THE SECOND-YEAR PROGRAM (NON-DEGREE) FOR STANDARD CERTIFICATION

Admission Procedure—The candidate for standard certification should:

1. Secure admission to the Graduate School.
2. Request an advisor from the Office of the Dean, College of Education.
3. Confer with the advisor.
4. Apply through the advisor for admission to the program.

Requirements of the Program for Standard Certification (non-degree)

EDU 771—Seminar in Educational Administration, or Behavioral Sciences (6 semester hours)
EDU 608—Internship in Educational Administration
EDU 792—Research Problems in Educational Administration, or
EDU 793—Research Problems in Curriculum and Supervision

Six to nine hours of electives appropriate to the field in which the applicant is specializing:

For Superintendent:
EDU 636—State School Administration

For High School Principal:
EDU 630—High School Administration

For Elementary Principal:
EDU 629—The Elementary Principal

For Supervisor:
EDU 608—Internship in Educational Administration (6 semester hours)

Standard Certification may be obtained upon completion of the "Second Year" program, and four years of experience as a school leader. Since September 1, 1962, Rank I classification under the Kentucky Minimum Foundation law requires the completion of a 30-hour program above the master's degree; and after September 1, 1964, superintendents will not be certified until a 30-hour program above the master's has been completed.

MASTER'S DEGREE PROGRAM IN GUIDANCE AND COUNSELING

General degree requirements, as outlined in this bulletin and in the *Graduate School Bulletin*, are applicable to students in the guidance and counseling curriculum.

Curriculum for Master's degree (30 semester hours required)

Required:	Sem. Hrs.
EDU 755—Human Development and Behavior	3
EDU 756—Fundamentals of Guidance	3
EDU 522—Educational Tests and Measurements or PSY 535—Psychological Testing	3
EDU 758—Group Guidance Problems and Practices	3
EDU 760—Counseling Theory and Practice	3
EDU 761—Supervised Practice in Counseling (May be repeated to a maximum of 9 hours.	3
EDU 661—Educational Sociology or EDU 640—Philosophy of Education	3

Electives: 9 hours from the following:

PSY 505—Experimental Psychology	3
PSY 507—Psychology of Learning	3
PSY 520—Mental Hygiene	3
PSY 521—Abnormal Psychology	3
PSY 522—Counseling Psychology	3
PSY 544—Social Psychology	3
ANT 526—Culture and Personality	3
SOC 509—The Family	3
SOC 510—The Family	3
SOC 538—Juvenile Delinquency	3

As a part of the Master's degree program in Guidance and Counseling students may specialize in Rehabilitation Counseling by meeting the following requirements:

ANA 206—Elementary Anatomy	4
EDU 521—Introduction to Vocational Rehabilitation	3
EDU 522—Educational Tests and Measurements or PSY 535—Psychological Testing	3
EDU 527—Survey of Physical Defects	3
EDU 657—Educational Statistics	3
EDU 664—Studies in Vocational Rehabilitation	3
EDU 760—Counseling Theory and Practice	3
*EDU 761-2—Supervised Practice in Counseling	3
EDU 764—Using Occupational and Educational Information in Counseling and Guidance	3
*EDU 777-2—Seminar in Counseling and Guidance	3
PSY 521—Abnormal Psychology	3
PSY 544—Social Psychology	3
PSY 640—Practice in Testing; Intelligence Tests	3
SW 530—Community Organizations for Social Work	3

Electives:

Three hours from Education, Psychology, Rural Sociology, Social Work, or Sociology as recommended by the advisor.

* Courses designated by the suffix–2 are specifically adapted to the Rehabilitation Counseling program.

MASTER'S DEGREE PROGRAM— SPECIAL EDUCATION

All undergraduate requirements for a provisional teaching certificate must be met before this program can be completed for teacher certification in the Special Education Area.

Curriculum for Master's Degree (36 hours required)

Foundations of Education (6 hours required)

EDU 661—Educational Sociology (3)
EDU 657—Educational Statistics (3)
EDU 658—Problems in Educational Psychology (3)
(EDU 755—Human development and Behavior may be substituted for EDU 658)

Counseling and Guidance (6 hours required)

EDU 764—Using Occupational and Educational Information in Counseling and Guidance (3)
EDU 521—Introduction to Vocational Rehabilitation (3)
or
EDU 756—Fundamentals of Guidance (3)

Special Education (12 hours required)

EDU 770—Seminar in Education of Exceptional Children (3)
EDU 526—Methods and Materials of Teaching the Mentally Retarded (3)
EDU 530—The Nature and Needs of Retarded Children
EDU 525—Methods and Materials in Teaching the Orthopedically Handicapped, Including the Cerebral Palsied (3)
EDU 527—Survey of Physical Defects (3)
EDU 528—Modern Educational Problems: Education of Handicapped Children (3)
*Methods and Materials for the Trainable Mentally Retarded (3)
*Administration and Supervision in Special Education (3)

° Two additional courses are being proposed. If approved, they will become a part of the Special Education program.

Psychology and Sociology (12 hours required)

**PSY 535—Psychological Testing	3
PSY 550—Speech Pathology: A Survey	3
PSY 560—Introduction to Clinical Audiology	3
PSY 561—Audiometry	3
PSY 640—Practice in Testing: Intelligence Tests	3
PSY 641—Psychological Measuring Instruments	3
PSY 631—Psychology of Language	3
SOC 509—The Family	3
SOC 536—Sociology of Deviant Behavior	3
SOC. 538—Juvenile Delinquency	3
SOC 632—Minority Groups	3

In the event of potential duplication of course work as a result of courses previously completed on the undergraduate level, additional electives may be selected from the areas of foundations, special education, psychology, or sociology.

°° Prerequisite: EDU 522 or EDU 573.

MASTER'S DEGREE PROGRAM FOR TEACHERS IN ELEMENTARY EDUCATION

A. Professional education courses (12 hours required)

Curriculum block (6 hours required):
EDU 712—The Elementary School
EDU 732—Principles of Curriculum Construction
Note: EDU 740, Teaching Reading and Related Language Arts in the Elementary School, or a course approved by the advisor, may be substituted for EDU 712.

Human Development, Guidance, and Test block (6 hours required):
EDU 739—Survey of Research in Human Development and Education
One course in the area of Guidance and Testing to be approved by the advisor.

B. Courses outside Education should be related to the student's teaching field and should be planned with, and have the approval of, the student's advisor.

C. Summary of Requirements:

1. Must be eligible for a teaching certificate by the time that M.A. degree is completed.
2. Must have a total of 30 semester hours in Education at both the graduate and undergraduate levels.
3. Must have 15 hours of graduate work in courses numbered 600 or higher.
4. Must have at least 12 hours of graduate work in Education.
5. Must have at least 12 hours outside the field of Education.
6. Must have a standing of 3.0 (an average of B) or better on all graduate work and must be admitted to full graduate standing.

The student is required to take a non-credit seminar, Ed. 99, the first time he is enrolled in the Graduate School.

*MASTER'S DEGREE PROGRAM FOR TEACHERS IN SECONDARY EDUCATION**

A. Professional education courses (12 hours required):

Choose one: (3 hours required)
EDU 522—Educational Tests and Measurements
EDU 550—The Role of the Teacher and the Principal in Guidance
EDU 756—Fundamentals of Guidance

Choose one: (3 hours required)
EDU 645—Foundations of Education
EDU 658—Problems in Educational Psychology
EDU 661—Educational Sociology.

EDU 714—The Secondary School (3 hours required)

A 3-hour course recommended by the student's advisor

B. Courses outside Education should be related to the student's teaching field and should be planned with, and have the approval of, the student's advisor.

C. Summary of Requirements:

1. Must be eligible for a teaching certificate by the time the M.A. degree is completed.
2. Must have a total of 30 semester hours in Education at both the graduate and undergraduate levels.
3. Must have 15 hours of graduate work in courses numbered 600 or higher.
4. Must have at least 12 hours of graduate work in Education.
5. Must have at least 12 hours outside the field of Education.
6. Must have a standing of 3.0 (an average of B) or better on all graduate work and must be admitted to full graduate standing.

The student is required to take a non-credit seminar, EDU 99, the first summer term or the first semester he is enrolled in the graduate school.

° This program is being changed. Consult with advisor to determine effective dates.

MASTER'S DEGREE PROGRAM FOR TEACHERS IN BUSINESS EDUCATION

A. *Five Courses Selected from the Following:* (15 hours)

EDU 513—Teaching Office Practice, Clerical Practice, and Office Appliances
EDU 514—Teaching General Business Subjects
EDU 615—Problems in Business Education
EDU 618—The Social Business Subjects in High School
EDU 622—Business Education in Colleges and Universities
EDU 623—Administration and Supervision of Business Education
EDU 626—Classification and Possible Use of Community Resources in Business Education
EDU 774—Seminar in Business Education

EDU 786—Independent Work in Business Education
EDU 544—Visual Teaching
EDU 661—Educational Sociology
EDU 714—The Secondary School
EDU 724—Organization and Supervision of Student Teaching
EDU 732—Principles of Curriculum Construction
EDU 756—Fundamentals of Guidance

B. *Elective* (3 hours)

C. *Courses Outside Education* (12 hours)

These are to be selected from commerce, or the student's secondary teaching major or minor, or from areas of need as shown by his scores on the Graduate Record Examination.

MASTER'S DEGREE PROGRAM FOR TEACHERS IN AGRICULTURAL EDUCATION

EDU 645—Foundations of Education	5
EDU 714—The Secondary School	3
EDU 732—Principles of Curriculum Construction	3
EDU 670—Method in Teaching Vocational Agriculture	3
EDU 678—Selecting Teaching Materials	3
EDU 679—Adult Farmer Schools	3
EDU 680—Directing Farm Practice	3
EDU 682—Young-Farmer Schools	3

MASTER'S DEGREE PROGRAM FOR TEACHERS IN HOME ECONOMICS EDUCATION

EDU 687—Supervision in Home Economics Education (For Supervisors of Student Teachers)	3
EDU 683—Current Problems in Home Economics Education	3
EDU 684—Modern Trends in Home Economics Education	3
EDU 685—Home Economics Curriculum Construction	3
EDU 686—Evaluation in Home Economics Education	3
EDU 787 or 656—Research in Home Economics Education	3

MASTER'S DEGREE PROGRAM FOR TEACHERS IN INDUSTRIAL EDUCATION

EDU 411—Principles and Philosophy of Industrial Education	3
EDU 419—Vocational Guidance	3
EDU 409—Methods in Industrial Education	3
EDU 418—Organization and Operation of Part-Time and Evening Classes	3
EDU 714—The Secondary School	3
EDU 645—Foundations of Education	5
EDU 630—High School Administration	3
EDU 732—Principles of Curriculum Construction	3

GRADUATE PROGRAMS LEADING TO THE EDUCATION SPECIALIST AND DOCTORAL DEGREES

For information concerning the Education Specialist degree, the degree of Doctor of Philosophy with education as a major, or the degree of Doctor of Education, students should consult the Dean of the Graduate School and the Dean of the College of Education.

DIVISION OF COUNSELING & GUIDANCE

FACULTY

Professors: Lyman Vernon Ginger (Ed.D., Kentucky, 1950), Leslie L. Martin (Ph.D., Indiana, 1952). *Associate Professors:* William Thomas Carse (Ed.D., Illinois, 1961), CHAIRMAN, Albert S. Levy (Ed.D., Portia, 1953), Raymond A. Wilkie (Ph.D., Yale, 1954, Ph.D., Kentucky, 1960). *Assistant Professors:* Charles Dwight Auvenshine (Ph.D., Missouri, 1962), Perry Childers (Ed.D., Georgia, 1963). *Instructor:* Emmett D. Burkeen (M.A., Kentucky, 1950).

Course Descriptions

521 *Introduction to Vocational Rehabilitation.* (3)
Survey of vocational rehabilitation: historical, legal, and administrative aspects of rehabilitation services; survey of rehabilitation services; and the role of the counselor in rehabilitation process.

664 *Problems in Vocational Rehabilitation.* (3) I, II
A study of actual cases of vocational rehabilitation clients emphasizing the various kinds of disabilities, the functional implication of disability, and the contribution of professional personnel in medical, social, psychological, and vocational areas. Prereq: EDU 521.

665 *Practicum in Counseling Psychology.* (3) I, II, S
Nine hours of supervised work each week in counseling psychology in the University Counseling Office. Same as Psychology 665. (May be repeated three times to a maximum of 12 credits.) *Staff.*

755 *Human Development and Behavior.* (3) I, II, S
The physiological, sociological, and psychological bases of human behavior with emphasis upon the normal school child in his environment. Findings of research in the behavioral sciences and their implications for the guidance of young persons.

756 *Fundamentals of Guidance.* (3) I, II, S
A survey of the educational, sociological, and psychological foundations of guidance in schools and colleges. Study of the basic philosophy and nature of guidance services, organization and administration of guidance programs, the role of the guidance counselor, and the relationship of guidance services to the total curriculum.

758 *Group Guidance Problems and Practices.* (3) I, II, S
Providing for the common needs of groups of students in making more effective educational, occupational, social, and personal adjustments. Special emphasis is given to the selection, organization, and effective use of group guidance materials and techniques.

759 *Identifying and Providing for Individual Student Needs.* (3) I, II, S
Research studies and reports on individual differences in the physical, intellectual, social, and emotional development of students, and of ways that have proved effective in meeting individual needs, especially in secondary schools.

760 *Counseling Theory and Practice.* (3) I, II, S
A study of the basic theories, principles, and techniques of counseling and their applications to counseling in schools and colleges. Practice in the techniques of interviewing, and the use of psychological tests, observations, records, case studies, and other procedures in the counseling process. Prereq: EDU 755, 756.

761 *Supervised Practice in Counseling.* (3) I, II, S
(May be repeated twice to a maximum of 9 credits.)
Supervised practice in counseling in the educational setting in which the student plans to work. Requires 8 hours a week in actual counseling plus a minimum of 2 hours weekly in seminar. Prereq: EDU 755, 756, 760, and at least 2 hours weekly in seminar.

762 *Organization and Administration of Guidance Services.* (3) I, II, S

A study of the problems of supervision, staffing, finances, effective inter-personal relationships, community participation, in-service education, and evaluation of the guidance program. Includes supervised experience in the planning and administration of guidance services. Prereq: Master's degree in counseling and guidance.

763 *Research and Evaluation in Guidance.* (3) I, II, S

Research methodology applied to the evaluation and interpretation of guidance services. May include analysis and interpretation of test data from schools and school systems, emphasizing the application of test data to local school problems and the organization of reports.

764 *Using Occupational and Educational Information in Counseling and Guidance.* (3) I, II, S

Collection, evaluation, organization, filing and use in counseling of current data. Supply and demand, working conditions, trends, entrance requirements, job families, and career fields. Schools, colleges and other agencies that prepare for advancement in productive careers.

765 *Independent Work in Counseling and Guidance.* (2) I, II, S

An independent work course for advanced graduate students who desire to investigate special problems in counseling and guidance. Prereq: One year of graduate work in Counseling and Guidance, including EDU 755, 757 (or PSY 610) and approval of instructor. May be repeated once to a maximum of four credits.

777 *Seminar in Counseling and Guidance.* (3) I, II, S

A seminar for advanced graduate students. Designed to develop deeper understandings and clearer insights in guidance and counseling, through critical examination and discussion of pertinent theories, research reports, case records and counseling experiences. Prereq: 36 hours in Counseling and Guidance, including Practicum (EDU 761 or PSY 665), approval of advisor and staff.

DIVISION OF ADMINISTRATION & SUPERVISION

FACULTY

Professors: Morris Berdyne Cierley (Ed.D., Illinois, 1953), CHAIRMAN. Leo M. Chamberlain (Ph.D., Indiana, 1931), Lyman V. Ginger (Ed.D., Kentucky, 1950), James Benjamin Kincheloe (Ph.D., Peabody, 1954), Doris M. Seward (Ph.D., Syracuse, 1953), W. Paul Street (Ph.D., Northwestern, 1947). *Associate Professors:* James Robert Ogletree (Ed.D., Columbia, 1956), Louis Swanson (Ed.D., Tennessee, 1950). *Assistant Professors:* Russell Below (M.A., Murray, 1955), Fred Edmonds (Ed.D., Kentucky, 1961).

Course Descriptions

502 *The Administration of Pupil Personnel.* (3) S

Administrative problems relating to child accounting, including school census, attendance records and reports, social and economic factors affecting school attendance, and duties and responsibilities of school and non-school personnel and agencies.

602 *Local School Administration.* (3) I, II, S

The organization, management, and control of a local school system, including such problems as federal, state, and local relationships, board of education, pupil personnel, employed personnel, public relations, finance and business management, and school services.

603 *Constitutional and Legal Basis of Public School Administration.* (3) II, S

A study of court decisions to discover the legal principles involved in practical problems of school administration. Prereq: EDU 602, 636, or 630.

604 *School Buildings and Equipment.* (3)

Measurement and evaluation of existing school building facilities, planning new buildings, determining suitable equipment, and financing the building program. Prereq: EDU 636 or its equivalent.

608 *Internship in Educational Administration.* (3) I, II, S

Field experiences are provided for prospective administrators under the cooperative supervision of University personnel and principals, supervisors, and superintendents in Kentucky public school systems. (May be repeated once to a maximum of 6 credits.)

628 *Field Problems in Curriculum Supervision.* (3) I, II

A course designed to provide direct experience in dealing with educational problems in field situations. Observations, readings, and research also required. Registration only with consent of instructor. (May be repeated once to a maximum of 6 credits.)

629 *The Elementary Principal.* (3) I, S

Problems involved in the organization and administration of a modern elementary school.

630 *High School Administration.* (3) I, II, S

This course deals with organization, administration, and problems of the modern secondary schools, including such specific problems as school staff, program of studies, records and reports, school-community relationships, school plant, finance, and scheduling.

633 *Leadership Problems in Today's Education.* (3)

The common and persistent problems of public education are analyzed. Insights, procedures, and skills for solutions to these problems are developed.

634 *Effective Educational Leadership.* (3)

The leadership roles, responsibilities, understandings and behavior patterns of effective school principals, supervisors and superintendents.

635 *Business Administration and Finance of Public Education.* (3) II, S

A course for prospective superintendents. Emphasizes school support, including state, local, and federal revenues; budgetary policy; procedures for purchasing, accounting, and reporting costs; management of funds, property, equipment, and supplies; payroll procedures, records and reports.

636 *State School Administration.* (3) S

Organization, administration, and control of education at the state level, including state-federal and state-local school relationships, state support, control of the material environment, training and certification of teachers, teachers' contracts, tenure, retirement.

639 *Supervision of Instruction.* (3) II, S

Development, purposes, and organization of supervisory programs. Special emphasis on the nature of educational leadership. Consideration of various approaches to supervision with special attention to current in-service education programs.

718 *Trends in Higher Education.* (3)

A survey of modern tendencies in higher education: scope and development, objectives, organization, administration, curricula, finance, faculty and student personnel. Designed primarily for prospective college administrators, teachers, and registrars.

719 *Teaching at the College Level.* (3)

A study of approaches to instruction at the college level including principles, content, materials, methods, and procedures, and evaluation of student progress. A comprehensive course for prospective college teachers.

733 *Technique and Professional Work of the Registrar.* (3) I, II, S
A comprehensive study of the work of the registrar in institutions of higher education, including the history, literature, and present-day tendencies; rules of the University; recommendations of the American Association of Collegiate Registrars. (May be repeated once to a maximum of 6 credits.)

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. *Staff.*

769 *Residence Credit for the Doctoral Degree.* (0) I, II, S
May be repeated indefinitely. *Staff.*

771 *Seminar in Administration.* (3) II, S
A critical study of selected problems in school administration. The course is designed primarily for students who have had some administrative experience. Prereq: EDU 602 and 639. (May be repeated once to a maximum of 6 credits.)

772 *Seminar in Education.* (1) I, II, S
A course planned for graduate students majoring in education, given under the direction of the faculty of the College of Education. (May be repeated once to a maximum of 2 credits.)

785 *Independent Work in School Administration.* (3) I, II, S
Includes research on a practical problem in school administration. Open only to students with at least one semester of graduate work in education. Approval of instructor necessary before registration. (May be repeated once to a maximum of 6 credits.)

792 *Research Problems in Educational Administration.* (3) I, II, S
An independent research course for the study of special problems in educational administration. Prereq: One year of graduate work. (May be repeated once to a maximum of 6 credits.)

793 *Research Problems in Curriculum and Supervision.* (3) I, II, S
An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. (May be repeated once to a maximum of 6 credits.)

799 *Research Problems in Higher Education.* (3) I, II, S
An independent research course for the study of special problems in higher education. Prereq: One year of graduate work. (May be repeated once to a maximum of 6 credits.)

DIVISION OF FOUNDATIONS OF EDUCATION

FACULTY

Professors: Ernest D. McDaniel (Ph.D., Purdue, 1955), Herbert Sorenson (Ph.D., Minnesota, 1928), Distinguished Professor. *Associate Professors:* Charles C. Manker, Jr. (Ph.D., Kentucky, 1956), Richard I. Miller (Ed.D., Columbia, 1958), Leonard A. Ravitz (Ed.D., Maryland, 1957), Carl D. Tatum (Ed.D., Maryland, 1956). *Instructors:* David Aspy (M.Ed., Louisville, 1960), Emmett Duel Burkeen (M.A., Kentucky, 1950), Bonnie Hume (Ed.D., Kentucky, 1964), Nancy McClure (M.A., Kentucky, 1954).

Course Descriptions

98 *Planning a Career in Education.* (0)
A general orientation program for freshman students who expect to enter the teaching profession. It is in this course that information is supplied to students about the different programs in teaching, and information is secured from the student as to his ability, interest in and aptitude for teaching.

99 *Graduate Seminar.* (0)
An orientation course for students who are entering the Graduate School for the first time.

101 *The Teacher in American Schools.* (2-3) I, II, S
An introductory course in education for freshman and sophomore students. Considers basic information about the teaching profession and the role of the school in a democratic society. The student will begin to study individual differences, the learning process, the school program, the role of the teacher in the school, and current educational issues. Affords opportunity for planning individual programs of teacher education.

202 *Human Development and the Curriculum.* (2-4) I, II, S
Major emphasis on basic principles of human growth and development of children from Kindergarten age through high school. Consideration is given to the interaction of children and youth with their social and school environment; and the total school program as it relates to principles of human development. Laboratory work is a basic part of the course. *Ravitz.*

301 *American Public Education.* (2-3) I, II, S
An introductory course for juniors and seniors who have not had EDU 101. Considers the scope and nature of the American public school system, basic questions related to the profession, organizational problems that relate to the work of the classroom teacher and pertinent educational issues.

317 *History of Education.* (3)
(Correspondence only)
A survey of historical foundations of education to modern times.

318 *History of Education.* (3)
(Correspondence only)
A study of historical foundations of education in modern times. (Continuation of 317.)

519 *The Elementary School Pupil.* (2) I, S
The psychology of the child in the primary and intermediate grades. Prereq: One course in Psychology.

520 *The Secondary School Pupil.* (3) II, S
The psychology of the pupil in junior and senior high school. Prereq: One course in Psychology.

522 *Educational Tests and Measurements.* (3) I, S
The problems of measurement in the school program, with special emphasis on standardized tests. The construction and use of new-type tests, use and limitations of traditional examinations, marking systems, etc., are also considered.

532 *Intergroup Relations.* (3) S
Analysis of relationships between groups which differ in religious, ethnic, or sociocultural backgrounds; the development of educational and social techniques for reduction of tensions. (Same as SOC 532.) (May be repeated once to a maximum of 6 credits.)

548 *Educational Psychology.* (3) I, II, S
Application of psychology to the problems of learning and teaching.

550 *The Role of the Teacher and the Principal in Guidance.* (3) I, II, S
A first course for non-specialists, basic principles and practical approaches to guidance for prospective teachers and principals in service.

551 *The Teaching of Higher Level Study Skills.* (3) I, S
A course designed to demonstrate the teaching of study skills (including remedial work) in secondary schools. One approach to teaching these skills will include the study problems of college students.

640 *Philosophy of Education.* (3) I, II
An advanced course dealing with the philosophy of democratic education and applications to some of the larger educational problems of today. Prereq: twelve semester hours in ed. (May be repeated once to a maximum of 6 credits.)

645 *Foundations in Education.* (3) I, S
An intensive study in various foundational fields which contribute to the development of educational theory and practice. Prereq: 12 semester hours in education at the undergraduate level (May be repeated once to a maximum of 6 credits.)

649 *Review of Current Educational Literature.* (3) II, S
An extensive study of current educational literature as found in educational periodicals. Prereq: twelve semester hours in education.

650 *General History of Education.* (3)
A survey of the history of education from the Greek period to the present.

651 *History of Education in the United States.* (3)
A history of the growth and development of education in the United States from earliest Colonial times to the present, including recent movements and trends.

652 *History of Educational Thought.* (3) I, S
A study of the lives and writings of the world's great educators to acquaint the student with their major contributions to society and education.

655 *Comparative Education.* (3) II
Comparisons of modern national systems of education.

656 *Methodology of Educational Research.* (3) II
A course intended to acquaint the student with the various techniques of research and to aid him in methods of attack on his own particular research problems. Prereq: twelve semester hours in education.

657 *Educational Statistics.* (3) I
A non-mathematical study of the applications of statistical and graphical methods to educational data.

658 *Problems in Educational Psychology.* (3) II, S
A critical survey of the psychological theories and research applicable to educational practices. Prereq: One year of Psychology. *Sorenson.*

661 *Educational Sociology.* (3) II, S
A course in sociological foundations of education.

725 *Advanced Problems in Philosophy of Education.* (3)
A critical study of philosophical problems which relate to present-day education. Prereq: Teaching experience and six semester hours in philosophy of education.

739 *A Survey of Research in Human Development and Education.* (4) II
A study of the research and principles of education and allied fields which are appropriate to a consideration of education as a developmental process. Prereq: Masters degree or by permission.

750 *Problems in Educational Sociology.* (3) S
An advanced course in the application of sociological findings to education including consideration of Southern regional problems and potentialities. Prereq: twelve semester hours of graduate work including EDU 661 or equivalent.

773 *Seminar in Foundations of Education.* (3) S
A critical study of selected problems in the foundations of education areas.

778 *Seminar in History of Education in Kentucky.* (3) I, II, S
A seminar for graduate students in education who are interested in developing a background and perspective upon educational problems by study of the history and development of education in Kentucky.

782 *Independent Work in Educational Psychology.* (3) I, II, S
An independent work course for students who have done a minimum of twelve semester hours of graduate work including EDU 522, 520 or 658. (May be repeated once to a maximum of 6 credits.)

783 *Independent Work in Philosophy of Education.* (3 ea.) I, II, S
An independent work course for students who have done a minimum of twelve semester hours of graduate work, including EDU 640, 652 and 661. (May be repeated once to a maximum of 6 credits.)

784 *Independent Work in History of Education.* (3) I, II, S
Independent work problems and topics for advanced students in history of education. (May be repeated once to a maximum of 6 credits.)

DIVISION OF CURRICULUM

FACULTY

Professors: Lucile L. Lurry (Ph.D., Ohio State, 1949), James T. Moore, Jr. (Ed.D., Stanford, 1951), Vernon Armor Musselman (Ed.D., Oklahoma, 1946), Wallace Zane Ramsey (Ed.D., Missouri, 1956). *Associate Professors:* Albert S. Levy (Ed.D., Portia, 1953), Denver Sloan (Ed.D., Kentucky, 1956). *Assistant Professors:* Martha Virginia Shipman (M.A., Arkansas, 1937), CHAIRMAN; William H. Banks (M.S., Tennessee, 1953), Ollie Edward Bissmeyer, Jr. (Ed.S., Indiana, 1960), Cornelius R. Hager (M.A., Kentucky, 1941), Martha Cooper Sudduth (Ed.D., Indiana, 1962). *Instructors:* Vivian Burke (M.A., Kentucky, 1950), Thomas A. Burton (M.S., Indiana, 1963), Alma V. Carl (M.A., Kentucky, 1953), Emily Huston Dawson (B.S., Western Reserve, 1937), Dorothy C. Jones (M.A., Kentucky, 1953).

Course Descriptions

305 *Fundamentals of Secondary Education.* (2-3) I, II, S
A consideration of problems which develop in connection with student teaching at the secondary level. This course is to be taken during the same semester in which the student is engaged in student teaching.

120 *Arts and Crafts in the Elementary School.* (3) I, II, S
Designed to give experiences with materials for arts and crafts related to classroom activities such as the playhouse, panoramas, dioramas, puppet shows, friezes, mural painting, map making, booklets, and colonial crafts.

324 *Teaching Science and Social Learnings in the Elementary School.* (2-4) I, II, S
Content areas of social studies and science. Developing understandings and skills relative to unit teaching. Social skills and scientific concepts will be developed through professional laboratory experiences. Consideration will be given to organizing science and social learnings in the elementary school.

325 *Teaching in the Elementary School.* (3) I, II, S
A course designed to develop understandings relative to program planning, daily schedule, record keeping, evaluation, reporting to parents, professional organizations, and teacher ethics. The unit approach as a method of organizing learning experiences in the elementary school is introduced.

329 *Teaching Communicative Skills in the Elementary School.* (2-4) I, II, S

A study of major factors in teaching reading, writing, spelling, speaking, listening, and creative language activities. Consideration will be given to the use of materials, and diagnostic and corrective procedures for each area.

331 *Teaching Arithmetic in the Elementary School.* (3) II

A study of children's interests in, and needs for arithmetic; evaluation of practice and materials, organization of subject matter, activities involving arithmetic drill, problem solving, diagnosis and remedial instruction, and testing.

340 *Teaching in the Junior High School.* (2-4) I, II, S

A course designed, with laboratory experiences, to consider the philosophy and organization of the modern junior high school; approaches to teaching in the subject field areas: selection of materials and books for young adolescents, and the guidance role of the junior high school teacher.

344 *Teaching in the Senior High School.* (2-4) I, II, S

Description: A course emphasizing methods of teaching; utilization of resources; evaluation, selection, preparation, and use of teaching materials. Some time will be devoted to a study of services available to teachers and the professional responsibilities of teachers.

375 *Introduction to Education of Exceptional Children.* (3) I, II, S

A survey of education and treatment of children having inferior or superior intellectual abilities; defects of vision, hearing, speech, or physical and neurological defects. Examination of research dealing with the exceptional child.

507 *Safety Education.* (3) S

A course designed to aid in developing skills and techniques essential to improving automotive and pedestrian safety. Psycho-physical tests, classroom work, behind-the-wheel driving, and other basic safety education are presented.

525 *Methods and Materials in Teaching the Orthopedically Handicapped, Including the Cerebral Palsied.* (3) I, II, S

Analysis of the special problems involved in teaching the orthopedically handicapped children and those who are cerebral palsied. Emphasis upon team relationships, planning the school day, adjustment and adaptation of curriculum methods and materials to meet the children's individual and group needs. Interpretation and use of professional records and research.

526 *Methods and Materials of Teaching the Mentally Retarded.* (3) I, II, S

Basic organization and planning of school programs for the classroom teacher of the "educable" and "trainable" mentally retarded. Major emphasis on curriculum development and teaching techniques. Observation in classes for the mentally retarded arranged.

527 *Survey of Physical Defects.* (3) I, II, S

A survey of causes, treatment, and educational implications of crippling conditions of school age children. Attention given to rehabilitation and life adjustment problems of individuals with single or multiple handicaps. Field trips to various facilities concerned with meeting the needs of the physically disabled.

530 *The Nature and Needs of Retarded Children.* (3) I, II, S

A critical examination of pertinent research in reference to the educational, physical, and psychological nature and needs of the educable and trainable mentally retarded child, including interpretation of psychological tests. Evaluation of the physical, social, emotional and mental characteristics of the retarded, to assist the classroom teacher to recognize the social potential of each child to the degree that the child with retarded mental development may become less of a burden to himself and society.

538 *Advanced Arts and Crafts in the Elementary School.* (3) I, II, S

Planned to give the elementary teacher an understanding of teaching methods involved in, and construction of, art activities which would enrich the classroom program.

539 *The Elementary Curriculum.* (3)

The philosophy and techniques of curriculum construction and some practical work in construction.

540 *The Analysis and Correction of Reading Disabilities.* (3)

A study of current methods and materials useful in analyzing the problems of disabled readers and giving corrective help. Students will use what is learned in working with children who have less severe reading problems. Special sections will be organized for students in special education. Prereq: EDU 329 or 541, a course in testing, and work in linguistics.

541 *Teaching Reading and Related Language Arts in the Secondary School.* (3)

A study of current methods and materials useful in: (1) teaching reading and related language arts in secondary schools, and (2) improving reading ability in the content areas. Prereq: Nine hours of English.

542 *Children's Literature.* (3) II

Planned to acquaint students with literature for children, kindergarten through grade 8. Review of interests at different ages. Discussion of types of literature—folklore, modern fairy tales, myths and legends, realistic stories, biography, and poetry.

543 *Teaching in the Kindergarten.* (3) I

The nature, development, and education of the child of kindergarten age. Organization, equipment, curriculum, and procedures used with children of this age. Regular periods are scheduled for observing and participating in the kindergarten.

544 *Visual Teaching.* (3) I, II, S

A course in methods and techniques of visual instruction. Emphasis is on the effective use of films, film strips, pictures, maps, graphs, slides, field trips, by means of lesson plans. Surveys are made of visual materials. (Same as LS 586)

552-557 *Modern Educational Problems.* (3 ea.)

A brief survey of some of the problems in modern education.

558 *Modern Educational Problems: Education of Handicapped Children.* (3)

Procedures to be used in the education of children who are handicapped physically, mentally, or emotionally. Attention is given to work with individual children as well as with groups.

559 *Modern Educational Problems: Community Organization in Adult Education.* (3)

Problems of community organizations as they affect the adult life of the citizens of the community served.

560-562 *Modern Educational Problems.* (3 ea.)

A brief survey of some of the problems in modern education.

563-576 *Modern Educational Problems.* (3 ea.)

A brief survey of some of the problems in modern education. Subtitles for each course follow:

563 *Modern Educational Problems.* (General Elementary Curriculum)

564 *Modern Educational Problems.* (General Secondary Curriculum)

565 *Modern Educational Problems.* (General Curriculum)

567 *Modern Educational Problems.* (Art Education)

569 *Modern Educational Problems.* (Moral and Spiritual Values in Education)

570 *Modern Educational Problems.* (Guidance)

571 *Modern Educational Problems.* (General Social Studies Problems)

572 *Modern Educational Problems.* (Vocational Education)

573 *Modern Educational Problems.* (Testing Program Development)

574 *Modern Educational Problems.* (General Development of School Philosophy)

575 *Modern Educational Problems.* (Unclassified)

576 *Modern Educational Problems.* (Unclassified)

596 *Science in the Elementary School.* (3) I

A background of elementary science usable with children in the first six grades. Includes planning units of work, organizing and using materials and references, making bibliographies for teachers and children, use of illustrative materials, and excursions.

641 *A Study of Research and Theory in Teaching Reading in the Elementary School.* (3)

A systematic study of the research and theory and their application to the teaching of reading in the elementary school. Attention will be given to new developments in the field. Not available for credit to students who have had EDU 372. Prereq: EDU 329 and work in linguistics.

642 *A Study of Research and Theory in Teaching Language Arts in the Elementary School.* (3)

A systematic study of the research and theory and their application to the teaching of listening, oral and written communication, spelling, and handwriting in the elementary school. Attention will be given to new developments in the field. Not available for credit to students who have had EDU 566. Prereq: EDU 329 and work in linguistics.

643 *A Study of Research and Theory in Teaching Reading in Secondary Schools.* (3)

A systematic study of the research and theory and their application to the teaching of reading in the secondary schools. Attention will be given to new developments in the field. Not available for credit to students who have had EDU 568. Prereq: EDU 541 and work in linguistics.

712 *The Elementary School.* (3) II

Recent research and modern trends in teaching the skills and content subjects in the elementary school. Planned for supervisors, superintendents, principals, and teachers for better understanding of a modern elementary school.

714 *The Secondary School.* (3) I, II, S

A course designed to acquaint the secondary teacher and the administrator with the nature and function of the secondary school.

717 *The Junior High School.* (3) I, II, S

A study of the unique functions of the junior high school. Scope and sequence of the curriculum, school organization and guidance as related to the young adolescent will be considered. A course for principals, supervisors, teachers.

730 *Problems of the School Curriculum.* (3) I, II, S

Problems in the field of the school curriculum and in the preparation of instructional materials. Students enrolling in this course are required to leave on file with the College of Education a complete report of each problem studied. (May be repeated once to a maximum of 6 credits.)

732 *Principles of Curriculum Construction.* (3) I

Study of basic principles of curriculum development. Relationship of social and psychological factors to curriculum change. Survey of current approaches to curriculum organization. Consideration of means of curriculum development in school systems.

735 *The Core Program in the Secondary Schools.* (3) I, II, S

Deals with the philosophical and psychological bases of the core program and gives major emphasis to problems of teaching in the core class. A course designed for teachers, principals, supervisors.

740 *Practicum in Teaching Reading and Related Language Arts.* (3)

Supervised practicum in analyzing problems in reading and related language arts and providing corrective work. Requires six hours per week in practicum with individual children or groups, plus two hours per week in seminar. A high level of knowledge in teaching reading is assumed. May be repeated to a maximum of 6 credits.

742 *Administration and Supervision of Public School Music.* (3)

A study of current trends in school music, curricula, testing programs, and other supervisory procedures. Offered either as an education course or as a music course using same number.

743 *Advanced Methods and Materials in Music Education.* (2)

Survey and evaluation of new public school music methods and materials.

744 *History and Philosophy of Music Education.* (2)

A course designed to acquaint the student with the historical developments and basic philosophies in public school music. Offered as an education course or as a music course using same number.

745 *Organization of Audio-Visual Aids.* (3) II

Operation of an audio-visual program considering budgeting, training of personnel, duties of staff, sources of materials, and use of equipment. Previews are made of many audio-visual materials.

746 *Motion Pictures in Education.* (3)

The history of the educational motion picture, technique in the use of films, educational scenario writing, grading and scoring films, and motion picture appreciation.

749 *Extra-Curricular Activities.* (3) S

The underlying principles and common practices of the co-curricular activities programs as developed in public schools. Home room activities, assembly programs, and clubs are the three major sections of the course; other activities included when necessary.

770 *Seminar in Education of Exceptional Children.* (3) I, II, S

Study of philosophy, principles, trends, and research in education of exceptional children. Students will carry on an extensive study of a problem dealing with education of exceptional child.

780 *Independent Work in Elementary Education.* (2) I, II

An independent work course for students who have done a minimum of twelve semester hours of graduate work including EDU 712 or 629. (May be repeated once to a maximum of 6 credits.)

781 *Independent Work in Secondary Education.* (3) I, II, S

An independent work course for students who have done a minimum of twelve semester hours of graduate work including EDU 714 or 630. (May be repeated once to a maximum of 6 credits.)

790 *Research Problems in Secondary Education.* (3) I, II, S

An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. (May be repeated once to a maximum of 6 credits.)

791 *Research Problems in Elementary Education.* (3) I, II

An independent research course. Students confer individually with the instructor. Prereq: One year of graduate work. (May be repeated once to a maximum of 6 credits.)

BUSINESS EDUCATION

210 *Foundations of Business Education in the High School.* (3) I, II, S

The origin, the status, and the objectives of business education in the secondary school. Required of business education majors. *Musselman.*

511 *Teaching Secretarial Subjects.* (3) II, S

Special techniques and devices for teaching shorthand, typewriting, and secretarial office practice. Required of business education majors. *Musselman.*

512 *Teaching Bookkeeping and Accounting.* (3) I, S

Methods, materials, and techniques used in the teaching of bookkeeping and accounting. Required of business education majors. *Musselman.*

513 *Teaching Office Practice, Clerical Practice, and Office Appliances.* (3) I, II, S

Methods and materials in teaching office practice and procedures, clerical practice and the various machines commonly used in business offices. *Musselman.*

514 *Teaching General Business Subjects in the Secondary Schools.* (3) S

The aims and purposes of the general business course are studied. Analysis is made of the objectives of the general subjects, and methods and materials used in teaching them are emphasized. *Musselman.*

605 *Teaching Consumer Courses in the High School.* (3) I, S

Methods, materials, and techniques of teaching high school pupils the various aspects of consumer education. Emphasis is placed on procedures and the student should have a background of training in economics before taking the course. *Musselman.*

615 *Problems in Business Education.* (3) I, II, S

A study of advanced problems of interest to business teachers such as testing in business subjects, guidance, job studies, placement and follow-up, equipment, and supervision. May be repeated three times to a maximum of 12 credits.) *Musselman.*

618 *The Social Business Subjects in High School.* (3) I

An examination of the various social business subjects, to determine their contribution to the objectives of business education. *Musselman.*

621 *The Commerce Curriculum.* (3) II, S

A study of business subjects offered in the high school to determine their content and the place each should occupy in high school curricula. A course of study is developed for each subject. *Musselman.*

622 *Business Education in Colleges and Universities.* (3) S

Consideration of the problems pertaining to the teaching of business subjects at the college level. Consideration is also given to the development of curricula to meet teacher certification requirements in various states. *Musselman.*

623 *Administration and Supervision of Business Education.* (3) II, S

Duties and responsibilities of city and state supervisors, department heads, and others engaged in directing business education. *Musselman.*

626 *Classification and Possible Use of Community Resources in Business Education.* (3) I

Course provides for community analysis, and the development of possible ways and means to supplement the business education course in the secondary school with a study of vital community resources. *Musselman.*

774 *Seminar in Business Education.* (1) I, II, S

A study of current literature in business education with special reference to trends in this field. (May be repeated once to a maximum of 2 credits.) *Musselman.*

786 *Independent Work in Business Education.* (3) I, II, S

An independent work course for students who have done a minimum of 12 semester hours of graduate work, one-half of which must have been in business education. (May be repeated once to maximum of 6 credits.) *Musselman.*

DIVISION OF INSTRUCTION

FACULTY

James H. Powell (Ed.D., Kentucky, 1963), CHAIRMAN. *Associate Professor:* Helen M. Reed (Ed.D., Indiana, 1954). *Assistant Professors:* Stella S. Gilb (M.A., Kentucky, 1942), E. Leon Porter (Ed.D., Kentucky, 1960). *Instructors:* Olive Barrett (M.A., Kentucky, 1949), Jess Gardner (Ed.D., Kentucky, 1964), Ruth Haines (M.A., Columbia, 1931), Eugene Huff (M.A., Tennessee, 1954), D. C. Kemper (M.A., Kentucky, 1933), Catherine Lytle (M.A., Kentucky, 1949), Fannie Miller (M.A., Kentucky, 1937), Edgar Minor (B.S., Western Kentucky State College, 1951), Richard Stofer (M.A., Kentucky, 1949), Elizabeth Taylor (M.A., Kentucky, 1963), Barbara Tea (M.A., Kentucky, 1958), Sara Thomas (M.A., Kentucky, 1950), Ayleene Whitehead (M.A., Kentucky, 1961).

Course Descriptions

333 *Student Teaching in the Elementary School.* (3-12) I, II, S

A course designed to give the student experience with and practice in the program of an elementary school. Actual work with children in all learning situations is the basic part of the course.

342 *Student Teaching in Art.* (3-12) I, II

Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures. The student works with children on all grade levels under the guidance of the supervising teacher.

353 *Student Teaching in English.* (3-12) I, II, S

Observation and practice in teaching high school English. Included are objectives and content of English courses in high school, planning and methods of teaching, testing, textbook analysis, audio-visual material and equipment, and safety education.

354 *Student Teaching in Languages.* (3-12) I, II, S

Aims and objectives, courses of study, materials, methods, and testing in French, Spanish, and Latin. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher.

355 *Student Teaching in the Sciences.* (3-12) I, II, S

Aims and objectives, courses of study, methods, tests, equipment, general science, biology, physics, and chemistry. The course includes observation and practice, safety education, audio-visual aids, and planning conferences with the supervising teacher. *Kemper.*

356 *Student Teaching in Mathematics.* (3-12 I, II, S

Aims and objectives, courses of study, materials, methods, and testing in algebra, geometry, and trigonometry. Includes observation and practice in the content field, safety education, audio-visual aids, and planning conferences with the supervising teacher.

357 *Student Teaching in the Social Studies.* (3-12) I, II, S

Includes a study of the development and present status of social studies programs, classroom methods and activities, teaching materials, testing and evaluation, professional aids to teachers, safety education, and observation and participation in actual classroom experiences.

358 *Observation and Practicum in Special Education.* (3) I, II, S

Basic orientation to student teaching in special education including observation of and practical experience with public school children who are receiving special education. Approximately two hours lecture-discussion and two-three hours observation and/or practicum.

359 *Student Teaching in Special Education.* (3) I, II, S

Supervised practice teaching in the use of special techniques used in working with individuals with exceptional education problems; speech handicapped, physically handicapped, visually retarded, hearing disability, mentally retarded, and the gifted. (May be repeated once to a maximum of 6 credits.)

369 *Student Teaching in Physical Education.* (3-12) I, II

For students who expect to teach and who meet the requirements for a major in physical education. Experience in working with children in physical education activities comprises basic part of course. Safety education also included.

377 *Student Teaching in Music.* (3-12) I, II

A course planned for teachers who expect to become either instructors or supervisors of music in the public schools. Observation, teaching, work on research problems, and conferences with the supervising teacher included.

393 *Student Teaching in Business Education.* (3-12) I, II, S

Student teaching in business subjects such as general business, shorthand, typewriting, and bookkeeping. Observation and practice in the content field. Safety education, audio-visual aids, and planning conferences with the supervising teacher. *Staff.*

724 *Organization and Supervision of Student Teaching.* (3) S

A course designed for teachers preparing to become supervising teachers. The basic principles apply to both elementary and secondary education. Includes a presentation of the experiences deemed important in developing students into effective teachers.

DIVISION OF VOCATIONAL EDUCATION

FACULTY

Professor: Walter Maurice Baker (M.A., Kentucky, 1931). *Associate Professors:* Harold Roper Binkley (Ed.D., Kentucky, 1955), CHAIRMAN. Floyd Cox (M.S., Kentucky, 1942), Anna M. Gorman (Ed.D., Illinois, 1959), Carl Fletcher Lamar (Ph.D., Kentucky, 1957), George Lowell Luster (Ph.D., Ohio State, 1954). *Assistant Professors:* Evangeline Smith Kelsay (M.A., Kentucky, 1948), Inez Haile Hill (M.S., Kentucky, 1952). *Instructors:* William Ray Bingham (M.S., Kentucky, 1955), Herbert Bruce, Jr. (M.S., Kentucky, 1959), Bernard Thomas Fagan (Ed.S., Kentucky, 1960), Sara T. Henry (M.S., Kentucky, 1959), Leonard C. McDowell (Ed.D., Kentucky, 1964), Devert Owens (M.S., Kentucky, 1958).

Course Descriptions

580 *Teaching Vocational Agriculture.* (15) I, II

Preparation for teaching of agriculture. About one-half of the course is practice. *Hammonds, Binkley, Lamar, and Supervising Teachers.*

581 *Adult-Farmer Schools and Young-Farmer Courses in Agriculture.* (3) I, II

A general introduction to adult-farmer schools and young-farmer courses with some observation of work in both of these fields. *Hammonds, Binkley, Lamar, and Supervising Teachers.*

582 *Problems in Agricultural Education.* (3) I, II, S

Class work on current problems in agricultural education common to special groups of students (not individual-problem work). (May be repeated once to a maximum of 6 credits.) *Hammonds, Binkley, and Lamar.*

585 *Farm Practice Supervision.* (1) I, II, S

Practice and directed study in supervising farming programs in vocational agriculture. *Hammonds.*

670 *Method in Teaching Vocational Agriculture.* (3) S

The principles of method applied to the teaching of agriculture. Prereq: Experience in teaching vocational agriculture. *Hammonds.*

671 *Teaching Prevocational Agriculture.* (3)

Aims, purposes, and methods of teaching prevocational agriculture. Each student works out the content of a course, including selecting the teaching materials. *Hammonds.*

672 *Determining Content in Vocational Agriculture.* (3) S

Interpretation of local data as a basis for course building. Each student works out the content of a four-year course in vocational agriculture.

675 *Modern Problems in Agricultural Education.* (3) I, II, S

Class work (not individual-problem work) on modern problems in agricultural education. (May be repeated twice to a maximum of 9 credits.) *Hammonds.*

677 *Advanced Problems in Agricultural Education.* (3) I, II, S

Specific problems selected according to the needs of the individuals. *Staff.*

678 *Selecting Teaching Materials.* (3) S

Selection of specific references and other teaching materials to be used in the teaching of vocational agriculture. *Luster.*

679 *Adult-Farmer Schools.* (3) S

Preparation for teaching adult farmers; organization of adult-farmer schools, curriculum content, method of teaching, and follow-up work. *Lamar.*

680 *Directing Farm Practice.* (3) S

Supervised farming as a method of teaching; standards, planning, supervision, and records. *Binkley.*

681 *Teaching Farm Shop.* (3) S

A study of necessary content for shop, plans for securing and equipping the shop, and methods of teaching farm shop. *Cox.*

682 *Young-Farmer Schools.* (3) S

Content and method of teaching young-farmer courses in vocational agriculture. *Cox.*

794 *Research in Agricultural Education.* (3)

Individual problems of importance to agricultural education.

795 *Research Problems in Agricultural Education.* (3) I, II, S

A continuation of EDU 794. (May be repeated twice to a maximum of 9 credits.) *Staff.*

DISTRIBUTIVE EDUCATION

515 *Problems in Distributive Education.* (3) I, II, S

Problems in teaching vocational distributive education in day, part-time, and evening schools. The problems are selected in accordance with the needs and desires of the students. Prereq: EDU 400 and 405. (May be repeated once to a maximum of 6 credits.)

DIVISION OF VOCATIONAL EDUCATION

516 *Problems of the Coordinator in Industrial and Distributive Education.* (2) I, II, S

A course for coordinators of Industrial and Distributive Education, including planning of local programs, use of advisory committees, selection and arrangement of teaching materials, and over-all planning and operation of the program. (May be repeated once to a maximum of 6 credits.)

517 *Determining Teaching Content in Distributive Education* (2) I, II, S

Course construction in the field of distributive education. This course is planned to meet the needs of persons engaged as instructors in the field of distributive education. May be repeated to a maximum of 6 credits.

528 *Technique of Teaching Distributive Education.* (2) I, II, S

A study of the methods of teaching as applied to distributive education. The purpose of the course is to train prospective teachers to teach in the field of distributive education. May be repeated to a maximum of 6 credits.

HOME ECONOMICS EDUCATION

362 *Student Teaching in Home Economics.* (3-12) I, II

Practical application of methods in teaching various phases of home economics. Prereq: EDU 586.

586 *Technique of Teaching Home Economics.* (3) I, II

A study of methods of teaching as applied to home economics.

588 *Adult Education in Home Economics.* (3) I, II, S

Problems in teaching vocational homemaking in day, part-time, and evening schools. Prereq: 586; parallel 362.

590 *Problems in Home Economics Education.* (3) S

Problems in teaching home economics for high school students and adults. The course may include such subjects as teaching in, and supervision of, the school community cannery and the teaching of housing. (May be repeated twice to a maximum of 9 credits.)

683 *Current Problems in Home Economics Education.* (3) II, S

Recent developments in home economics education. Prereq: EDU 586 and 362; experience in teaching.

684 *Modern Trends in Home Economics Education.* (3) I, S

A basic course for students in home economics education. The course includes the development of home economics education and modern trends in curriculum, methods of teaching, and evaluation.

685 *Home Economics Curriculum Construction.* (3) S

A study of the underlying principles of curriculum building for junior and senior high school and adult education in home economics. Prereq: EDU 586 and 362.

686 *Evaluation in Home Economics Education.* (3) I, S

A course to acquaint teachers of home economics with techniques used in measuring attainment in home economics in the junior and senior high school and college.

687 *Home Economics Supervision.* (3) I, S

A course planned primarily to help prepare teacher-trainers and supervisors of home economics education. Prereq: EDU 586 and 362; experience in teaching; approval of instructor.

693 *Directed Supervision in Home Economics Education.* (3) I, II

This course includes practice in teaching for observation by others, student teaching, and school visiting. Prereq: Two years of teaching experience and EDU 687.

775 *Seminar in Home Economics Education.* (3) I, II, S

Individual investigations and reports on special problems in home economics education. (May be repeated twice to a maximum of 9 credits.)

787 *Independent Work in Home Economics Education.* (3) I, II, S

An independent work course for students who have done at least 12 semester hours of graduate work, one course of which must have been in home economics education. (May be repeated once to a maximum of 6 credits.)

INDUSTRIAL EDUCATION

106 *Trade Analysis.* (2) S

A course planned to meet the needs of vocational teachers in the fields of coordination, shop instruction, and related subjects in connection with day, part-time, and evening schools.

107 *Shop Management Problems.* (2) S

Industrial education in the school shop. The course evaluates all types of activities in connection with this part of the educational program and gives due weight to each factor.

108 *Conference Leader Training.* (2)

Methods of presenting subject matter so as to allow free and constructive thinking. The conference method does this by developing situations and case studies which are handled by the Box-Head Analysis system of control.

109 *Instructional Material in Industrial Education.* (2) I, II, S

Selecting and arranging course material in trade and industrial subjects. Preparation of instruction and check sheets with emphasis on their uses. Prereq: EDU 106.

110 *Principles of Trade Teaching.* (2) I, II, S

This course deals with the fundamentals of learning and teaching that have special significance in trade and technical subjects.

116 *Audio-Visual Aids, Their Use in Teaching Industrial and Distributive Education.* (2) I, II, S

This course is designed to meet the needs of industrial and distributive education teachers. The theory of demonstration teaching will be discussed, and practice will be done by the students in the class. The course will include instruction in the use of these aids in teaching: film projectors, mock-ups, cutaways, flannelboard, bulletin board, sample specimens, tape recorders, and field trips. Instruction will be given in the selection of various aids as a part of the teaching program.

352 *Student Teaching for Industrial and Educational Training Directors.* (9) I, II

Designed to give the student practical experience through observation, planning, teaching, and evaluating procedures.

422 *Organization and Operation of Business and Industrial Education Programs.* (3) I, II, S

Training in the organization and operation of business and industrial education training programs, including theory and practice.

423 *Supervised Work Experience in Industry or Business.* (3) I, II, S

For students planning for careers as vocational industrial educational training directors. Includes education and training practices under the supervision of college and plant personnel. (May be repeated three times to a maximum of 12 credits.)

518 *Methods in Industrial Education.* (2) I, II, S

The most approved methods in instructional management, including lesson planning, in the field of vocational industrial education. (May be repeated once to a maximum of 4 credits.)

523 *Vocational Guidance.* (2) I, II, S

Course content includes units on aims and purposes, individual inventory, and counseling techniques. Emphasis is placed on occupational information and guidance, placement, follow-up, and organization and administration of a guidance program.

524 *Modern Industrial Analysis.* (2) I, II, S

Modern industrial organizations; trends in industrial educational policies; the proper approach to and analysis of these problems as they affect the industrial vocational teacher.

529 *Evaluation in Industrial and Distributive Education.* (2) I, II, S

The theory and practice of standardized, classroom and performance testing as a means of measuring student achievement. Opportunity to practice will be provided in keeping with each teacher's work assignment. Prereq: Must be employed as teacher in Trade or Distributive Education.

534 *Organization and Operation of Part-time and Evening Classes.* (2) I, II, S

A course for administrators, coordinators, and teachers in part-time and evening industrial education. Covers the duties of a coordinator in cooperative training programs.

535 *Principles and Philosophy of Industrial Education.* (2) I, II, S

A course planned primarily for the advanced student in industrial education. It covers the general philosophy of vocational education as it relates to the problems and principles of industrial education. (May be repeated once to a maximum of 4 credits.)

536 *Surveys in Industrial Education.* (2) I, II, S

This course deals with the basic methods and techniques used in making a survey to determine the needs for trade and industrial education. Emphasis is placed on gathering, evaluating, and interpreting the data.

537 *Special Problems in Industrial Education.* (2) I, II, S

The supervised study of approved problems in industrial education on a research basis.

VOCATIONAL EDUCATION

694 *The Administration of Vocational Education.* (3) I, II

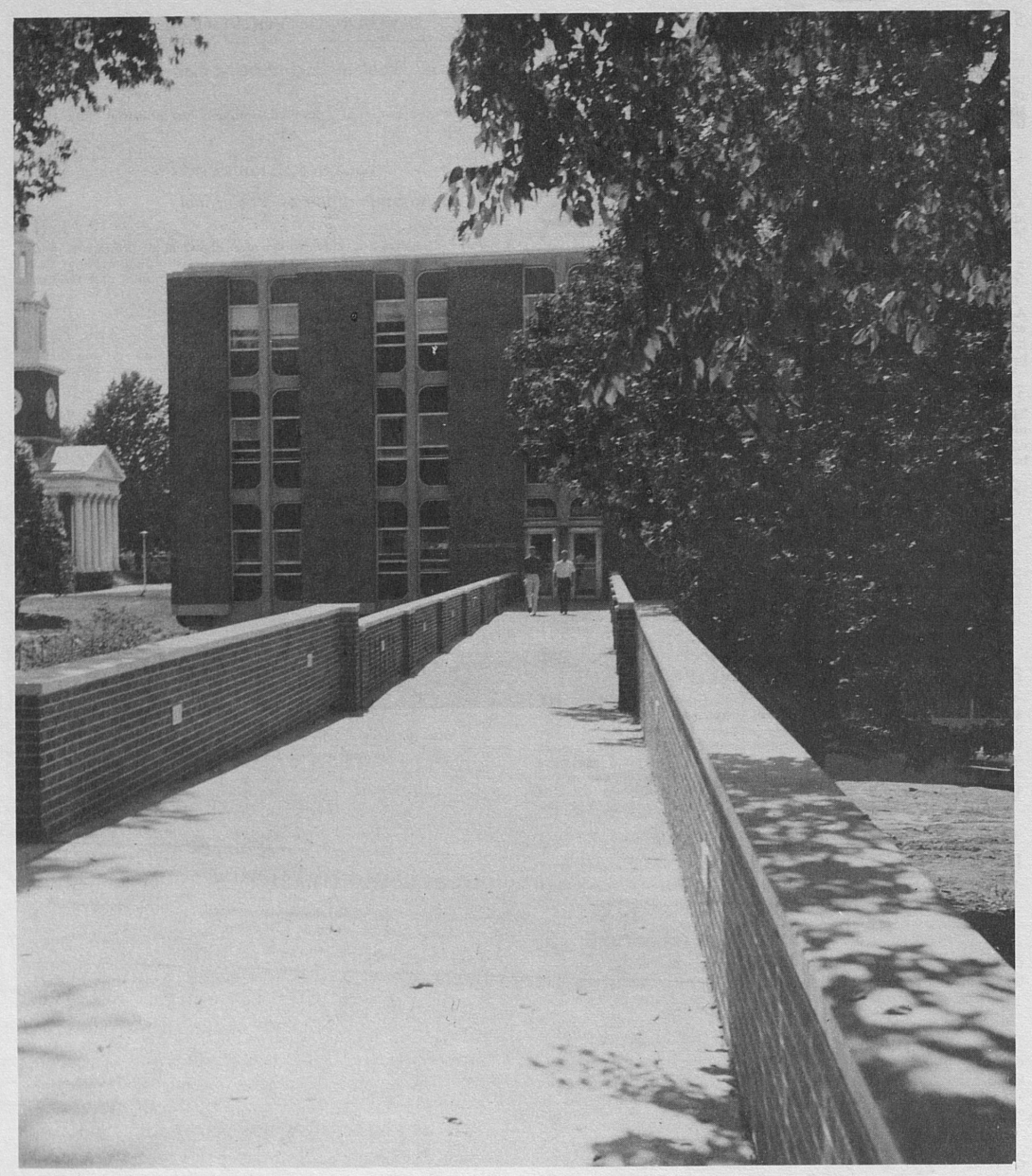
A course designed for superintendents, high-school principals, and other administrators. Its purpose is to train for administering and supervising vocational education in schools. *Hammonds and Ginger.*

695 *Special Problems in Vocational Education.* (3) I, II, S

An independent work course for students interested in vocational education. Students make individual investigations and report on special problems. *Hammonds and Staff.*

776 *Seminar in Vocational Education.* (2) I, II, S

A critical study of selected problems in vocational education. The course is open only to students with experience in the field. (May be repeated once to a maximum of 4 credits.)



Commerce

THE COLLEGE OF COMMERCE at the University of Kentucky was established in 1925. It grew out of Economics which formerly was offered in a Department of the College of Arts and Sciences. For a number of years the four subjects of Economics, Political Science, History, and Sociology were all offered in the same Department. In 1918 the Department of Economics and Sociology was established and this Department from its inception began to offer also courses in Business Administration. In the spring of 1925 all courses in Economics and Business Administration were assigned to the newly established College of Commerce. The college is housed in the new Commerce Building, completed in 1964, which provides outstanding modern teaching and research facilities for students and faculty.

In the spring of 1928 the Board of Trustees authorized the organization and maintenance of a Bureau of Business Research. The major objectives of the Bureau of Business Research are twofold: (1) to assist the faculties of the Departments of Business Administration and Economics in the realization of their research aims adding vitality to the classroom and expanding the horizons of each faculty member, and (2) to provide opportunity for these faculties to engage in research that is importantly connected with the economic conditions and problems of the community, the nation, and the world.

In the summer of 1964, the informal division of the college into Economics and Commerce or Business Administration was finalized with the creation of a Department of Economics and a Department of Business Administration.

Aims and Purposes of the College. The aims of the College of Commerce are twofold. In the first place the offerings in the field of Economics, together with some of the offerings in the fields of Commerce or Business Administration, provide an understanding of that segment of human behavior which is concerned with securing a living. Economic activity is not only a large proportion of all human activity but it is also basic in the sense that it must be adequate before artistic and other idealistic wants can be satisfied. An analysis of human wants, utilities of goods and services, costs and sacrifices of production, values and prices of commodities, and the distribution of wealth, necessarily constitutes an essential part of a liberal education.

In the second place the offerings in the two fields of Economics and Business Administration provide professional and vocational training for a great variety of positions in business and governmental bureaus. Students are afforded the opportunity of preparing themselves as professional economists or as specialists in taxation, industrial relations, finance, statistics, accounting, management, marketing, advertising, secretarial work, or as managers of their own businesses.

In the first two years of the several curricula setting forth the requirements for the degree of Bachelor of Science in Commerce, the student is called upon to take a number of basic liberal arts courses with a view to providing breadth of education and a foundation for the more specialized training that is allowed in the last two years.

A more definite understanding of the objectives of professional training will come from an examination of the various curricula and fields of specialization outlined below. It should be noted that the large amount of elective work allowed in some of the curricula makes it possible to combine a business program with other professional fields or with groups of liberal arts courses.

Admission. To be admitted to the freshman class of the College of Commerce students must meet the general admission requirements of the University.

Students transferring to the College of Commerce from another college on the campus or from another institution must have a scholastic standing of "C" or better.

Student Organization and Placement Activities. The Commerce Employment Association is an aggressive organization and operates under the supervision of a permanent secretary who is a member of the faculty. Its chief purpose is to find employment for graduates and better positions for alumni. It has been very successful.

Beta Gamma Sigma, a national honorary scholarship fraternity, was organized at the University of Kentucky

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Robert W. Rudd, M.S. in Agriculture, Ph.D., is Acting Dean of the College of Commerce.

in the spring of 1928. Seniors must rank in the upper ten per cent in scholarship to be eligible for membership.

The Society for Advancement of Management granted a charter to the University of Kentucky Chapter in 1958. The Political Economy Club, organized several years ago by faculty and graduate students, welcomes interested undergraduate students.

The American Marketing Association is national in its scope but works with its established college affiliates to help promote an interest in marketing activities and research at the college level. The University of Kentucky chapter was established during the spring semester of 1962 and welcomes any and all students majoring in marketing or advertising that have attained a sophomore standing.

Commerce students also are eligible for many other general campus organizations and activities.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Science in Commerce is conferred upon students who meet the requirements of any one of the curricula offered by the College of Commerce. The minimum number of semester credits required for graduation is 130 except under the Industrial Administration Curriculum, which requires 142. The scholarship standing must be at least 2.0. All commerce students are urged to take some foreign languages. Physical Education and ROTC are permitted as electives in all curricula.

The courses listed in the General Business Curriculum constitute a core curriculum, because with minor exceptions, these courses are required in all curricula.

Curricula

GENERAL-BUSINESS CURRICULUM

The aim of this curriculum is (1) to provide some breadth of education and the functional knowledges necessary to deal with specialized business courses (2) to assure an understanding of the fundamental subject matter of economics and business administration, and (3) to provide a liberal amount of elective work so as to enable the student (a) to pursue a specialized business program, (b) to elect courses from several fields of business, or (c) to pursue courses in fields other than economics and commerce. The electives should be taken in accordance with a definite plan, and students should, therefore, seek advice of faculty members in formulating a satisfactory program.

Freshman and Sophomore Years

	Sem. Hrs.
ENG 101 and 102, English Composition	6
ECO 102, Economic History of Europe or	
ECO 103, Economic History of the U. S.	3
MA 111, College Algebra	3
COM 107 and 108, Principles of Accounting	6
History, American or European	3
MA 122, Mathematics for Social Science and Business	3
Political Science	3
Philosophy, Psychology, Sociology	6
Natural Science	6
ECO 207, Statistical Method	3
ECO 251, and 252, Principles of Economics	6
COM 260, Principles of Marketing	3
ENG 203, Composition for Technical Students	3
Electives	12
	66

Junior and Senior Years

ECO 402, Labor Economics	3
ECO 505, Money and Banking	3
COM 517, Corporation Finance	3
COM 509 and 510, Business Law	6
A course in Accounting	2 or 3
ECO 504, Public Finance	3
COM 437, Business Management	3
ECO 516, Business Cycles	3
Electives including three courses in Economics or Commerce and three courses in other departments	38 or 37
	64

Total Semester Hours: 130

THE ECONOMICS CURRICULUM

The following program is offered for students wishing to become research economists, economic analysts or graduate students in economics. It is appropriate for those wanting to enter state and federal government service or private industry. It is recommended especially for those wishing to become teachers.

Freshman and Sophomore Years

	Sem. Hrs.
ENG 101 and 102, English Composition	6
ECO 102, Economic History of Europe, *or*	
ECO 103, Economic History of the United States	3
COM 107 and 108, Principles of Accounting	6
MA 111, College Algebra	3
Natural Science or Mathematics	6
Philosophy	3
History	3
Political Science	3
Psychology or Sociology	6
ECO 207, Statistical Method	3
ECO 251 and 252, Principles of Economics	6
COM 260, Principles of Marketing	3
Electives	17
	68

Junior and Senior Years

ECO 402, Labor Economics	3
ECO 504, Public Finance	3
ECO 505, Money and Banking	3
COM 509, Business Law	3
ECO 516, Business Cycles	3
ECO 515, Intermediate Economic Analysis	3
COM 517, Corporation Finance	3

ECO 527, International Economics *or* ECO 565, Comparative Economic Systems	3
ECO 386, Economic Research	3
A course in Management	3
An additional course in accounting or statistics	3
Non-Commerce groups, 12 hours in each of 2 departments *or* 18 hours in 1 department outside the College of Commerce, courses to be selected upon the recommendation of the department involved and with the approval of the student's faculty advisor	24 or 18
Electives	5 or 11
	62

Total Semester Hours: 130

BANKING AND FINANCE CURRICULUM

This Curriculum provides an arrangement of courses useful to those who seek employment in financial institutions. It emphasizes the economics of finance rather than the routines and procedures. Management decisions in this area require a knowledge of the subject matter listed below.

Freshman and Sophomore Years

Courses as required in the General Business Curriculum except electives (10)	64
COM 296 and 297 Intermediate Accounting	6
	70

Junior and Senior Years

ECO 402, Labor Economics	3
ECO 505, Money and Banking	3
COM 517, Corporation Finance	3
COM 509 and 510, Business Law	6
COM 437, Business Management	3
ECO 504, Public Finance	3
ECO 516, Business Cycles	3
COM 531, Investments	3
COM 543, Life Insurance *or* COM 544, Property and Casualty Insurance	3
ECO 554, Urban Real Estate	3
Electives including 3 hrs. in upper division courses outside the College	27
	60

Suggested Electives

ECO 503, Transportation	3
COM 529, Credit and Statement Analysis	2
COM 547, Income Tax Procedure	3
COM 556, Business Reports	2
ECO 560, Business Combinations	2

Total Semester Hours: 130

PERSONNEL MANAGEMENT CURRICULUM

An arrangement of courses to be taken by students wishing to enter the professional field of Personnel Management and Industrial Relations. This aspect of management requires an understanding of human values and personal objectives. The courses listed represent a minimum foundation for those wishing to qualify for the various personnel positions in industry and government. Typical positions in this field are: job wage analyst, interviewer, personnel director, industrial relations manager, job evaluator, wage and salary administrator.

Freshman and Sophomore Years

	Sem. Hrs.
ENG 101 and 102, English Composition	6
ECO 102, Economic History of Europe *or* ECO 103, Economic History of the U. S.	3
MA 111, College Algebra	3
COM 107 and 108, Principles of Accounting	6
History, American or European	3
MA 122, Mathematics for Social Science and Business	3
Political Science	3
Psychology	4
Natural Science	6
ECO 251 and 252, Principles of Economics	6
ECO 207, Statistical Method	3
COM 260, Principles of Marketing	3
ENG 203, Composition for Technical Students	3
Electives	15
	67

Junior and Senior Years

ECO 402, Labor Economics	3
ECO 505, Money and Banking	3
ECO 530, Labor Legislation	3
ECO 555, Industrial Relations	3
ECO 566, Personnel Problems	2
ECO 579, Collective Bargaining	3
COM 509 and 510, Business Law	6
COM 517, Corporation Finance	3
COM 437, Business Management	3
COM 445, Office Management	3
PSY 540, Introduction to Industrial Psychology	3
Electives including two courses in Commerce	28
	63

Suggested Electives:

ECO 515, Intermediate Economic Analysis	3
PHI 230, Ethics	3
PS 578, Public Personnel Administration	3
PSY 201, Individual Differences	3
PSY 544, Social Psychology	3
PSY 541, Psych. of Indust. Pers. Proc.	3
PSY 521, Abnormal Psychology	3
SOC 240, Collective Behavior	3
SOC 220, The Community	3
COM 543, Life Insurance	3

Total Semester Hours: 130

MARKETING, MERCHANDISING, ADVERTISING CURRICULUM

In addition to courses in these fields offered by the College of Commerce, courses offered by the Departments of Psychology, Journalism, Art, and Home Economics, are either required or suggested as electives. The student is required to select either the Marketing and Merchandising option or the Advertising option in the junior year.

Freshman and Sophomore Years

	Sem. Hrs.
Courses as required in the General Business Curriculum	66

Junior and Senior Years

ECO 402, Labor Economics	3
ECO 505, Money and Banking	3

COM 517, Corporation Finance	3
COM 509 and 510, Business Law	6
COM 437, Business Management	3
COM 262, Principles of Advertising	3
COM 263, Salesmanship	2
COM 519, Retail Merchandising	3
COM 549, Market Research	3
Marketing and Merchandising *option:*	
COM 361, Marketing Management	3
COM 529, Credit and Statement Analysis	2
COM 536, Sales Management	3
Electives	27
	64

Suggested Electives:

COM 539, Industrial Purchasing	3
COM 541, Industrial Marketing	3
ECO 503, Transportation	3
ECO 516, Business Cycles	3
HE 120, Textiles	2

Advertising option:

JOU 563, Advertising Typography and Layout	3
JOU 201, Etymology	3
ENG 205, Advanced Composition	3
ART 247, Art in Advertising	2
COM 540, Advertising Management	3
Electives	21
	64

Suggested Electives:

JOU 561, Newspaper Advertising and Promotion	3
JOU 541, Public Relations	3
COM 361, Marketing Management	3
COM 536, Sales Management	3
COM 541, Industrial Marketing	3

Total Semester Hours: 130

ACCOUNTING CURRICULUM

This Curriculum is intended to prepare students for either industrial or public accounting. Students wishing to take the C.P.A. examination should consult the various state laws in order to comply with experience and residence requirements.

Freshman and Sophomore Years

	Sem. Hrs.
Courses as required in the General Business Curriculum except electives (10)	64
COM 296 and 297, Intermediate Accounting	6
	70

Junior and Senior Years

ECO 402, Labor Economics	3
ECO 505, Money and Banking	3
COM 517, Corporation Finance	3
COM 509 and 510, Business Law	6
COM 437, Business Management	3
ECO 504, Public Finance	3
COM 513, Auditing	3
COM 518, Cost Accounting	3
COM 547, Income Tax Procedure	3
COM 546, Special Accounting Problems	3
Electives including 3 hrs. in upper division courses outside the College	27
	60

Suggested Electives:

COM 508, Accounting Theory	2
COM 529, Credit & Statement Analysis	2
COM 532 and 533, C.P.A. Problems	6
COM 531, Investments	3
COM 559, Governmental Accounting	2
COM 544, Property & Casualty Ins.	3
COM 556, Business Reports	2
COM 570, Controllership	3
ECO 524, State and Local Taxation	3

Total Semester Hours: 130

INDUSTRIAL ADMINISTRATION CURRICULUM

This Curriculum is designed to prepare students for positions in production management. The list of required courses recognizes the necessity of providing an understanding of the primary subject matter of business administration, the principles of management, and in addition the basic principles and characteristics of the materials with which industry deals. Hence the curriculum includes courses concerned with engineering and the physical sciences in addition to required commerce subjects.

Freshman and Sophomore Years

	Sem. Hrs.
ENG 101 and 102, English Composition	6
MA 111, College Algebra	3
PSY 100, 101, Introduction to Psychology	4
COM 107 and 108, Principles of Accounting	6
MA 112, Plane Trigonometry	2
MA 113, Analytics and Calculus	4
CHE, one year course with laboratory	8-10
PHY, one year course with laboratory	8-10
ME 105, Engineering Graphics	2
ECO 207, Statistical Method	3
ECO 251 and 252, Principles of Economics	6
COM 260, Principles of Marketing	3
English, Philosophy, Humanities	7-3
Electives	10
	72

Junior and Senior Years

ENG 203, Composition for Technical Students	3
ECO 402, Labor Economics	3
ECO 505, Money and Banking	3
COM 509, Business Law	3
COM 517, Corporation Finance	3
COM 518, Cost Accounting	3
ECO 534, Advanced Economic History	3
COM 437, Business Management	3
COM 495, Business Policy	3
Selected courses in Philosophy, or upper division courses in Political Science, Psychology, or Sociology	6
Electives in Economics or Commerce from the following:	21
Courses numbered in 200's	
Courses numbered in 500's	

COM 361, Marketing Management	3
COM 462, Small Business Operations	3
COM 438, Quantitative Analysis in Management	3
Electives in Engineering, Mathematics or Physical Sciences	16
	70

Total Semester Hours: 142

SECRETARIAL CURRICULUM

The Secretarial Curriculum is designed to prepare the student for various types of office positions including secretarial, stenographic, filing, general clerical, machine operation, typewriting, and office supervision. In addition to specialized training in office techniques and skills, it provides a liberal education which is desirable in the types of work enumerated above. The electives enable a student to pursue his special aptitudes and interests.

While the curriculum is designed primarily for the training of office workers, opportunity is provided also for the training of commerce teachers. Enough electives are available to include in the program education and other courses usually required for certification. It will be necessary, however, for the student to check certification requirements in the state in which he expects to teach. The Head of the Department of Business Education and the Dean of the College of Education will counsel with him on certification requirements in the various states. Attention is specifically called to a program for commerce teachers offered by the College of Education.

Freshman and Sophomore Years

	Sem. Hrs.
ENG 101 and 102, English Composition	6
COM 107, Principles of Accounting	3
COM 109, Secretarial Accounting	3
ENG: Speech, Composition, or Literature	3
COM I, 112 and 113, Secretarial Pract., Shorthand	6
COM I, 117 and 118, Secretarial Pract., Typewriting	4
American or European History	3
Political Science	3
Philosophy, Psychology, Sociology	6
COM 114 and 115, Advanced Secretarial Practice	6
ECO 207, Statistical Method	3
ECO 251 and 252, Principles of Economics	6
ENG 203, Composition for Technical Students	3
Electives	12
	67

Junior and Senior Years

Natural Science or Mathematics	6
COM 517, Corporation Finance	3
COM 260, Principles of Marketing	3
COM 263, Salesmanship	2
COM 119, Office Appliances and Procedures	3
COM 301, Secretarial Job Training	1
COM 437, Business Management	3
COM 556, Business Reports	2
COM 509, Business Law	3
Electives including 21 credits outside the College	37
	63

Suggested Electives:

COM 108, Principles of Accounting	3
MA 111, College Algebra	3
MA 122, Mathematics for Social Science and Business	3
COM 262, Principles of Advertising	3
ECO 504, Public Finance	3
COM 445, Office Management	3
JOU 201, Etymology	3
ENG 512, Current English Usage and Grammar	3
ECO 102, Economic History of Europe	3
ECO 103, Economic History of the U.S.	3
Foreign Language	3

Total Semester Hours: 130

ECONOMICS

FACULTY

Professors: John Talbot Masten (Ph.D., North Carolina, 1942), ACTING CHAIRMAN. Cecil Clayton Carpenter (Ph.D., Illinois, 1932), Lucian Hugh Carter (Ph.D., Virginia, 1930), John Leonard Fulmer (Ph.D., Virginia, 1939), Herbert Walter Hargreaves (Ph.D., Duke, 1941), Joseph Krislov (Ph.D., Wisconsin, 1954), Robert William Rudd (Ph.D., California, 1952), Rodman Sullivan (Ph.D., North Carolina, 1942). *Associate Professors:* Carl Cabe (Ph.D., Illinois, 1952), Virgil L. Christian, Jr. (Ph.D., Kentucky, 1956), Carlos C. Erwin (Ph.D., Illinois, 1952), Charles William Hultman (Ph.D., Iowa, 1960), Robert H. Stroup (Ph.D., Iowa, 1953), Walter Williams (Ph.D., Indiana, 1960), Laszlo Zsoldos (Ph.D., Ohio State, 1961). *Lecturer:* Walter W. Pearce (M.A., Michigan, 1947). *Assistant Professors:* M. Umer Chapra (Ph.D., Minnesota, 1961), Leray Randolph McGee (Ph.D., Tulane, 1963), Yien-I Tu (Ph.D., Iowa State, 1961). *Instructor:* John Mead (M.A., Tulane, 1964).

Course Descriptions

102 *Economic History of Europe.* (3) I, II
A survey of conditions preceding the modern period with a more intensive study of the subsequent development of agriculture, industry, and finance. *Erwin.*

103 *Economic History of the United States.* (3) I, II
A brief sketch of economic life in the colonies, followed by a more detailed account of the national evolution in agriculture, manufacturing, transportation, commerce, and finance. *Erwin.*

104 *Resources and Industries.* (3) II
The economic factors which govern the utilization of world resources and the exchange of products. *Erwin.*

107 *Principles of Accounting.* (3) I, II
Instruction in the science and adaptation of the accounts of going concerns, together with sufficient practice to acquire proficiency. *Brown and others.*

108 *Principles of Accounting.* (3) I, II
Continuation of COM 107. *Brown and others.*

207 *Statistical Method.* (3) I
Introduction to the sources of business data, the use of calculating machinery, tabulation, simple charts and graphs, the averages, dispersion, correlation,a nd the time series analysis. Prereq: MA 111 or 101. *Christian.*

240 *Personal and Family Finance.* (2) I
Uses and abuses of credit, insurance on persons and property, investing what you save, wills, trusts, taxes, social security, buying versus renting, consumer information, wise buying. *Sullivan.*

251 *Principles of Economics.* (3) I, II
An introductory course. The Theory of Income and Employment and Value Theory. Not open to freshmen. *Hargreaves and others.*

252 *Principles of Economics.* (3) I, II
The major emphasis is on distribution theory and public policy. Prereq: ECO 251. *Hargreaves and others.*

386 *Economic Research.* (3) II
The sources, uses and application of statistical information in the analysis of economic problems. Prereq: ECO 252 and 207. *Stroup.*

395 *Individual Work in Economics.* (1-6) I, II
Students confer individually with the instructor. May be repeated to a maximum of 6 credits. *Staff.*

396 *Tutorial Work in Economics.* (1) I, II
Open only to Arts and Sciences majors. *Masten.*

402 *Labor Economics.* (3) I
Insecurity, wages and income, substandard workers, industrial conflict; wage theories, the economics of collective bargaining; unionism in its structural and functional aspects; recent developments. Prereq: ECO 252. *Krislov.*

410 *Summer Seminar in Economic Problems.* (2)
Analysis of selected economic problems. This course is designed for students who do not usually attend regular courses in the Department of Economics at the University of Kentucky. Prereq: Selection by an admissions committee.

411 *Summer Seminar in Comparative Systems.* (2)
A shortened version of ECO 565. This course is designed only for students who do not usually attend our regular semester courses in the Department of Economics at the University of Kentucky. Prereq: Selection by an admissions committee.

412 *Summer Seminar in Managerial Economics.* (2)
A shortened version of ECO 600. This course is designed only for students who do not usually attend regular courses in the Department of Economics at the University of Kentucky. Prereq: Selection by an admissions committee.

503 *Transportation.* (3) I
Railways, waterways, highways, and airways. Rates, service, management, and regulations. Prereq: ECO 252. *Tolman.*

504 *Public Finance.* (3) I
A study of public receipts; public expenditures; the principles of taxation with special reference to their application to the tax systems, federal and state. Prereq: ECO 252. *Sullivan.*

505 *Money and Banking.* (3) I, II
Nature and functions of money; the importance of credit; relation of money and credit to prices, bank deposits, and loans; complete study of our national banking system. Prereq: ECO 252. *Masten.*

515 *Intermediate Economic Analysis.* (3) I
The output, price and factor proportion problems of firms in different market situations; some problems in industry behavior; coordination of basic economic process. Prereq: ECO 252. *Pearce and McGee.*

516 *Business Cycles.* (3) I, II
The nature and characteristics of the economic factors which underlie the cyclical fluctuations in business conditions and the methods of business and investment forecasting. Prereq: ECO 252. *McGee.*

524 *State and Local Taxation.* (3) II
Classified property taxes; separation of sources of revenue; taxation of banks, forests, public utilities, mines, and rural and urban real estate; income, inheritance, and sales taxes. *Sullivan.*

525 *Economic Development.* (3) II
A comparative study of economic progress in selected countries; growth patterns, theories of development and capital formation, interaction of social and economic change. Prereq: ECO 252. *Erwin.*

527 *International Economics.* (3) II
Free trade, protectionism, preferential tariffs, colonial tariff policies, dumping, commercial treaties, control of raw materials, international investments and the movement of capital, international debts, and reparations. Prereq: ECO 252. *Sullivan.*

530 *Labor Legislation.* (3) II
The status of labor law, mediation, conciliation, arbitration, the minimum wage, the eight-hour day, unemployment relief, safety and health legislation, and social insurance. Prereq: ECO 252. *Cabe and Williams.*

534 *Advanced Economic History of the United States.* (3) II
Population growth, immigration, territorial expansion, agriculture, manufactures, tariff, labor, industrial combinations, commerce, transportation facilities, money and banking, and conservation. Prereq: ECO 252. *Erwin.*

550 *Advanced Business and Economic Statistics.* (3) II
Advanced time series analysis, multiple and partial correlation, elementary analysis of variance and experimental design. Prereq: ECO 507 or consent of instructor *Christian and Tu.*

554 *Urban Real Estate.* (3) II
Urban land economics; the real estate business; essentials of real estate law and contracts; financing of real estate transactions, property valuation and appraisal, the management of real estate properties. Prereq: ECO 252. *Pickett.*

555 *Industrial Relations.* (3) II
Historical development of industrial relations; the economic implications of job analysis, recruitment, selection and training for industry; wages, hours, promotion and health policies; employee representation, collective bargaining, union-management cooperation. Prereq: ECO 252. *Carter and Douglas.*

560 *Business Combinations.* (2) II
Forms of combinations; the problem of monopoly; federal and state anti-trust legislation and court decisions. Prereq: ECO 252. *Tolman.*

565 *Comparative Economic Systems.* (3) I
A study of capitalism, socialism, fascism, communism, and cooperation, with attention to current experiments in economic planning. Prereq: ECO 252. *Masten.*

566 *Personnel Problems.* (2) II
A case course in the problems of supervision of employees, and the personnel policies which promote productive efficiency. Prereq: ECO 555. *Carter.*

579 *Collective Bargaining.* (3) II
The principles and procedures of bargaining and dispute settlement studied in detail. Includes a review of the content of labor contracts and provisions for administration. Union and management techniques considered. Prereq: ECO 402. *Cabe.*

590 *Introduction to Mathematical Economics.* (3) I
A review of mathematical approaches to economic theory. Models applicable to production, marketing and pricing problems. Prereq: MA 201 and ECO 515 or equivalent. (Same as AEC 590.) *Christian.*

600 *Business Economics.* (3) II
The interrelations of economic laws with the social, political and legal framework of business, especially from the point of view of the industry and of the firm. *Sullivan.*

603 *History of Economic Thought.* (3) I
A survey of the history of economic thought from the ancient period to about the end of the classical school. Prereq: ECO 252. *Hargreaves.*

604 *Survey of Economic Theory Since the Austrian School.* (3) II
This course is virtually a continuation of course 603. *Hargreaves.*

606 *Municipal Finance.* (2) I, II
City and county budget and related problems; debt, purchasing, treasury and revenue problems are studied in reports and seminar.

607 *Problems in Public Finance.* (2) I
Depending on varying needs of public finance students from time to time, specific subject matter will be selected for study. Each student's report will indicate the class of problems intensively examined. *Chapra.*

608 *Problems in Public Finance.* (2) II
This course is a continuation of course 607. *Chapra.*

609 *History and Theory of Money and Prices.* (3) I
The evolution of money, the rise of banking processes, and the causes of fluctuations in the general price level. *Masten.*

611 *Advanced Money and Banking.* (3) II
A theoretical study of contemporary money and banking institutions with emphasis on central bank functions. *Masten.*

618 *Economic Theory.* (3) I
An intensive course covering contemporary micro-economic theory and the various analytical techniques used therein. Prereq: ECO 515 or written proficiency exam. *Pearce.*

619 *Economic Theory.* (3) II
Micro-economic theory. National income analysis and employment theory. The theory of inflation and an introduction to theories of economic development. *Fulmer.*

650 *Research Statistics I.* (3) I
The place of statistics in research method, the theory of statistical averages, the application of advanced statistical methods to economic data; the testing of economic theory. Prereq: an elementary course in statistics. *Christian.*

651 *Research Statistics II.* (3) II
Inferences involving linear transformations of random variables; individual degrees of freedom; complex analysis of covariance. Applications to economic and business data. Prereq: ECO 650. *Christian and Tu.*

655 *Advanced Personnel Management.* (3) II
A critical examination of the principles, methods, policies and procedures related to the effective utilization of human resources in business concerns, consideration being given to mutual relationships. *Carter.*

656 *Research and Report Writing.* (3) I
Investigations of business problems; sources, procedures, analysis, and presentation. *Tarpey.*

657 *Theory of Wages.* (3) II
A critical analysis of contemporary wage theories, trade-union wage policy, wage differentials, wage adjustment to technological change, and wages and employment. *Cabe.*

685 *Government Finance Administration.* (3) II
Government budget, accounting, debt, purchasing, treasury, revenue, and auditing administration are examined; illustrations are drawn from federal, state, and local experience. Each student makes a special report on finance management or experience.

690 *Mathematical Economics.* (3) II
Problems of economics amenable to the mathematics of differential and difference equations, vectors, complex numbers and matrix algebra. Agricultural and business applications. Prereq: ECO 618, ECO 590 or equivalent. *Christian.*

691 *Econometrics.* (3) I
The application of statistical methods to problems of economic analysis. Building and measuring relationships among economic variables. Econometric models of the economy as a whole and of individual sectors. Prereq: ECO 618 and AEC 630 or ECO 550, or equivalent. *Christian.*

768 *Residence Credit for the Master's Degree.* (0) I, II, S
May be repeated once. 1-9 weeks' residence.

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S
May be repeated indefinitely. 1-18 weeks' residence.

770 *Seminar.* (1-6) I, II
An extended investigation of some specific topic with a view to giving training in methods of research and studying intensively a particular subject in the field of economics. May be repeated to a maximum of 6 credits. *Williams.*

780 *Research Problems in Economics.* (1-6) I, II
May be repeated to maximum of 6 hours.
Students confer individually with the instructor. *Staff.*

BUSINESS ADMINISTRATION

FACULTY

Professors: Wendell Everett Beals (M.B.A., Northwestern, 1931), Ernest Merrill DeVoe (Ph.D., Ohio State, 1946), Robert Dee Haun (J.D., Michigan, 1939), Joseph L. Massie (Ph.D., Chicago, 1955), Robson Duncan McIntyre (M.S., Illinois, 1923), Ralph Russell Pickett (Ph.D., Chicago, 1930). *Associate Professors:* John Douglas (Ph.D., Cornell, 1960), ACTING CHAIRMAN. William W. Ecton (M.B.A., Kentucky, 1960), Herman Adam Ellis (D.B.A., Indiana, 1954), Homer Lewis (M.B.A., Michigan, 1930), Lawrence X. Tarpey (Ph.D., Cornell, 1964), William Allan Tolman (M.A., Kentucky, 1932). *Lecturer:* Robert O. Brown (M.B.A., Chicago, 1962). *Assistant Professors:* Margaret Bell Humphreys (M.A., Kentucky, 1943), Clyde L. Irwin (M.B.A., Kentucky, 1957), David C. McMurtry (M.A., Kentucky, 1947). *Instructors:* Martin B. Solomon (M.B.A., Kentucky, 1960), Mavis Curry Sparks (M.A., Kentucky, 1959).

107 *Principles of Accounting.* (3) I, II
Instruction in the science and adaptation of the accounts of going concerns, together with sufficient practice to acquire proficiency. *Brown and others.*

108 *Principles of Accounting.* (3) II
Continuation of COM 107. *Brown and others.*

109 *Secretarial Accounting.* (3) II
A continuation of the practice afforded in Commerce 107; also a study of accounting systems for the professions, small businesses, and institutions in which the secretary ordinarily keeps the records. Prereq: COM 107. *McMurtry.*

112 *Secretarial Practice, Shorthand.* (3) I, II
The theory of Gregg shorthand with sufficient practice to develop skill in writing. Emphasis is placed upon a good foundation for transcription. Credit for this course will not be given until 113 is completed. Prereq. or concur: ENG 101. *Sparks.*

113 *Secretarial Practice, Shorthand.* (3) I, II
A continuation of Gregg shorthand with sufficient practice to develop a speed of approximately 100 words a minute in dictation. Transcription is introduced and developed to a usable skill. Prereq: COM 112 or equivalent. *Humphreys.*

114 *Advanced Secretarial Practice.* (3) I, II
This course continues the transcription of shorthand notes and develops secretarial proficiency. Dictation speed of approximately 120 words a minute is reached. Prereq: COM 113, 118, or equivalent. *Humphreys.*

115 *Advanced Secretarial Practice.* (3) I, II
A continuation of Commerce 114 with special emphasis on secretarial duties and traits. A speed of 140 words a minute in dictation and of 40 to 50 words a minute in transcription is developed. Prereq: COM 114 or equivalent. *Humphreys.*

117 *Secretarial Practice, Typewriting.* (2) I, II
Theory and techniques in typewriting are included with a thorough study of form, style and arrangement of typewritten material. A speed of 40 words a minute is required. Prereq. or concur: ENG 101. *Humphreys and Sparks.*

118 *Secretarial Practice, Typewriting.* (2) I, II
A continuation of Commerce 117 with emphasis on the development of speed and accuracy sufficient for vocational use. A speed of 60 words a minute is required. *Humphreys and Sparks.*

119 *Office Appliances and Procedures.* (3) I, II
Operation and care of dictating, duplicating, addressing, and calculating machines and other appliances; the general principles, procedures, and systems of filing. Prereq: COM 117. *McMurtry.*

260 *Principles of Marketing.* (3) I, II
The general store, chain store, department store, and mail order house. Market finance, market risk, market news, competition and prices, market price, unfair competition, and cost of marketing. Prereq: ECO 251. *DeVoe and Tarpey.*

262 *Principles of Advertising.* (3) I, II
The functions of advertising in its relation to the broad field of marketing. The scope and organization of advertising and its economic implications. Advertising media and various testing devices are examined. Prereq: COM 260. *McIntyre.*

263 *Salesmanship.* (2) I, II
Among the problems considered are the formulation of selling policies, the actual selling process, the creation of effective demand, sales campaigns, selecting and training salesmen, and kindred subjects. Prereq: ECO 252. *McIntyre.*

296 *Intermediate Accounting.* (3) I
Detailed study of valuation procedures for asset and liability items. Principles of financial statement arrangement and content. Corporation formation, and treatment of capital stock and surplus items. Prereq: COM 108. *Beals and Ecton.*

297 *Intermediate Accounting.* (3) II
Statements from incomplete data, comparative statements, partnerships, installment sales, consignments and agency and branch accounting. Application of funds statements. Prereq: COM 296. *Beals and Ecton.*

301 *Secretarial Job Training.* (1) I, II
This course is designed to provide laboratory and office experience for senior secretarial students. Prereq: COM 115. *McMurtry.*

302 *Secretarial Job Training.* (1) I, II
This course is designed to provide laboratory and office experience for senior secretarial students. Prereq: COM 115. *McMurtry.*

303 *Secretarial Job Training.* (1) I, II
This course is designed to provide laboratory and office experience for senior secretarial students. Prereq: COM 115. *McMurtry.*

335 *Internship in Accounting.* (3) I, II
Students are placed with cooperating firms for on-the-job training in accounting. Written reports to be submitted by the firm and the student to the instructor. Prereq: junior standing and consent of instructor. *Haun.*

361 *Marketing Management.* (3) II
The literature and problems in the retail distribution of consumers' goods, wholesale distribution of consumers' goods, industrial goods, sales organizations, sales promotion and advertising, and price policies. Prereq: COM 260. *DeVoe.*

364 *Data Processing for Business.* (3) I, II
Introduction to machine systems of data processing and storage; theory and application of electrical punched cards equipment in the preparation of accounting and statistical reports. Prereq: COM 108. *Solomon.*

437 *Business Management.* (3) I, II
A study of planning, organizing and controlling; an interdisciplinary approach; actual decision-making cases. *Massie and Irwin.*

438 *Quantitative Analysis in Management.* (3) II
An introduction to quantitative techniques in management decisions. Includes basic linear programming, Monte Carlo, and waiting line theory. Prereq: COM 437. *Irwin.*

445 *Office Management.* (3) II
Planning and scheduling of work; employment procedures; supervision of employees, re-training, promotion, and equipment. *McMurtry.*

462 *Small Business Operation.* (2) II
Application of management principles and techniques to the special problems of establishing and operating a small business enterprise. Prereq: Senior standing in the College of Commerce. *Massie.*

477 *College Business Management.* (2) S
Elements of management, organization, budgetary procedure, financial accounting, procurement techniques and property management as applied in the business administration of colleges. *Pickett.*

478 *College Business Management.* (2) S
Elements of personnel management, public relations, investments and finance as related to college business management. *Pickett.*

479 *College Business Management.* (2) S
Case problems in plant operation, purchasing, insurance, bookstore operation and legal aspects of college management. *Pickett.*

495 *Business Policy.* (3) II
Analysis of management problems, formulation of alternative courses of action, determination of policy decisions. Open to Commerce seniors only. *Douglas.*

508 *Accounting Theory.* (2) I
The function of accounting, asset valuation, recognition of revenue and expenses, and classification of equities, will be studied with a view to presenting a coordinated body of accounting theory. Prereq: COM 297. *Haun.*

509 *Business Law.* (3) I, II
A survey of the principles of contracts, sales, bills and notes, and that portion of the law of torts applicable to business practices. Prereq: two years of Commerce Curriculum. *Haun and Lewis.*

510 *Business Law.* (3) I, II
A continuation of COM 509. *Haun and Lewis.*

513 *Auditing.* (3) II
The theory of auditing, the valuation of assets, analysis of accounting procedure, and the presentation of statements. Special problems applicable to particular businesses will also be presented. Prereq: COM 297. *Beals.*

517 *Corporation Finance.* (3) I, II
Principles concerning the issue of securities, the management of the corporate income, the disbursement of dividends, the creation of sinking funds, and reorganization procedure. Prereq: ECO 251 and 252 and COM 108 or COM 109. *Pickett.*

518 *Cost Accounting.* (3) I, II
The place of cost accounting in the general field of accounting, special records and cost statistics, and application to particular businesses. Prereq: COM 108. *Beals.*

519 *Retail Merchandising.* (3) II
Selecting a business location, internal layout, departmentalization, merchandising control, store policies toward the public, training and management of personnel, and related subjects. Prereq: COM 260. *McIntyre.*

528 *Advanced Cost Accounting.* (3) II
The use of standard costs, estimated cost systems and procedures, nonmanufacturing costs, budgetary control, and management uses of cost data. Prereq: COM 518. *Beals.*

529 *Credit and Statement Analysis.* (2) I
The theory underlying credit-granting, credit administration, and analysis and interpretation of financial statements. Prereq: COM 108. *Haun and Beals.*

531 *Investments.* (3) II
Analysis of corporation statements for investment purposes, the security market, market influences on security prices, effect of interest changes on security prices, and the development of investment programs. Prereq: ECO 252. *Pickett.*

532 *C.P.A. Problems.* (3) I
The course is designed to prepare students for C.P.A. examinations. Advanced accounting theory is stressed through the study of a wide range of problems. *Haun and Beals.*

533 *C.P.A. Problems.* (3) II
A continuation of COM 532. *Haun and Beals.*

536 *Sales Management.* (3) I
The case method is used, supplemented with outside reading and written reports. Prereq: COM 260. Open only to seniors in the College of Commerce. *DeVoe.*

539 *Industrial Purchasing.* (3) II
Organization of purchasing; relations with other departments; qualifications and training of buyers. Purchasing procedures; sources of supply; price negotiation; stores control; value analysis. *DeVoe.*

540 *Advertising Management.* (3) I
A study of advertising from the point of view of marketing and advertising executives, including problems in integrating advertising with marketing program, utilizing research data, determining the appropriation, evaluating agencies and planning advertising campaigns. Prereq: COM 262. Junior standing. *DeVoe.*

541 *Industrial Marketing.* (3) I
The marketing of goods for business consumption. The structure of the industrial market with special problems in marketing raw materials, parts and machinery relative to manufacturing, agricultural, mining, construction and other industries. Prereq: ECO 252. *Tarpey.*

543 *Life Insurance.* (3) I
Economics of life insurance, organization and control, special forms of life insurance, and fundamental principles of rate-making. Prereq: ECO 252. *Hargreaves.*

544 *Property and Casualty Insurance.* (3) II
Public control; nature of contracts; analysis of reserve functions, and rate-making processes. Prereq: ECO 252. *Pickett.*

546 *Specialized Accounting Problems.* (3) II
Accounting records for consolidations and mergers, preparation of consolidated statements. Insolvency and receivership records and statements. Accounting for estates and trusts. Prereq: COM 297. *Ecton.*

547 *Income Tax Procedure.* (3) II
The preparation of income tax returns for individuals and corporations of all classes and practical application of principles of accounting. Prereq: COM 297. *Haun.*

549 *Market Research.* (3) I, II
Training in the application of scientific method to research in fields of marketing. A major marketing investigation will be conducted by the class. Prereq: COM 260 and a course in statistics. *DeVoe and Tarpey.*

556 *Business Reports.* (2) II
Major emphasis is placed upon sources of data, compilation and arrangement of data, documentation, bibliographies, and effective presentation of reports. Problems will be assigned in the various areas of interest. *Tarpey.*

559 *Governmental Accounting.* (2) II
The requirements of adequate accounting systems for various governmental units, including the recording of usual transactions and the form and content of reports. Prereq: COM 108. *Beals.*

570 *Controllership.* (3) I
The organizational position of the Comptroller, his functions and objectives, his methods and procedures. *Haun.*

571 *Statistical Quality Control.* (3) I
Elementary probability theory, control charts, acceptance sampling plans including single, double and sequential sampling. *Christian.*

572 *Sampling Techniques.* (3) II
Application of sampling theory and significance testing in economic research, practical problems in sample design. *Christian.*

573 *Automatic Data Processing.* (3) I
Examination of the role of high speed data processing equipment in the solution of business and economic problems. The study of computer fundamentals; input, arithmetic and logical units, control, storage, and output. Includes digital computer programming. Prereq: Junior standing. *Solomon.*

585 *Bank Management.* (3) II
A study of principles and cases in commercial banking practice. Bank management practices are studied within the economic, monetary, fiscal and legal framework of the American economy. Prereq: ECO 505 or consent of instructor. *Masten.*

708 *Advanced Accounting Theory.* (3) II
Critical examination of accounting concepts and standards. Study of current problems and contemporary developments reflected in accounting literature and reports. Prereq: COM 296 or consent of instructor. *Haun.*

717 *Corporate Financial Policy.* (3) I
A study of financial management from the viewpoint of the corporate financial officer. Problems of planning the capital structure, issuing securities, the management of working capital, and policies with reference to reserves, surplus, and dividends. *Pickett.*

719 *Quantitative Methods in Business Decisions.* (3) I
Application of mathematical analysis in business decision-making. Includes linear programming, total value analysis, incremental analysis, and other phases of operations research. Prereq: MA 211 and ECO 207. *Christian.*

720 *Statistics in Business Decisions.* (3) I
Statistical analysis as applied to business decisions. Includes waiting line theory. Monte Carlo method, and sampling as applied to inventory control, quality control, and similar business problems. Prereq: ECO 207. *Christian.*

722 *Tax Accounting Problems.* (3) II
Advanced tax accounting problems of a complex nature involved in income taxes, gift taxes, and death taxes under the federal and state laws. Prereq: COM 547. *Haun.*

728 *Accounting for Control and Planning.* (3) II
A study of the application of accounting and information and services in the recognition or solution of management problems in business. Prereq: COM 108. *Haun.*

731 *Investment Management.* (3) II
Evaluation of sources of information and advice concerning securities, methods of analysis and policies of individuals and institutions in the management of investment funds. *Pickett.*

737 *Advanced Business Management.* (3) II
A functional study of business management. Control devices and procedures for carrying out and testing policies. *Massie.*

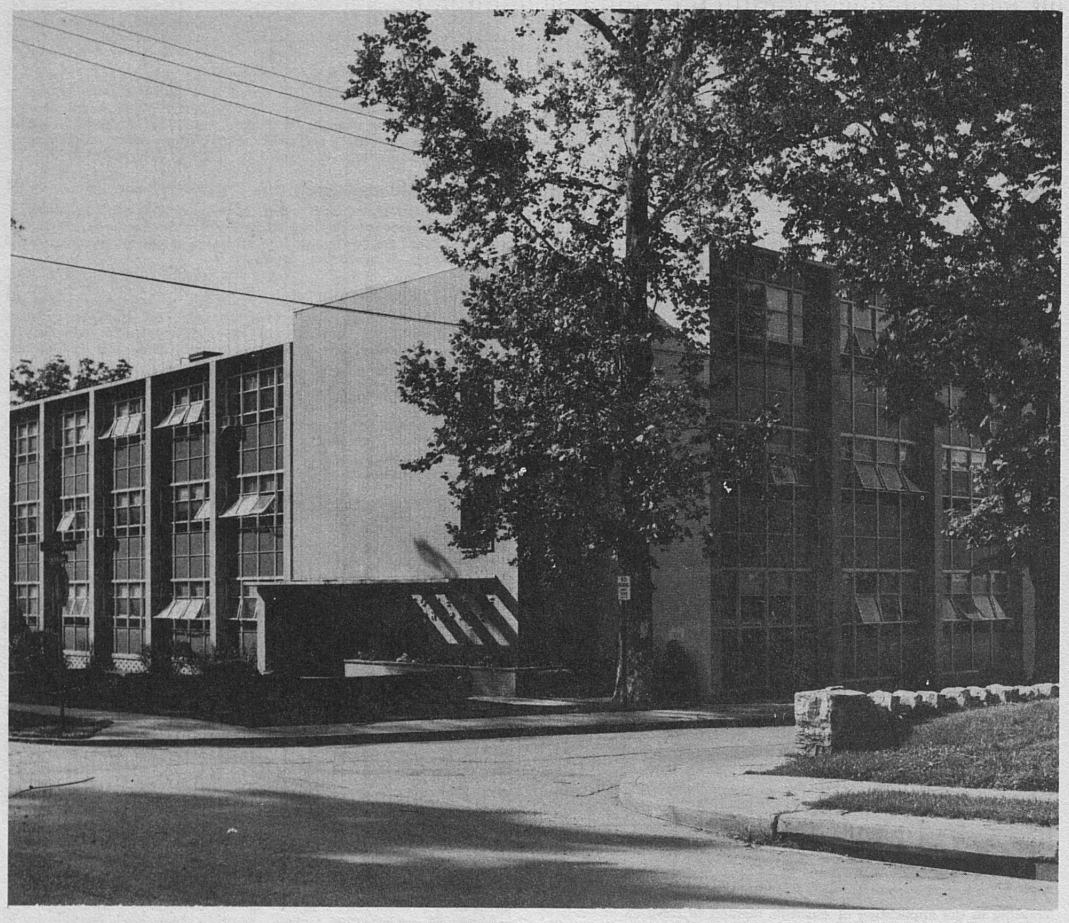
738 *Production Management.* (3) I
A study of procedures and techniques employed in manufacturing plants. An analysis of actual cases in production planning and control, time and motion study, quality control, plant layout, and budgetary control. Visits to industrial plants. *Massie.*

760 *Advanced Marketing Management.* (3) II
A critical study of significant trends, controversial issues and advanced techniques in the fields of marketing. *DeVoe.*

Courses in Mathematics for Social Science and Business, Industrial Psychology, and English Composition for Technical Students, are offered by departments of the College of Arts and Sciences.

768 *Residence Credit for the Master's Degree.* (0)
May be repeated once.

769 *Residence Credit for the Doctor's Degree.* (0)
May be repeated indefinitely.



Pharmacy

A RECENT STUDY of the needs and nature of pharmaceutical education points out that the growing responsibilities of the profession of pharmacy make it necessary for the pharmacist to adapt and adjust himself to the demands and personalities of many other persons—his employer or his employees, his creditors and his debtors, his suppliers and his customers, his professional colleagues and his non-professional friends. He must be able to effectively discharge his civic, social, and moral obligations. In view of all of his professional relationships, a pharmacist needs to understand the social and economic environment in which he practices his profession.

The objective of the College of Pharmacy is to prepare its graduates to assume, with dignity and honor, the intellectual, legal, civic, and moral responsibilities of the profession of pharmacy. Every motivation and every act of the pharmacist must be in the interest of the public. His ethical relationship with the physician, his capacity as a consultant to the public, his constant availability for dispensing of important drugs in time of emergency, and his charitable services to the needy are but a few examples of his dedication to the health, welfare, and safety of the public. Such dedication is not acquired through accident; it is the result of systematic inculcation of the highest ethical and moral standards throughout the entire curriculum of the College of Pharmacy.

Admission

All admissions to the College of Pharmacy are made through the office of the University Registrar. New students, readmission students and transfer students must file applications and transcripts of all previous college work with that office not later than 30 days before the beginning of the semester in which they desire to enter.

The most important high school requirement is the student's position in his class. If he is near the top, he has demonstrated his ability to do good work in school. He should be at least in the upper half of his class scholastically, and should have a reputation of good character. It is most essential that he have a good command of the English language, being able to read, speak, and write well. A good understanding of mathematics is most useful, with one or more years of laboratory science, especially chemistry. Foreign languages are not required and Latin is not necessary, but would be most useful.

In addition to meeting the general requirements for admission to the University, the applicant must have achieved a grade point average of at least 2.0 of a possible 4.0 in at least 67 credit hours of acceptable college work. This preparatory work may be taken at the University of Kentucky or at any other accredited institution.

Those who take their prepharmacy courses in other institutions must furnish an additional transcript of all previous college work to the Dean of the College of Pharmacy.

Pre-pharmacy Requirements

Admission to the College of Pharmacy requires the satisfactory completion of two years of work in liberal arts and basic sciences. The increase in technical knowledge makes it necessary for the pharmacist of the future to have a more adequate foundation in the basic sciences upon which the scientific aspects of pharmacy rest.

This work not only provides some foundation in the basic sciences which undergird pharmacy, but it is also intended to broaden and enrich the life and understanding of the pharmacist as a professional man and citizen. Such preparation is essential for the professional man in this age of increasing awareness and appreciation of culture and knowledge.

Basic Requirements for Admission to the College of Pharmacy

1 year English Composition

1 year Biology with laboratory (General Botany, General Zoology)

1 year Mathematics (Algebra, Trigonometry, or advanced mathematics)

Arthur C. Glasser, Ph.D., is Acting Dean of the College of Pharmacy.

1 year Physics with laboratory
1 semester of Microbiology
1 semester of Economics

Chemistry

(a) General Inorganic, including qualitative analysis
(b) Quantitative Analysis

Electives sufficient to total 67 semester hours (junior classification)

The electives are chosen from such areas as—

Ancient and Modern Languages	History
Anthropology	Humanities
Art	Mathematics
Commerce	Music
Economics	Philosophy
Education	Psychology
English and Speech	Sociology
Geography	

RECOMMENDED PRE-PHARMACY PROGRAM

First Year

Course	Cr.
CHE 110—General Chemistry	5
ENG 101—English Composition	3
BOT 101—General Botany	4
MA 101—College Algebra, or	
MA 111—College Algebra	3
CHE 112—General Chemistry	5
ENG 102—English Composition	3
ZOO 100—Principles of Animal Biology	4
MA 112—Trigonometry	2
*PHI 200—Introduction to Philosophy	3

Second Year

Course	Cr.
PHY 211—General Physics	5
CHE 226—Analytical Chemistry	5
*PHI 220—Elementary Logic	
or	3
*PHI 230—Ethics	
PHY 213—General Physics	5
ECO 251—Principles of Economics	3
**MB 200—Principles of Bacteriology	4

Additional electives chosen from the areas above to total with these requirements, 67 semester hours.

It is suggested that the student distribute his electives among several disciplines, rather than concentrate in any particular area.

The College of Pharmacy will accept credit in typing as an elective.

Admission to the College of Pharmacy is limited to sixty students.

* The Philosophy recommended (6 hours) may be satisfied by six hours of Humanities or Analytic Geometry and Calculus. For those who expect to enter Graduate School later we strongly advise the Mathematics.

** If the pre-pharmacy requirements are obtained in a college which does not offer Microbiology, a suitable elective may be chosen instead, and the microbiology may be taken after admission to the College of Pharmacy.

ADMISSION WITH ADVANCED STANDING FROM ANOTHER PHARMACY SCHOOL

Those applying with advanced standing from another college of pharmacy should apply to the Registrar, asking for an application blank. Two official transcripts of all previous college work must be submitted, one to be filed with the Registrar's office, the other with the Dean of the College.

Requirements for Graduation

The degree of Bachelor of Science in Pharmacy is offered on completion of a minimum of 177 semester hours of credit, with a quality point standing of 2.0 out of a possible 4.0.

The prepharmacy program of 67 semester hours of credit, followed by the three years of professional education with 110 semester hours of credit as shown below, constitute the course requirements for graduation.

PROFESSIONAL PROGRAM

Third Year

Course	Cr.
PCH 300—Organic Pharmaceutical Chemistry	5
PHR 310—Theoretical Pharmacy	4
PHR 305—Pharmaceutical Calculations	3
PHR 300—History & Ethics	3
MM 334—Physiology and Pharmacodynamics	4
	19
PCH 302—Organic Pharmaceutical Chemistry	5
PHR 320—Pharmaceutical Technology	4
PCH 304—Inorganic Pharmaceutical Chemistry	3
Elective	3
MM 346—Physiology and Pharmacodynamics	4
	19

Fourth Year

Course	Cr.
PCH 402—Drug Assay	4
MM 220—Biological Pharmaceuticals	3
MM 330—Pharmacognosy	3
MM 450—Pharmacology and Toxicology	5
PHR 330—Theoretical Pharmacy	4
	19
PCH 400—Biochemistry	4
MM 342—Pharmacognosy	3
MM 462—Pharmacology and Toxicology	5
PHR 335—Pharmaceutical Law	3
PHR 340—Pharmaceutical Technology	4
	19

Fifth Year

Course	Cr.
PCH 404—Chemistry of Medicinal Products	3
PHR 350—Pharmaceutical Dispensing	5
PHR 355—Modern Therapeutic Agents	3

PHR 356—Pharmacy Management	3
Elective	3
	17
PCH 406—Chemistry of Medicinal Products	3
PHR 360—Pharmaceutical Dispensing	5
PHR 365—Modern Therapeutic Agents	3
PHR 366—Pharmacy Management	3
Elective	3
	17

History of the College

The University of Kentucky College of Pharmacy was established August 16, 1870, as the Louisville College of Pharmacy. It was incorporated by an Act of the Legislature, February 6, 1873. Organized as an outgrowth of the apprentice and preceptorial system, it was operated as a non-profit organization from its inception. On July 1, 1947, the College became one of the divisions of the University of Kentucky. It opened in its new building on the campus in the fall of 1957. This building embodies the latest ideas in arrangement and equipment for the teaching of Pharmacy. It is a highly fire-resistant structure incorporating every new device for the safety, convenience and comfort of the students and staff. The site is sufficiently large to provide space for expansion and adequate parking.

The College is accredited by the American Council on Pharmaceutical Education. It was admitted to membership in the American Association of Colleges of Pharmacy in 1917.

PLACEMENT ACTIVITIES

In addition to full cooperation with the University Placement Service, the College maintains a complete file for prospective employment. Personnel representatives of the large pharmaceutical houses usually visit the College twice yearly scheduling interviews with the graduates. Each year the College has a greater demand for its graduates than it can supply.

LIBRARY

The student has the complete use of the University of Kentucky Library, fourth largest library in the south and, in addition, the College's own library of over 5,000 volumes and 200 periodicals.

Student Activities

In addition to the numerous campus-wide social, religious, and cultural activities and the intramural sports program, the College of Pharmacy has some active organizations of its own, sponsoring events of a professional and social nature.

Every student enrolled in the College is eligible for membership in the American Pharmaceutical Association and is expected to join. The organization, formed

in 1852, is the only existing national body representing, in its entirety, the professional interests of pharmacy. Prompt affiliation upon enrolling in the College not only serves to identify the student with the profession of pharmacy but is regarded as proof of his interest in and enthusiasm for the profession he has chosen to follow. Through the activities of the Student Branch the students become acquainted with organizational work, develop professional attitudes, with their moral and ethical values, and lay the ground work for continued growth and development after graduation.

There are chapters of three national professional pharmaceutical fraternities on the campus:

Alpha Zeta Omega, Lambda Chapter
Kappa Psi, Upsilon Chapter
Phi Delta Chi, Alpha Beta Chapter

The women of the College are represented by a national pharmaceutical sorority, Lambda Kappa Sigma, Alpha Nu Chapter.

Rho Chi, national honorary pharmaceutical society, elects to membership outstanding students who have earned at least 70 hours of professional credit with an average of "B" or above, and who are recommended by the faculty of the College of Pharmacy. In addition to high attainment in scholarship, eligibility for membership requires character, personality, and leadership. Alpha Xi Chapter is active at the University of Kentucky.

The wives of pharmacy students are eligible for membership in the Pharmacy Students' Wives' Club of the Women's Auxiliary of the American Pharmaceutical Association.

REQUIREMENTS FOR PHARMACY LICENSURE IN KENTUCKY

In order to qualify for licensure in Kentucky, the aspirant should thoroughly familiarize himself with the registration specifications. Prior to the passing of the Kentucky Board of Pharmacy examination, the final step in the licensure requirements, one must complete the curriculum requirements and obtain a degree from an accredited college of pharmacy. In addition, he must be 21 years of age, a citizen of the United States, must be of good moral character, must satisfy the internship requirement of fifty-two weeks under the direct personal supervision of a registered pharmacist, and must present to the Kentucky Board of Pharmacy a notebook covering the details of his internship properly certified by the pharmacists who have supervised his internship. The applicant will bring his notebook to the examination and turn it in to be checked and become a part of his examination grade.

Boards of pharmacy will allow credit for claims of internship required under the pharmacy laws provided:

a. The period of internship is earned after completing one year of the pre-pharmacy curriculum in an accredited college.

b. The period of internship is not concurrent with college attendance. (Internship is not recognized that is obtained during Christmas, Easter, or mid-semester vacations. However, internship obtained during summer months will count when properly filed.)

c. The claim is corroborated by records on file in the Kentucky Board of Pharmacy office showing the beginning and the ending of the internship claimed as supplied by the applicant during his internship period, and by the pharmacist who supervised the internship. In every instance the applicant must notify the Kentucky Board of Pharmacy of the beginning and the end of his employment under the supervision of a registered pharmacist within ten days of the beginning and ending of such internship. It is also necessary for the pharmacist supervising the internship similarly to notify the Kentucky Board of Pharmacy of the commencement and termination of an internship.

d. The period of internship was earned in a pharmacy acceptable to the Board.

At least three (3) months of internship must be obtained after college graduation.

PHARMACEUTICAL CHEMISTRY

FACULTY

Professor: Arthur C. Glasser (Ph.D., Ohio State, 1953), CHAIRMAN. *Assistant Professors:* Milton J. Kornet (Ph.D., Illinois, 1962); Ronald E. Orth (Ph.D., Iowa, 1960). *Instructor:* William S. Johnson (B.S., Kentucky, 1949).

Course Descriptions

300 *Organic Pharmaceutical Chemistry.* (5) I
A comprehensive course in the preparation and properties of aliphatic compounds with emphasis on those compounds which are related to pharmacy. Lecture, three hours; lab, six hours. Prereq: CHE 110 and 112. *Kornet.*

301 *Laboratory for Pharmaceutical Chemistry 300.*

302 *Organic Pharmaceutical Chemistry.* (5) II
A course similar to Chemistry 300 in which the aromatic compounds are studied. Official products are emphasized in their proper sequence as the course progresses. Lecture, three hours; lab, six hours. Prereq: PCH 300. *Kornet.*

303 *Laboratory for Pharmaceutical Chemistry 302.*

304 *Inorganic Pharmaceutical Chemistry.* (3) II
A review of inorganic chemistry in which a comprehensive study is made of the physical and chemical properties of all official inorganic chemicals. Lecture, two hours; lab, three hours. Prereq: CHE 110 and 112. *Johnson.*

305 *Laboratory for Pharmaceutical Chemistry 304.*

306 *Quantitative Pharmaceutical Analysis.* (4)
This course includes a study of the fundamental theory and methods of gravimetric and volumetric analysis. The laboratory work consists of assays selected from the USP and NF. Lecture, 2 hours; lab, 6 hours. Prereq: CHE 110, 112.

307 *Laboratory for Pharmaceutical Chemistry 306.*

400 *Biochemistry.* (4) II
A fundamental course in the chemistry and interrelationships of carbohydrates, lipids, and proteins, as well as the role of enzymes, vitamins, and hormones in physiological processes. Laboratory exercises parallel the lecture material. Lecture, three hours; lab, three hours. Prereq: PCH 302. *Glasser.*

401 *Laboratory for Pharmaceutical Chemistry 400.*

402 *Drug Assay.* (4) I
Modern methods of analysis of medicinal products including synthetic drugs, fixed and volatile oils, alkaloids, glycosides, vitamins, and enzymes. Laboratory exercises selected on basis of application to pharmaceutical products. Lecture, two hours; lab, six hours. Prereq: CHE 226. *Johnson.*

403 *Laboratory for Pharmaceutical Chemistry 402.*

404 *Chemistry of Medicinal Products.* (3) I
A study of the official and more important non-official medicinal agents with respect to their physical and chemical properties, relationships of chemical structure to physiological activity, as well as their potential incompatabilities. Lecture, three hours. Prereq: PCH 400 or equivalent. *Orth.*

406 *Chemistry of Medicinal Products.* (3) II
Continuation of Pharmaceutical Chemistry 404 including considerations of such topics as alkaloids, glycosides, steroids, and other chemotherapeutic agents. Lecture, three hours. Prereq: PCH 404. *Orth.*

408 *Independent Problems in Pharmaceutical Chemistry.* (1-3), I, II, S
Selected problems of interest from the general field of Pharmaceutical Chemistry. Prereq: Advanced standing and permission of the instructor. May be repeated for a total of six credits. *Staff.*

410 *Advanced Organic Pharmaceutical Chemistry.* (3) I
A study of the synthesis classification, properties, and uses of organic medicinal agents. Lecture, one hour; lab, six hours. Prereq: Pharmaceutical Chemistry 302 or equivalent. *Glasser.*

412 *Advanced Organic Pharmaceutical Chemistry* (3) II
A continuation of Chemistry 410. Lecture, one hour; lab, four hours. Prereq: PCH 302 or equivalent. *Glasser.*

500 *Advanced Organic Pharmaceutical Chemistry I.* (3)
A study of the classification, source, properties, synthesis, and uses of organic medicinal chemicals used as therapeutic agents. Lecture, 1 hour; lab, 4 hours. Prereq: PCH 300, 302; consent of instructor and of the dean.

502 *Advanced Organic Pharmaceutical Chemistry II.* (3)
A continuation of Pharmaceutical Chemistry 500. Lecture, 1 hour; lab, 4 hours. Prereq: PCH 300, 302; consent of instructor and of the dean.

PHARMACY

Professor: Howard Hopkins (Ph.D., Nebraska, 1959), CHAIRMAN. *Associate Professors:* Norman H. Franke (Ph.D., Wisconsin, 1956), Charles T. Lesshafft, Jr. (Ph.D., Purdue, 1955), Harry A. Smith (Ph.D., Purdue, 1959), Norman F. Billups (Ph.D., Oregon State, 1963). *Assistant Professor:* Paul Frederick Parker (M.S., Michigan, 1951).

Course Descriptions

300 *History and Ethics of Pharmacy.* (3) I
A study of the development of the profession of pharmacy, emphasizing the historical background and ethical principles upon which the profession rests. The nature and place of pharmaceutical services in society are considered. The moral standards and professional conduct required of a pharmacist are stressed. Lecture, three hours. *Franke.*

305 *Pharmaceutical Calculations.* (3) I
A systematic study of arithmetical problems encountered in Pharmacy. Lecture, three hours. *Billups.*

310 *Theoretical Pharmacy.* (4) I
A study of the fundamental principles and processes used in pharmacy and the development of proper pharmaceutical technic in the laboratory. Lecture, three hours; lab, three hours. *Franke.*

311 *Laboratory for Pharmacy 310.*

320 *Pharmaceutical Technology.* (4) II
The applications of physicochemical principles to pharmaceutical systems. The course is intended to provide a basis for analyzing and interpreting the physical and chemical aspects of pharmaceutical systems. The lectures and laboratory experiments concern the theory and technology of dispersed systems and surface properties, stability and preservation of pharmaceuticals, and rate processes as they apply to pharmaceutical preparations. Lecture, three hours; lab, three hours. Prereq: PHR 305 and 310. *Franke.*

321 *Laboratory for Pharmacy 320.*

330 *Theoretical Pharmacy.* (4) I
A continuation of Pharmacy 310 at a more advanced level. Lecture, three hours; lab, three hours. Prereq: PHR 320; PCH 302, 304; MM 220. *Billups.*

331 *Laboratory for Pharmacy 330.*

335 *Pharmaceutical Law.* (3) II
A study of legislation, regulations, and rulings governing the practice of Pharmacy and the sale of drugs, poisons, cosmetics and devices. Lecture, three hours. Prereq: PHR 300. *Smith.*

340 *Pharmaceutical Technology.* (4) II
A continuation of Pharmacy 320 at a more advanced level. Lecture, three hours; lab, three hours. Prereq: PHR 330. *Billups.*

341 *Laboratory for Pharmacy 340.*

350 *Pharmaceutical Dispensing.* (5) I
All aspects of prescription compounding and dispensing are studied. Emphasis is placed on the application of fundamental principles and technics to the compounding of prescriptions. The first semester's work is chiefly concerned with the compounding of solid-type prescriptions such as bulk powders, capsules, powder papers, ointments, and suppositories. Lecture, three hours; lab, four hours. Prereq: PHR 335, and 340. *Lesshafft.*

351 *Laboratory for Pharmacy 350.*

355 *Modern Therapeutic Agents.* (3) I
A comprehensive study of those drugs most extensively encountered in professional practice. Their uses, properties, and proprietary forms are considered. Lecture, three hours. Prereq: PHR 340; PCH 304, 400; MM 346. *Hopkins.*

356 *Pharmacy Management.* (3) I
A study of the management and operation of a retail drug store including the position of retail pharmacy in the marketing process, location, layout, organization, policies, personnel problems, public and inter-professional relations, and the financial control applicable to retail pharmacy. Lecture, three hours. Prereq: PHR 335 and ECO 251. *Smith.*

360 *Pharmaceutical Dispensing.* (5) II
A continuation of Pharmacy 350. The second semester's work is chiefly concerned with liquid prescriptions. Lecture, three hours; lab, four hours. Prereq: PHR 350. *Lesshafft.*

361 *Laboratory for Pharmacy 360.*

365 *Modern Therapeutic Agents.* (3) II
A continuation of PHR 355. Lecture, three hours. Prereq: PHR 355. *Hopkins.*

366 *Pharmacy Management.* (3) II
A study of merchandising policies and technics applicable to retail pharmacy with emphasis on special and professional departments; includes such topics as buying motives, buying of merchandise, stock control, display, advertising, salesmanship, and professional promotion. Lecture, three hours. Prereq: PHR 356. *Smith.*

370 *Pharmaceutical Manufacturing.* (2-5)
Methods of larger scale manufacture of compressed tablets, solutions, mixtures, ointments and creams, and suppositories. The use and care of equipment involved. Field trips to medium sized pharmaceutical manufacturing concerns. Prereq: Permission of department chairman. *Staff.*

395 *Independent Problems in Pharmacy.* (1-3) I, II, S
Selected problems pertaining to the various aspects of pharmacy which may include such problems as pharmaceutical procedures, pharmaceutical formulations, pharmaceutical history, and pharmaceutical economics. Prereq: Permission of the instructor. May be repeated to a maximum of six credits. *Staff.*

MATERIA MEDICA

FACULTY

Professor: Charles A. Walton (Ph.D., Purdue, 1956), CHAIRMAN. *Assistant Professors:* Richard M. Doughty (M.S., Pittsburgh, 1953), Mark M. Luckens (Ph.D., Connecticut, 1963).

Course Descriptions

220 *Biological Pharmaceuticals.* (3) I
Practical applications of microbiological techniques and principles as related to pharmacy and medicine. Special consideration is given pathogenic organisms, biological products and antibiotics. Lecture, two hours; lab, two hours. Prereq: MB 200. *Doughty.*

221 *Laboratory for Materia Medica 220.*

330 *Pharmacognosy.* (3) I
A study of official and non-official drugs of vegetable and animal origin. Macroscopic and microscopic examinations are made. Newer drugs and synthetics related to natural products are included. Lecture, two hours; lab, three hours. Prereq: PCH 302 and BOT 101. *Doughty.*

331 *Laboratory for Materia Medica 330.*

334 *Physiology and Pharmacodynamics.* (4) I
Basic human anatomy and physiology with primary emphasis on the functioning of the nervous, muscular, endocrine, excretory, respiratory, circulatory, digestive and reproductive systems, including principal anomalies of these systems and the pharmacodynamics of typical drugs. Lecture, three hours; lab, two hours. *Luckens* and *Walton.*

335 *Laboratory for Materia Medica 334.*

342 *Pharmacognosy.* (3) II
A continuation of M.M. 330. Lecture, two hours; lab, three hours. Prereq: MM 330. *Doughty.*

343 *Laboratory for Materia Medica 342.*

346 *Physiology and Pharmacodynamics.* (4) II
A continuation of MM 334. Lecture, three hours; lab, two hours. Prereq: MM 334. *Luckens and Walton.*

MATERIA MEDICA

347 *Laboratory for Materia Medica 346.*

450 *Pharmacology and Toxicology.* (5) I

A presentation of the pharmacodynamic actions, modes of administration, toxic manifestations of drugs, and the relationship of pharmacodynamic action to therapeutic use. Lecture, four hours; lab, two hours. Prereq: MM 334, 346, PCH 400. *Luckens and Walton.*

451 *Laboratory for Materia Medica 450.*

462 *Pharmacology and Toxicology.* (5) II

A continuation of 450. Lecture, four hours; lab, two hours. Prereq: MM 450 or equivalent. *Luckens and Walton.*

463 *Laboratory for Materia Medica 462.*

474 *Independent Problems in Toxicology.* (1-3) I, II, S

Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in toxicology and satisfy professional elective requirements for pharmacy students. Prereq: Permission of the instructor. May be repeated for a total of six credits. *Staff.*

475 *Independent Problems in Pharmacognosy.* (1-3) I, II, S

Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacognosy and satisfy professional elective requirements for pharmacy students. Prereq: Permission of the instructor. May be repeated for a total of six credits. *Staff.*

476 *Independent Problems in Pharmacology.* (1-3) I, II, S

Selected problems requiring literature and laboratory research are designed to meet specific needs of graduate minors in pharmacology and satisfy professional elective requirements for pharmacy students. Prereq: Permission of the instructor. May be repeated for a total of six credits. *Staff.*

486 *Poison Information and Control.* (3)

A course designed to prepare individuals to organize and supervise (or gather data for) poison information centers. Subject matter includes: functions of poison information centers, sources for poison information for centers, type formulations of chemical specialties (household chemicals, cleansers, solvents, polishes, etc.), industrial chemicals, drugs and medicaments, cosmetics, etc., organizations and operation of centers and the role of cooperating specialists. Three lectures per week. Prereq: Permission of instructor.

520 *Biotoxicology.* (3 or 5)

A course concerned with the physiologic effects on man, animals, and plants of various toxic substances encountered in agriculture, industry, urban and rural environments, as well as the home. Lecture, 3 hours; lab, 4 hours (optional). Prereq: Permission of the instructor.

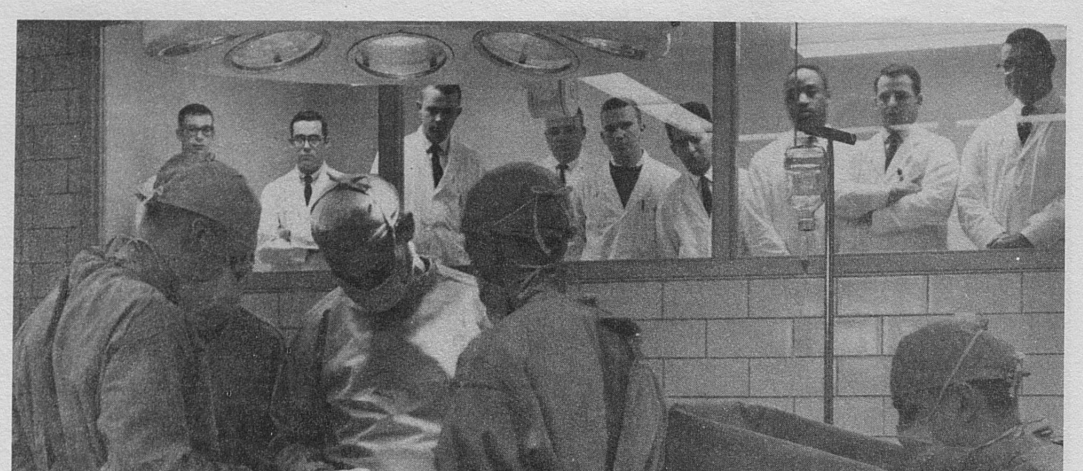
530 *Biotoxicology.* (3 or 5)

A continuation of MM 520. Lecture, three hours; lab, 4 hours (optional). Prereq: MM 520.

540 *Environmental Toxicology and Occupational Hygiene.* (3) II

Recognition, evaluation and control of physical and toxicologic factors arising from industrial (including agricultural) environments, their influence on health and well-being of the worker and the community, and current practices in their elimination and/or mitigation. Lecture, three hours. *Luckens.*





Medicine

THE COLLEGE OF MEDICINE at the University of Kentucky was authorized in 1954 by action of the Board of Trustees of the University. An initial appropriation for construction was made by the State Legislature in 1956, and definitive planning of the facilities and program was then initiated. The first class was admitted in the fall of 1960. Class size is limited to 75.

The College of Medicine is a unit of the University's new Medical Center, which also includes a College of Dentistry, a College of Nursing, and a 475 bed University Hospital. The Medical Center is located on a 39-acre site on the campus of the University.

The Medical Sciences Building includes instructional, laboratory, and administrative space for the College of Medicine, the College of Dentistry, the College of Nursing and the Medical Library. Contiguous and connecting are the University Hospital, the Outpatient Service, clinical facilities of the College of Dentistry, the University Health Service, the Rehabilitation Service, and facilities for ambulant hospital patients and other community health services.

The Medical Library houses an outstanding collection of medical literature, with approximately 1,530 journals under subscription and about 80,000 volumes now on hand.

PHILOSOPHY AND PROGRAM

A major objective of the College of Medicine is to prepare students who are well educated in the sciences and the art of medicine, and capable, with further training and experience, to engage in the practice of general medicine or any of its specialties. Specialty training is provided through internships and residency programs. The educational program and facilities are designed to provide opportunities for integrated instruction within and among the basic and clinical sciences.

The educational philosophy of the College encompasses the concepts of comprehensive medicine. In addition to providing a thorough grounding in the principles of each major scientific and clinical subject, the curriculum emphasizes the relationships between medical problems and total health; the role of emotional, social, and environmental factors in human response to illness and health needs; the importance of continuity in medical supervision and health maintenance; and opportunities for independent work in areas of special interest. The school bears a special responsibility to prepare physicians who can meet the health needs of the people of Kentucky, especially those in small towns and rural areas. Training is also available for those who wish to pursue special interests in medical education, research, or administration.

REQUIREMENTS FOR ADMISSION

Applicants for medical college are expected to have completed a liberal arts degree program in an accredited college of arts and sciences. Applicants with only three years of college are considered if they present outstanding qualifications, which include personal maturity as well as academic competence. Some colleges give credit for medical school work, thus enabling three-year applicants to qualify for the baccalaureate degree upon completion of the first year in medical college. Applicants from a non-accredited program may be considered if their academic background and other credentials demonstrate superior ability.

ACADEMIC PREPARATION FOR THE STUDY OF MEDICINE

Medical science and practice require an understanding of the complex relationships between physical, biological, psychological, cultural, and environmental aspects of human behavior.

In preparing for medical school, fundamental undergraduate college training in physics, chemistry, biology, and English is essential. Minimal requirements are satisfied with the equivalent of two semesters of physics; two semesters in the biological sciences; four semesters in chemistry, including organic chemistry; and at least one year of English with emphasis on communication skills such as reading, writing, and speaking. Courses in each of the natural science areas should include laboratory work. Advanced work in mathematics is highly recommended, as are courses in the psycho-

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William R. Willard, B.S., M.D., Dr.P.H., D.Sc., is dean of the College of Medicine.

logical and social sciences. Students are also encouraged to follow special interests which they may have in philosophy, literature, or the fine arts.

The student should demonstrate his capacity for advanced work through the concentrated study of at least one subject in a major area by completing courses beyond the introductory level and if possible by engaging in independent work. Courses in subjects such as human anatomy, medical biochemistry, medical bacteriology, and mammalian physiology are covered in medical school, and are not essential in premedical education.

Candidates who meet admission requirements and demonstrate excellence are given equal consideration whether they major in one of the natural sciences, the social sciences, or in the humanities.

CRITERIA OF SELECTION

The College of Medicine endeavors to select those students who show promise of making the best possible future physicians. Applicants are judged on the basis of their total qualifications and in comparison with each other.

As a state-supported school, the College of Medicine gives preference to qualified residents of Kentucky, however, a number of particularly well-qualified out-of-state candidates are admitted each year and are urged to apply.

Selection from among applicants who meet the requirements for admission to the University and the general premedical education requirements of the College of Medicine is based on a number of criteria.

A high level of academic performance in an undergraduate college is important and it is anticipated that successful applicants will have a grade point average of 2.75 or higher, based on a 4-point scale. Exceptions may be made for students whose performance in college shows consistent and impressive improvement, since a meaningful evaluation of student performance must consider many factors in addition to the grades which a student has received.

Scholastic aptitude as measured in certain objective tests is also considered. All applicants are required to take the Medical College Admission Test. It has been demonstrated that the scores obtained in this test provide some basis for prediction of a student's relative ability to cope with the medical sciences.

Consideration is given to the communication skills demonstrated by each applicant. Communication is a two-way process and involves the ability to listen perceptively, as well as to speak and write clearly. Applicants are also judged according to the personality characteristics which they demonstrate. The practice of medicine involves the physician in continual relationships with his patients and with other workers in the health field. Thus, friendliness, warmth, compassion and integrity are all essential traits. Often the physician's ability to communicate effectively determines his degree of success in the diagnosis and management of a patient's health problem.

Because the practice of medicine and the life of the medical student require a great investment of energy and are demanding of time and interest, it is essential that a prospective medical student be in good health and that his motivation to study medicine be sufficiently strong to sustain him in the face of difficulties. The Committee on Admissions is interested in factors influencing the applicant's choice of medicine as a career and in his depth and strength of motivation.

THE FACULTY

The College of Medicine is organized into 15 departments and has more than 150 full time faculty members and additional part time clinical faculty. Departments are as follows:

BASIC SCIENCE	CLINICAL SCIENCE
Anatomy	Anesthesiology
Behavioral Science	Community Medicine
Biochemistry	Medicine
Cell Biology	Obstetrics and Gynecology
Pathology	Pediatrics
Pharmacology	Psychiatry
Physiology and Biophysics	Radiology
	Surgery

Curriculum

The curriculum developed for first- and second-year students in the University of Kentucky College of Medicine is based on 35 weeks of scheduled class work, plus a week for review and examination. It includes scheduling of required lectures, laboratories and seminars, totaling 33 hours a week. In addition, two afternoons a week (totaling 6 hours) are designated as optional elective time to afford students who need it an opportunity for pursuing remedial work or to enable especially motivated and able students to partake of elective courses in either the Medical Center or the University at large. The schedule also provides an opportunity for students at the end of the second year to take the Part 1 examinations of the National Board of Medical Examiners.

First and Second Years

The objective of the first and second years is to provide the student with knowledge of the biological, physical and behavioral sciences which will enable him to understand the functions of the body and the reactions of the patient and those with whom the patient is associated, both in health and in disease. Moreover, mastery of these scientific disciplines will enable the student to think analytically, perceptively, and scientifically.

Course units have been planned, insofar as possible, to provide blocks of time for each unit and with primary consideration to the sequential relationship of each unit to the over-all College of Medicine curriculum. Weekly scheduling also has been related to the subject matter of the course unit involved and to the pedagogical methods best adapted to the unit.

First Year Courses

Courses	Crs.
ANA 511—Introduction to Anatomy	4
ANA 512—Microscopy and Ultrastructure	3
ANA 513—Developmental Anatomy	2
ANA 516—Anatomy of the Nervous System	4
BSC 411—Health and Society	2
BCH 511—Biochemistry	7
CON 112—Human Growth and Development	4
CON 118—Conjoint Sciences	2
CON 119—Medical Genetics	1
CON 120—Conjoint Systems	1
PGY 511—Medical Physiology	7
PGY 516—Neurophysiology	2
RAD—Radiobiology	1

Second Year Courses

Courses	Crs.
BSC 421*—Biological Statistics I	2
BSC 422*—Biological Statistics II	2
CM 221—Community Medicine	3
CON 221—Fundamentals of Microbiology and Infectious Diseases	6
CON 222—Parasitic Diseases of Man	2
CON 224—Introduction to Communication and Interviewing	1
MED 221—Medical Diagnosis	8
PAT 425—Human Pathology	13
PHA 521—General Pharmacodynamics	1
PHA 522—Medical Pharmacology	3
PSC 221—Psychopathology of Behavior	3
SUR 021*—Principles of Operative Surgery	0

Third Year Courses

Courses	Crs.
ANA 611—Regional Gross Anatomy	8
ANS 331—Anesthesia Clerkship	3
CON 331—Basic Clerkship Adults	20
OBG 331—Junior Clerkship Obstretrics	3
PED 331—Basic Clerkship Children	20
PSC 331—Psychiatric Clerkship	8

Third and Fourth Years (Lecture Courses)

Courses	Crs.
MED 334—Therapeutics	2
RAD 334—Radiology	2

Fourth Year Courses

Courses	Crs.
CM 341—Senior Clerkship	8
CON 345—Senior Elective	14
MED 341—Senior Clerkship	15
OBG 341—Senior Clerkship	8
SUR 341—Senior Clerkship	15

* Recommended elective for medical students.

The Clinical Years

The objective of the third and fourth year curricula is to prepare the medical student with a sufficient practical and theoretical background in the major clinical sciences and disciplines to enable him to enter further training for family practice, specialty practice, research and teaching, or administrative, and public health medicine. Clinical education, therefore, is directed to the acquisition of fundamental knowledge, skills, and attitudes requisite for additional training—it is not directed to any particular specialty. It is formulated so as to articulate logically with postgraduate education.

The student's introduction to the functions and responsibilities of the physician will take place in the University Hospital and affiliated institutions in a setting which emphasizes a comprehensive approach to medical care. The essence of clinical education is gradual increase in responsibility under careful supervision. This will be achieved as the student becomes a member of the medical care team and participates daily in the evaluation of clinical problems.

Third Year Curriculum

(1) The Basic Clerkship consists of three months on the general medical and surgical service and three months on the children's service. The purpose of this clerkship is to acquaint students with the basic techniques of history taking, physical examination and the proper use of the laboratory, x-ray, and other ancillary diagnostic procedures in the evaluation of the needs of the patient and of a plan of rational management of the patient.

Emphasis is placed on the approach to the total needs of the patient in such fashion that the scientific, social, emotional, and psychological aspects of his illness may be evaluated. The student gains experience in cooperating with the other health professionals, particularly the social worker and the nurse.

Instruction is chiefly by daily bedside teaching rounds. Teaching seminars are conducted under the direction of the medical, psychiatric, and surgical services. During instruction attention is focused on a consideration of the problems generated in the patient, and his family, by the disease process. During this time, the student will take regular night call at the University Hospital. The number of patients assigned to any student will be limited so that he can study a few patients well.

(2) Six weeks will be spent on the psychiatric clerkship. This is a period of psychiatric experience during which time the student has the responsibility under supervision, for the diagnostic appraisal, participation in therapeutic planning for the patient through interview of the patient and appropriate relatives, and other indicated methods. Such an assignment makes it possible for students to observe how patients' maladjustive processes create adverse environmental response, thus perpetuating the maladaptive behavior, and, furthermore, how this pattern can be altered through a series of corrective emotional experiences for the patient in a therapeutically oriented milieu.

The student will gain an awareness of the impact of psychiatric illness on the family and the diagnostic knowledge and dynamic understanding necessary for eliciting effectively the therapeutic cooperation of the patient and his family.

(3) Three weeks will be spent on an obstetrics and gynecology clerkship where the major emphasis will be on the understanding of the physiologic processes of pregnancy and normal labor. Experience in antepartum and postpartum care, as well as a certain amount of experience in normal deliveries will be provided.

(4) Three weeks will be devoted to the study of anesthesiology. The student will conduct the pre-anesthesia patient workup, participate in anesthesia care, administration of anesthetics under supervision, and follow-up and recovery room management. Students also participate in a daily seminar, a weekly morbidity-mortality conference and a monthly evening journal club meeting.

(5) The last nine weeks will consist of the following: a) six weeks spent in an anatomy clerkship. During this period, students will be divided into small groups and will receive individualized instruction in dissection and regional anatomy. b) Three weeks of vacation.

Fourth Year Curriculum

1) Twelve weeks will be spent on a medical clerkship. During this period the student will be provided with the opportunity for an experience in greater depth in internal medicine and its sub-specialties. Emphasis will be on participation in the care of patients with teaching at the bedside, in seminars, and in the regular conferences of the various sections in medicine.

2) Twelve weeks will be spent in a clerkship on the surgical service which will have the same general objectives as the period spent on the medical service.

3) One twelve-week period will be divided equally between Community Medicine and Obstetrics and Gynecology.

a) Community Medicine. The student will be assigned to a community in Kentucky and he will reside there for five weeks. The last week of the clerkship is devoted to seminars in the medical college. The objective of this clerkship is to familiarize the student with the problems of medicine in a community and the interdependence of social, environmental and epidemiological factors in disease and medical care.

b) Obstetric and Gynecology. The student is assigned obstetrical patients upon admission and cares for them constantly during labor, assists in deliveries, and observes them following delivery. The student also is responsible for the initial workup, and routine supervision of gynecological cases. He is taught at the bedside, in the examining and delivery rooms, and through seminars and conferences.

4) The remainder of the fourth year, which is composed of twelve weeks, will consist of an elective period. Great flexibility will be allowed during this time. The only requirements are as follows: Electives may be in a clinical field or in a basic science, but must be approved by a clinical department chairman. Each program will be worked out individually by the departmental chairman and appropriate other faculty members and the student.

A variety of electives are offered in all clinical and basic science departments. Students will be permitted to spend periods on elective subjects away from the University of Kentucky Medical Center during this time. They may take electives at other medical schools or medical institutions in this country or outside the continental United States. In the case of electives carried out at other institutions, it will be necessary for the student to submit a report to his departmental chairman summarizing his experiences in a manner outlined to him beforehand by the departmental chairman.

OUTPATIENT EXPERIENCE

On each of the clerkships and clinical electives, the student will have out-patient experiences scheduled simultaneously and coordinated with in-patient experiences. The student will be able to follow the same patient in and out of the hospital and learn something of the importance of continuity in management, especially for illnesses of long-term duration.

Outpatient experience will include consideration of diagnostic evaluation and psychotherapeutic techniques in medical practice. Under supervision each fourth-year student will follow one or more patients psychotherapeutically although the patients may have been received for out-patient care in the general adult, obstetric or pediatric clinics, as well as patients received directly for psychiatric illness.

SURGICAL PATHOLOGY

Weekly Seminars are conducted conjointly by the Departments of Pathology and Surgery and are planned around the surgical-pathologic materials from patients seen by the student. This is supplemented by additional material from the Department of Pathology. Students will be free of their clinical responsibilities so that they may attend these sessions.

RADIOLOGY

Students in the third and fourth years are given the basic concepts of diagnostic radiology in a series of twelve two-hour presentations during the calendar year. X-ray findings are related to basic physiologic and pathophysiologic processes with the view to amplifying basic knowledge and preparing the student for appropriate patient management.

THERAPEUTICS

Therapeutic seminars or panel discussions are held for the combined third- and fourth-year classes. They are coordinated by the Department of Medicine and may be held in conjunction with the Department of Pharmacology and the other clinical departments. Sessions are held once a month and are two hours in length. They are based on the presentation of a patient with a current clinical therapeutic problem and emphasize the necessity for correlation of information from many sources as well as the interrelations of the basic medical sciences to clinical medicine. The major areas of clinical therapeutics will be systematically covered in the two-year period.

LEGAL MEDICINE AND TOXICOLOGY

Twenty hours are devoted to review of basic principles. Further material in these fields is presented in the course in pathology and conjointly with several of the clinical departments.

LECTURES

Two hours each on Wednesdays and Saturdays during the third and fourth years are devoted to a combined formal lecture-seminar series, which also includes nine Clinical Pathological Conferences (CPC's). The clinical departments rotate in this assignment.

Third- and fourth-year classes attend these lectures and seminars together. Thus the lecture-seminar is a two-year cycle consisting of 70 lectures of one hour each, 9 CPC's of

two-hours each year, and an additional 70 hours for discussion or seminar type teaching for a total of 158 hours each year. By clinical area and total hours, the series for each academic year of the two-year cycle is as follows: Pathology (CPC's), 18 hours; Anesthesiology, 4 hours; Medicine and Medical Specialties, 44 hours; Medicine, Therapeutics, 20 hours; Obstetrics and Gynecology, 12 hours; Pediatrics, 8 hours; Psychiatry, 10 hours; Radiology, 18 hours, and Surgery, 24 hours.

ACADEMIC DEPARTMENTS

ANATOMY

FACULTY

Professors: Harold F. Parks (Ph.D., Cornell, 1950), CHAIRMAN; Lois A. Gillilan (Ph.D., Michigan, 1940; M.D., Pittsburgh, 1947). *Associate Professors:* Robert S. Benton (Ph.D., Duke, 1960). *Assistant Professors:* William Bryan Cotter, Jr. (Ph.D., Yale, 1956), Robert Eugene McCafferty (Ph.D., Pittsburgh, 1951), Miroslava Nikitovitch-Winer (Ph.D., Duke, 1957). *Instructors:* David Peck (Ph.D., Johns Hopkins, 1961), Harold Traurig (Ph.D., Minnesota, 1963). *Teaching and Research Assistant:* Mary Jo Gumbert (M.A., Eastern Kentucky State College, 1957).

The broad objectives of the Department of Anatomy include a presentation to the students of Medicine, Dentistry, and Nursing of the principles of organization of the body and organized data relevant for each field upon which the principles are based. A more detailed presentation is made to a few graduate students in Anatomy. Also, the specialized training of some post-doctoral students in specific areas of Anatomy is carried out. A further objective is the opportunity for all members of the Department, including graduate students, to obtain more information and knowledge about anatomy through research, including scholarly study as well as laboratory investigations. Restated, a broad objective of the Department is to contribute information on normal structure.

The purpose is to aid in understanding how the body is made, how it works, what can go wrong, and how to repair what does go wrong.

Courses

104 *Anatomy and Physiology.* (4)

106 *Introduction to Anatomy.* (3)

107 *Laboratory for Anatomy and Physiology 106.* (0)

Conjoint 119 *Medical Genetics.* (1)

206 *Elementary Anatomy.* (4) I

503 *Independent Work in Anatomy.* (3) I, II, S

511 *Introduction to Anatomy.* (4)

512 *Microscopy and Ultrastructure.* (3)

513 *Developmental Anatomy.* (2)

516 *Anatomy of the Nervous System.* (4)

529 *Concepts of Morphology.* (2)

531 *Combined Gross and Neuroanatomy.* (6)

532 *Combined Histology and Embryology.* (4)

533 *Oral Histology.* (2)

611 *Regional Gross Anatomy.* (8)

629 *Techniques of Anatomical Research.* (2)

631 *Advanced Gross Anatomy.* (3-5)

633 *Advanced Developmental Anatomy.* (2-5)

634 *Advanced Endocrinology.* (2-5)

636 *Advanced Neuroanatomy.* (3-5)

638 *The Genetic Basis of Human Morphology.* (2-5)

651 *Special Projects in Anatomy of Head and Neck Correlated with Neuroanatomy.* (3-5)

662 *Ultra-structural Anatomy.* (2-5)

768 *Residence Credit for Master's Degree.* (1 to 9 wks. residence)

769 *Residence Credit for the Doctor's Degree.* (1 to 18 wks. residence)

ANESTHESIOLOGY

FACULTY

Professors: Peter P. Bosomworth (M.D., Cincinnati, 1955), CHAIRMAN; Marion A. Carnes (M.D., Tennessee, 1949). *Associate Professors:* Richard P. Harbord (M.D., Liverpool, 1939), J. Henry Sprouse (M.D., Medical College of South Carolina, 1957). *Assistant Professor:* Daniel L. Wingard (M.D., Western Reserve, 1959). *Instructors:* David L. Bruce (M.D., University of Illinois, 1960), David C. Clemans (M.D., Oklahoma, 1952), James R. Collins (M.D., University of Buffalo, 1955).

The Department of Anesthesiology teaches the principles of anesthesiology which are applicable to the general practice of medicine and surgery. Emphasis is placed upon emergency care, preoperative evaluation, maintenance of anesthesia during operation and recovery room management. The basic sciences of pharmacology, physiology and anatomy are reemphasized in the teaching of anesthesiology with specific reference to their application in this field.

The Department of Anesthesiology participates on an invitational basis in the regular courses of pharmacology, physiology, and surgery as they are presented to freshman and sophomore medical students. Third year students receive practical and didactic instruction in the variations in normal

physiology and the pharmacology of anesthetic agents as they are encountered in the care of surgical patients. In addition, this experience in the junior year provides students with an opportunity to observe and to participate in anesthesia administration, treatment of pain problems, post-anesthesia recovery care, and pre- and postoperative anesthetic management.

A conjoint elective in anesthesiology is offered to senior students. The students participate in preoperative preparation and in the clinical care of patients in the operating room and the recovery room.

Courses

Conjoint 321 *Dental Sciences.* (1)

331 *Anesthesia Clerkship.* (3)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

BEHAVIORAL SCIENCE

FACULTY

Professors: Robert Straus (Ph.D., Yale, 1947), CHAIRMAN; Thomas R. Ford (Ph.D., Vanderbilt, 1951), Marion Pearsall (Ph.D., California, 1950). *Associate Professors:* Melvin J. Lerner (Ph.D., New York University, 1957), Albert J. Lott (Ph.D., Colorado, 1957). *Assistant Professors:* Ronald C. Dillehay (Ph.D., California, 1962), John V. Haley (Ph.D., Loyola, 1963), Eugene B. Gallagher (Ph.D., Harvard, 1958), Roy Kahn Jarecky (Ed.D., Columbia, 1958). *Instructors:* David S. Hall (M.A., Kent State University, 1961), Charles Stuart Riley (B.S., University of Kentucky, 1957).

The Department of Behavioral Science has the following major objectives: first, the delineation and synthesis of principles and content from the behavioral sciences which are specially pertinent to the understanding of human behavior in health and disease, and the correlation of these principles with those of the biological and physical sciences in the development of a conceptual frame of reference useful for the practice of comprehensive medicine; second, the application of behavioral science concepts and research findings to a further understanding of the diagnostic, treatment, and management process, to the mobilization of health resources to meet the needs of society, and to the understanding of interpersonal relationships and social structure with medical institutions themselves; third, the provision of instruction and research consultation in biostatistics; and fourth, the development of curricula and research around concepts of communication and small group human interaction.

The teaching program of the Department includes basic courses in behavioral science in the Colleges of Medicine, Dentistry and Nursing, the provision of instruction in Communication and in Statistics, participation in conjoint courses on Human Growth and Development, and ad hoc participation in various clinical conferences. In addition, the Department offers a concentration in medical behavioral science for predoctoral students in Sociology, Anthropology or Psychology.

Courses

Conjoint 112 *Human Growth and Development.* (4)

Conjoint 118 *Conjoint Sciences.* (2)

212 *(Nursing, Conjoint) Human Growth and Development.* (4)

221 *(Nursing) Behavioral Factors in Health and Disease.* (3)

Conjoint 224 *Introduction to Communication and Interviewing.* (1)

310 *(Dentistry) Concepts of Behavioral Science and Biostatistics.* (2)

320 *(Dentistry, Conjoint) Growth and Development.* (2)

Conjoint 345 *Elective for Fourth Year Medical Students.* (14)

411 *Health and Society.* (2)

421 *Biological Statistics.* (2)

422 *Biological Statistics II.* (2)

527 *(Sociology) Society and Health.* (3)

533 *(Anthropology) Social Anthropology.* (3)

541 *Biological Assay.* (2)

546 *(Sociology) Social Factors in Mental Health.* (3)

BIOCHEMISTRY

FACULTY

Professors: George William Schwert (Ph.D., Minnesota, 1943), CHAIRMAN; Richard S. Schweet (Ph.D., Iowa State, 1949). *Associate Professor:* Robert L. Lester (Ph.D., California Institute of Technology, 1955), Alfred D. Winer (Ph.D., Duke, 1957). *Assistant Professors:* John C. Dittmer (Ph.D., Washington, 1958), Alfred S. L. Hu (Ph.D., Oregon, 1956), David C. White (M.D., Tufts, 1955, Ph.D., The Rockefeller Institute, 1962).

The objectives of the Department of Biochemistry are:

1. To provide training for medical and dental students which is sufficiently detailed and broad in scope to provide an adequate basis for the understanding of the biochemical lesions which result in disease processes.

2. To provide sufficient coursework to enable graduate students in biochemistry and in other areas to use the concepts and methods of biochemistry as research tools.

3. To provide a vigorous research environment for students doing major graduate work in this discipline.

Biochemistry has undergone, and is still in, a period of rapid growth. The ideas and techniques of biochemistry are increasingly adopted in all fields of biology and medicine.

Since it is not possible to predict which areas will be most productive in the future, introductory courses for medical and dental students differ in emphasis, rather than in breadth, from that offered to graduate students. An effort is made in all courses to provide an adequate basis for understanding future developments and also to emphasize the transitory nature of ideas in a rapidly developing experimental science.

(For a description of the curriculum leading to the Ph.D. in Biochemistry, please consult the *Bulletin* of the Graduate School of the University of Kentucky.)

Courses

Conjoint 119 *Medical Genetics.* (1)

309 *Biochemistry for Dental Students.* (6)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

511 *Biochemistry.* (7)

514,515 *General Biochemistry.* (3)
Prereq: CHE 112, 222, 232. One year of a biological science. CHE 442 and 443 are highly desirable for students majoring in biochemistry.

517 *Experimental Methods in Biochemistry.* (2) II
Prereq: BCH 514 or its equivalent.

610,611 *Intermediary Metabolism.* (3)
Prereq: BCH 511 or BCH 514, 515.

614,615 *Biochemistry of Proteins, Nucleic Acids and Enzymes.* (3)
Prereq: BCH 511 or 514, 515 and CHE 442.

618,619 *Seminar in Biochemistry.* (1)

640 *Research in Biochemistry (To be arranged).*
Prereq: Permission of instructor.

769 *Residence Credit for the Doctor's Degree.*
May be repeated indefinitely.

CELL BIOLOGY

FACULTY

Professor: Richard S. Schweet (Ph.D., Iowa State, 1949), CHAIRMAN.

The Department of Cell Biology is in its initial phases of activation and appointments of other full time faculty are in varying stages of completion and accordingly are not listed.

The Department's function will be the teaching of cell biology to medical and dental students and to develop a graduate program emphasizing a broad interdisciplinary background concentrating on biochemistry and genetics as applied to problems of cellular growth, division, and differentiation.

COMMUNITY MEDICINE

FACULTY

Professors: Kurt W. Deuschle (M.D., Michigan, 1948), CHAIRMAN; Howard L. Bost (Ph.D., Michigan, 1955), Michael L. Furcolow (M.D., Yale, 1948), Tom F. Whayne (M.D., Dr.P.H., Washington University, 1931), William R. Willard (M.D., Dr.P.H., Yale, 1934). *Associate Professor:* Hugh S. Fulmer (M.D., M.P.H., State University of New York, 1951). *Assistant Professors:* Donald L. Hochstrasser (Ph.D., Oregon, 1962), Robert L. Johnson (M.S.P.S., Yale, 1951), William Henniger McBeath (M.D., M.P.H., Michigan, 1964), Michael J. McNamara (M.D., New York University, 1955), Ann Elaine Pressman (M.D., New York, 1960), Jesse W. Tapp, Jr. (M.D., M.P.H., Chicago, 1955), Keene Arnold Watson (M.D., M.P.H., D.M.T., Dr. P.H., University of California, 1964), Richard D. Wittrup (M.A., Chicago, 1955). *Instructor:* Herman R. Huempfner (M.S.D., University of Frankfurt, 1950).

The Department of Community Medicine, like others in the College of Medicine, has wide teaching, research, and service responsibilities. In teaching, the broad objective is to prepare the student to contribute effectively to the identification and solution of the health problems of a community.

More specific teaching objectives of the Department are:

(a) To provide the student with an understanding of the health problems and needs of the community and of the epidemiology of disease, i.e., the circumstances under which disease occurs.

(b) To help the student acquire the attitude of viewing individuals in their entirety as complex human beings in a complex and changing environment.

(c) To familiarize the student with existing community resources and organizations designed to meet these needs.

(d) To teach the student how medical care is organized, provided, and financed today, and to make him aware of the problems and trends in this area.

(e) To participate when appropriate in community health research programs.

The curriculum of the Department of Community Medicine includes lectures, seminars, demonstrations, observations and field assignments covering the concepts of health, the history of disease, biostatistics, vital statistics, epidemiology, preventive medicine, populations problems, community health resources, public health organization and concepts, organization and administration of health services, methods of financing medical care, and current trends in medical care.

The development of an effective teaching and a productive research and service program depends in part on the effective use of the local, state, national and international resources. Many of the community-centered investigations require the cooperation and active participation of local physicians, health departments, and other official and non-official agencies.

The program of the Department also includes an elective assignment for carefully selected senior students to undertake study, research, and service in the international health field.

Courses

221 *Community Medicine.* (3)

341 *Fourth Year Clerkship in Community Medicine.* (8)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

Conjoint Courses

A number of courses which have interdisciplinary implications are taught as Conjoint Courses. In such courses, a chairman is appointed from one of the major departments involved in teaching the interdisciplinary subject and he is assisted by a committee which is composed of members of the participating departments. The content, methods of teaching, and student evaluation are considered in conjoint planning by this committee and the pertinent sections of the material in the course are presented by the department which has the greatest interest and experience in the area under discussion.

Certain of the seminars and laboratory and clinical sessions are conducted by faculty members from several departments.

In this manner, certain fundamental courses—which are listed below for the first and second years—are taught in a way which facilitates the correlation of knowledge and techniques from their several sources.

Courses

Conjoint 112 *Human Growth and Development.* (4)

Conjoint 118 *Conjoint Sciences.* (2)

Conjoint 119 *Medical Genetics.* (1)

Conjoint 120 *Conjoint Systems.* (1)

Conjoint 212 *Human Growth and Development.* (4)

Conjoint 221 *Fundamentals of Microbiology and Infectious Diseases.* (6)

Conjoint 222 *Parasitic Diseases of Man.* (2)

Conjoint 224 *Introduction to Communication and Interviewing.* (1)

Conjoint 331 *Basic Clerkship, Adults.* (20)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

Conjoint 416 *The Nervous System.* (5)

MEDICINE

FACULTY

Professors: Edmund D. Pellegrino (M.D., New York University, 1944), CHAIRMAN; Harris Isbell (M.D., Tulane, 1934), William W. Winternitz (M.D., Johns Hopkins, 1945). *Associate Professors:* Jerome E. Cohn (M.D., Maryland, 1946), Wayne Gordon (M.D., University of Chicago, 1930), Paul Mandelstam (M.D., Harvard, 1950), Richardson K. Noback (M.D., Cornell, 1947), Kingsley M. Stevens (M.D., Harvard, 1947), Borys Surawicz (M.D., Stephan Batory, 1939), Joseph E. Warren (M.D., Harvard, 1938), William H. Waugh (M.D., Tufts, 1948). *Assistant Professors:* Albert Balows (Ph.D., Kentucky, 1952), Barbara Bates (M.D., Cornell, 1953), Francis H. Bledsoe (M.D., Medical College of South Carolina, 1953), Madison Cawein (M.D., Tulane, 1954), Joseph Hamburg (M.D., Hahnemann Medical College, 1951), Emma J. Lappat (M.D., Colorado, 1955), Lloyd D. Mayer (M.D., Louisville, 1944), Alberto Mazzoleni (M.D., University of Milan, 1952), Jack L. Mulligan (M.D., Louisville, 1952), Richard P. O'Neill (M.B., Bch., B.A.O., University College, Dublin, 1955), Nicholas J. Pisacano (M.D., Hahnemann, 1951), E. Douglas Rees (M.D., Yale, 1954), Leone Renn (M.S.W., Tulane, 1941), John T. Reeves (M.D., Pennsylvania, 1954), Robert Siegel (M.D., Columbia University, 1955), Katherine Sydnor (M.D., Cincinnati, 1949). *Instructors:* Robert M. Izard (M.D., Baylor, 1951), Leif O. Torkelson (M.D., Virginia, 1957). *Research Associate:* David F. Burkholder (Pharm. D., Michigan, 1962). *Research Associate and Guest Lecturer:* Henry Chlebus (M.D., Warsaw Medical Academy, 1952); *Teaching and Research Assistant:* Robert M. Biltz (B.S., Kentucky, 1956).

Internal medicine is the broadest of all clinical disciplines. Its objective is an integrative approach to the diseases of adult life whereby all aspects of the diagnosis, causation and total care of patients can be brought together. The courses in Medicine provide for the undergraduate student an introduction to the natural history of health and disease which is the basis for later practice or research in all branches of clinical medicine. Its major intellectual function is to communicate a comprehensive attitude of mind whereby the sick human can be approached in a logical, scientific and personalized manner. Its major tools are the correlation of the history, physical examination and the ancillary clinical data of X-ray and laboratory. It requires that all this information be focused for the benefit of the patient and be disciplined by the social and moral considerations implicit in the care of human beings. Its foundations are deep in the physical sciences and it draws heavily on the social and psychological sciences.

A preliminary introduction to these principles is provided in the first year in weekly correlation clinics which emphasize the integration of basic science information with clinical observations in the understanding of health and disease.

In the second year, the Department presents the course in medical diagnosis which introduces the student to the classical techniques of history taking and physical examination as first steps in the diagnostic process. The correlation of laboratory findings and of the principles of patho-physiology with clinical data are emphasized as fundamental for the modern clinician. A minimal number of didactic sessions is employed. Small group teaching on the wards and in the laboratory comprises the major method of instruction. A weekly tutorial session is arranged for each four students.

In the second year also, the Department contributes to teaching in the course on the introduction to communication theory and interview techniques.

The third-year experience centers in the adult portion of the basic clerkship in which the student assumes a role in the clinical activities of the Department. Here the emphasis is on observation and study of the manifestations of disease in individual patients, in whose care the student is participating. The basic clerkship is designed to teach an approach to meeting the totality of a patient's medical needs. A close correlation in bedside teaching between medicine, surgery and psychiatry is an essential feature. Progressive experience under supervision is provided. Teaching is rooted in the care of individual patients.

The senior clerkship in medicine consists, for the most part, in experience in small groups in the care of the ambulant and out patients. Some experience is provided in Dermatology and Neurology as well as in the subspecialties of medicine. Continued experience in the study and care of inpatients is carried out simultaneously with the emphasis on depth of understanding of the process and course of illness.

Elective experience in all the major specialties of medicine, in general medicine as well as in clinical and basic research, is available by arrangement with individual students. Additional familiarity with clinical problems is gained in third and fourth years by attendence at Grand Rounds, specialty rounds, clinio-pathological conferences and lectures.

Therapeutics is presented in a series of multidisciplinary sessions designed to elucidate practical and fundamental problems encountered in the management of specific disorders.

Courses

Conjoint 118 *Conjoint Sciences.* (2)

221 *Medical Diagnosis.* (8)

Conjoint 221 *Fundamentals of Microbiology and Infectious Diseases.* (6)

Conjoint 331 *Basic Clerkship, Adults.* (20)

334 *Therapeutics.* (2)

341 *Fourth Year Clerkship in Medicine.* (15)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

OBSTETRICS & GYNECOLOGY

FACULTY

Professor: John W. Greene, Jr. (M.D., Pennsylvania, 1952), CHAIRMAN. *Assistant Professors:* Philip Crossen (M.D., Washington University, 1954), John L. Duhring (M.D., Pennsylvania, 1959). *Instructors:* Edwin Dale (Ph.D., Iowa, 1960), Donald Edger (M.D., Cincinnati, 1955), Bernhardt L. Pederson (M.D., Michigan, 1959).

The Department of Obstetrics and Gynecology teaches the student to view the study of obstetrics and the diseases of women as an integral part of comprehensive medicine. No special field of Medicine is bound more closely to social, cultural and behavioral patterns of families than Obstetrics, Gynecology, while primarily concerned with diseases affecting the female genital tract, nevertheless, is most successfully practiced only when each patient is studied as a total human being with due regard for individual emotional problems and for family and other social forces which may have a bearing. This broad approach includes consideration of social, economic, mental, emotional, moral and physical effects which may result from changes in the reproductive system throughout women's entire life.

In the first two years the program presented by the department emphasizes the basic concepts of anatomy and physiology insofar as they are referrable to the female genital tract and its changes during the life span. The latter includes abnormal anatomical structure and physiological functions. Also in the pre-clinical years, the essentials of physical diagnosis which are peculiar to obstetrics and gynecology are presented.

In the third year the student is assigned to the Department for a three week clerkship. At this time he is expected to master the basic concepts and principles concerning the physiology of pregnancy, labor and delivery. This is achieved through intensive contact with patients in the prenatal and postnatal period as outpatients and during their hospitalization for labor and delivery. During the fourth years of the program the student is assigned in the department clerkship for six weeks. At this time he is expected to gain a working knowledge of pathology encountered in obstetrics and gynecology. This is achieved through study of the patient in the Outpatient Department and in the hospital in both of which the student is an integral part of the patient care team.

Two elective programs are offered. During the four years of medical school a student may elect to participate in the Department's research activities or initiate a project of his own in the broad field of reproductive physiology. It is desirable that work be initiated early in the medical school, and developed throughout the four years. The second elective is available to students during their final year of medical school after they have completed the course work. A three-month period of extensive contact with the clinical practice of the specialty is offered. During this period the student is able to broaden his experience in the specialty.

Courses

Conjoint 118 *Conjoint Sciences.* (2)

221 *Medical Diagnosis.* (8)

331 *Junior Clerkship, Obstetrics.* (3)

341 *Fourth Year Clerkship in Obstetrics and Gynecology.* (8)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

PATHOLOGY

FACULTY

Professors: Wellington Buel Stewart (M.D., Rochester, 1945), CHAIRMAN; Rudolph J. Muelling, Jr. (M.D., Louisiana State, 1950), Daniel L. Weiss (M.D., Colum-

bia, 1946). *Assistant Professors:* Harmon C. Bickley, Jr. (D.D.S., Michigan, 1959), Mary Frances James (M.S., Alabama, 1961), Edwin P. Jenevein (M.D., Louisiana, 1958), John Arthur Koepke (M.D., Wisconsin, 1956), Irene Roeckel (Dr.M.Sc., Heidelberg, 1948), Duane Tweeddale (M.D., Creighton, 1951).

The educational mission of the Department of Pathology embraces all four years of the medical curriculum; however, the largest single effort is made during the second year. This year provides considerable number of classroom hours for instruction by the Department. The major effort during this period is a systematic coverage of the body's response to injury and an introduction to disease processes and mechanisms. Instruction is by means of the tested and effective methods of demonstration, case study, and seminars, combined with laboratory work illustrating anatomical, physiological, and chemical abnormalities.

Emphasis is placed upon personal contact and small informal group teaching, which is accomplished to a major degree in the student laboratories.

Several electives are offered during the third and fourth years.

There are also many opportunities for instruction by the specially qualified members of the Division of Legal Medicine and Toxicology. This instruction includes basic legal principles, professional liability, the expert witness, medical licensure, narcotics, coroners and medical examiners' systems, forensic psychiatry, rape, toxicology, forensic pathology, etc.

Courses

Conjoint 222 *Parasitic Diseases of Man.* (2)

324 *Human Pathology* (for dental students). (4)

421 *Fundamental Human Pathology.* (4)

422 *Systemic Human Pathology.* (7)

425 *Human Pathology.* (13)

PEDIATRICS

FACULTY

Professor: Warren E. Wheeler (M.D., Harvard, 1933); CHAIRMAN. *Associate Professor:* Jacqueline A. Noonan (M.D., Vermont, 1954). *Assistant Professors:* John J. Boehm (M.D., Northwestern University, 1955), Robert W. Chamberlin, Jr. (M.D., Harvard, 1956), Phillip Holland (M.D., Louisville, 1954), Nancy H. Holland (M.D., Louisville, 1954), C. Charlton Mabry (M.D., Emory, 1954).

The major responsibility of the Department of Pediatrics in the preclinical years is to help the student develop an understanding of the influence of growth and development in the biology of the normal individual. In addition, the Department has a responsibility for the introduction of pediatric concepts into the teaching of the basic skills of medical diagnosis.

In the third year, the students spend one-third of their basic clerkship on the children's service. The majority of the clinical teaching of Pediatrics is done at this time utilizing both medical and surgical pediatric problems. The student's experience is both on the inpatient and outpatient service and in addition, includes a rotation through the newborn nursery. By participating in a combined team approach with the Departments of Pediatrics, Surgery and Psychiatry, the student has an opportunity to observe comprehensive care of each patient. The emphasis in the outpatient portion of the Pediatric Basic Clerkship is in providing training in the principles of preventive medicine and well-child care (including immunization procedures, nutrition, and an understanding of normal and abnormal physical and mental development.)

In the senior year, further experience in pediatrics is available as an elective. The opportunity is provided for a more intensive experience with increased patient responsibility in clinical pediatrics, in one of the pediatric specialties, or in an area of research related to children.

Courses

Conjoint 112 *Human Growth and Development.* (4)

Conjoint 224 *Introduction to Communication & Interviewing.* (1)

331 *Basic Clerkship, Children.* (20)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

PHARMACOLOGY

FACULTY

Professors: Tihamer Z. Csaky (M.D., Budapest, 1939), CHAIRMAN; Helmut A. Gordon (M.D., Budapest, 1932), Abraham Wikler (M.D., Long Island College of Medicine, 1935). *Assistant Professors:* Donald F. Diedrich (Ph.D., Wisconsin, 1959), James W. Flesher (Ph.D., Loyola, 1958), Donald E. Knapp (D.D.S., 1958, Ph.D., Michigan, 1962). *Research Associates:* Yasuhiro Hara (M.D., Kyushu University, Japan, 1957), Benjamin M. Rigor (M.D., University of the East, Ramon Magsaysay, 1962).

Pharmacology in general is a branch of science which embraces all studies concerning drugs, such as their composition, structure, physical and chemical properties, action, toxicity, therapeutic use and preparation. In a medical curriculum the teaching of Pharmacology concentrates primarily on Pharmacodynamics, which is the study of the interaction of drugs with living matter, or the effect of change in the chemical environment upon the organism.

In the two courses offered by the Department of Pharmacology in the College of Medicine, pharmacodynamic principles are emphasized. Lectures, conferences, laboratory demonstrations, and exercises dealing with topics such as the role of chemical structure and physico-chemical proper-

ties of drugs in the biological activity, metabolism, excretion and interactions with active cellular receptors; dose-response relationships and the action of drugs on cellular and subcellular levels are included. Furthermore, the pharmacodynamic properties of the various drugs frequently used in medical practice are discussed. In the laboratory, students familiarize themselves with research techniques utilized in the process of obtaining new knowledge.

The aim of the teaching activities of the Department of Pharmacology is to give students a basic understanding of the mode of action of drugs. This understanding should help those who will enter medical practice to use the rapidly increasing number of drugs in a rational and intelligent manner.

Courses

223 *Physiology and Biochemistry of Drug Action.* (4)

521 *General Pharmacodynamics.*
(1, for medical students)
(2, for graduate students)

522 *Medical Pharmacology.* (3)

541 *Biological Assay.* (2) I

555 *Gnotobiotic Methodology.* (2)

610 *Seminar in Pharmacology.* (1) I, II

621 *Advanced Pharmacodynamics.* (2) II

631 *Pharmacological Methodology.* (3) II

645 *Biological Membranes and Transport.* (1)

650 *Host-Contaminant Relationship.* (2)

653 *Advanced Neuropharmacology.* (4)

660 *Pharmacology of Steroids.* (4)

665 *Drug Receptor Interrelationship.* (1)

670 *Clinical Psychopharmacology.* (4)

671 *Integrative Psychopharmacology.* (4)

750 *Research in Pharmacology.* (1-5) I, II, S

768 *Residence Credit for Master's Degree.* (0) I, II, S
(1 to 9 weeks residence). May be repeated. Maximum of six weeks can be applied toward Master's degree.

769 *Residence Credit for Doctor's Degree.* (0) I, II, S
(1 to 18 weeks residence). May be repeated indefinitely.

PHYSIOLOGY AND BIOPHYSICS

FACULTY

Professors: Loren Daniel Carlson (Ph.D., Iowa, 1941), CHAIRMAN; Richard Sweetnam Allen (M.S., Rochester, 1925), James William Archdeacon (Ph.D., Rochester, 1943), Louis Lester Boyarsky (Ph.D., Chicago, 1948). *Associate Professors:* Jerome Elias Cohn (M.D., Maryland, 1946), Rene Menguy (M.D., University of Paris, France, 1951, Ph.D., Minnesota, 1957), Michael Friend Wilson (M.D., Pennsylvania, 1953), Fred William Zechman (Ph.D., Duke, 1956). *Assistant Professors:*

Joseph Engelberg (Ph.D., Pennsylvania, 1958), Henry Hirsch (Ph.D., Massachusetts Institute of Technology, 1960), Judith Dunlap Pratt (Ph.D., Duke, 1958), Robert Elphin Smith (Ph.D., Washington, 1962), David Robert Wekstein (Ph.D., Rochester, 1962), James Farrel Zolman (Ph.D., University of California, 1963).

The Department of Physiology and Biophysics in the Medical Center, in addition to instruction for medical, dental, and nursing students, offers courses at the undergraduate level and a graduate program leading to an M.S. or Ph.D. degree. The department is equipped with modern physiological and biophysical research equipment.

The course work in physiology for medical students is directed to the objectives, (1) presentation of basic facts of physiology and biophysics as they relate to human function and, (2) laboratory experience to give the student an appreciation of the manner in which facts are established and concepts formed. These objectives are accomplished by lectures, demonstrations, discussions, and project-type laboratories.

(For description of the curriculum leading to the M.S. and Ph.D. degree in Physiology, please consult the Graduate School Bulletin of the University of Kentucky.)

Courses

102 *Introduction to Physiology.* (3)
(University Community College only)

206,207 *Elementary Physiology.* (3) I, II, S

502,503 *Principles of Physiology.* (5) I

504 *Independent Work in Physiology.* (2-4) I, II, S

505,506 *Physiology of the Supporting System.* (4) II, S

507 *Introduction to Endocrinology.* (3) I, S

508,509 *Comparative Neurophysiology.* (4) I

511 *Medical Physiology.* (7) II

512,513 *Cellular Physiology.* (4) I, S

516 *Neurophysiology.* (2-3) II

602 *Physiological Instrumentation.* (5) II

604,605 *Experimental Endocrinology.* (2) II

606,607 *Advanced Neurophysiology.* (3) II

614 *Cellular Biophysics.* (4) I

620 *Theoretical Biophysics.* (4) I (alternate years)

660 *Systems Biophysics.* (4) II (alternate years)

768 *Residence Credit for the Master's Degree.* (0) I, II, S
(1 to 9 weeks, residence). May be repeated. Maximum of six weeks can be applied toward master's degree with thesis.

769 *Residence Credit for the Doctor's Degree.* (0) I, II, S
(1 to 18 weeks residence). May be repeated indefinitely.

774 *Graduate Seminar in Physiology.* (1) I, II, S

791 *Research in Physiology.* (3) I, II, S

PSYCHIATRY

FACULTY

Professors: Joseph B. Parker, Jr. (M.D., Tennessee, 1941), CHAIRMAN; Abraham Wikler (M.D., Long Island College of Medicine, 1935). *Associate Professors:* Joseph C. J. Finney (M.D., Harvard, 1949; Ph.D., Stanford, 1959), Hugh A. Storrow (M.D., Southern California, 1949). *Assistant Professors:* Robert G. Aug (M.D., Cincinnati, 1955), Carol B. Currier (Ph.D., Florida, 1963), William E. Bakewell, Jr. (M.D., McGill, 1949), Joan F. Dixon (Ph.D., Washington University, 1962), Roswell H. Fine (M.D., Wisconsin, 1948), David H. Looff (M.D., Maryland, 1954), Margaret Meyen (M.D., Erlangen, Germany, 1948), Frida G. Surawicz (M.D., University of Munich, Germany, 1943), James M. Whitehouse (Ph.D., Colorado, 1959). *Instructor:* Dale H. Farabee (M.D., Louisville, 1958).

The Department of Psychiatry participates in all four years of undergraduate teaching in the College of Medicine. During these four years, the medical student is offered the basic information required for him to practice medicine comprehensively in the community as a physician, by understanding his relationship to his patients and the impact of this relationship on his therapeutic procedures and the patient's responses. This is done by participating in conjoint courses and departmental courses which give the student an opportunity to understand the influences of human psychic processes and to recognize, evaluate, and diagnose emotional and psychiatric disorders, and to appreciate the impact of structural or functional defect and disease on the individual.

The student in his practical experiences is provided with knowledge and experiences with interviewing techniques, communication processes and responses, and psychotherapeutic techniques as part of the above objectives. He is given the opportunity to develop techniques that he as a future physician will find necessary to utilize in the practice of medicine, handling every-day emotional problems of patients, as well as the immediate treatment and disposition of psychiatric emergencies.

Courses

221 *Psychopathology of Behavior.* (3)
Prereq: Conjoint 112 and Conjoint 114.

331 *Psychiatric Clerkship.* (8)

RADIOLOGY

FACULTY

Professor: Harold Denis Rosenbaum (M.D., Harvard, 1944), CHAIRMAN. *Associate Professor:* Robert H. Green law (M.D., Rochester, 1952). *Assistant Professors:* Ernesto A. Fonts (M.D., Havana, 1947), Daniel J. Hanson (M.D., Vermont, 1958), H. M. Kwaan (M.D., University of Hong Kong, 1952), Arthur Lieber (M.D., Louisville, 1953). *Instructor:* John C. Calkins (Ph.D., Texas, 1963).

Every specialty in the practice of medicine utilizes the services of the Department of Radiology in at least one of its many aspects. Only an exceptional patient attends the Medical Center without receiving professional attention from radiology. Because of this, radiology, as a discipline of medical thought, cuts across standard departmental barriers. Consequently, the radiologist is intimately involved in all phases of comprehensive medical care: prevention, diagnosis, and treatment. Since the medical student, regardless of the type of his future practice, will require the services of radiology in the care of his patients, the undergraduate curriculum must provide sufficient time for presentation of the fundamentals of radiology with particular emphasis on the proper utilization of radiology in comprehensive medical care.

By its nature, the practice of radiology, in large part, involves cooperation with other specialties in patient management. Consequently, it is appropriate that much of the material in this field be presented in conjunction with courses formalized in other departments.

The subject matter of some aspects of radiology is sufficiently distinctive and important to warrant a formal independent course. Such is the case with Radiobiology which is being offered as a scheduled subject during the first year. A separate course in clinical diagnostic radiology is required even in the clinical years and an elective in radiology is offered during the fourth year. The elective course is tailored to the students' needs and may embrace any aspect of radiology. Roentgen therapy, as an essential component to the student's knowledge of malignant diseases and their management, is taught in the conjoint discipline of oncology during the clinical years.

In all teaching procedures, including lectures, stress is placed on demonstrating to the student how he can use the knowledge of health and disease he has obtained in previous courses to predict or explain the phenomena revealed in radiology. The student is encouraged to think in terms of an investigative approach to problems that arise.

Courses

111 *Radiobiology.* (1)

334 *Radiology.* (2)

Conjoint 345 *Fourth Year Elective for Medical Students.* (14)

SURGERY

FACULTY

Professors: Ben Eiseman (M.D., Harvard, 1943), CHAIRMAN; Thomas D. Brower (M.D., Washington, 1947), Rene Menguy (M.D., Paris, 1951, Ph.D., Minnesota, 1957), Edward H. Ray, Sr. (M.D., Tulane, 1947), Frank Cole Spencer (M.D., Vanderbilt, 1947). *Associate Professor:* Benjamin F. Rush, Jr. (M.D., Yale, 1948). *Assistant Professors:* Lester Bryant (M.D., Cincinnati, 1955), William Mallette (M.D., Washington, 1953), Charles Wilson (M.D., Tulane, 1954). *Instructors:* Horace A. Norrell (M.D., Tulane, 1958), Don C. Pearl (M.D., Harvard, 1958), Paul M. Weeks (M.D., North Carolina, 1958), Francis Wells (M.D., Louisville, 1954).

The Department of Surgery consists of the above listed full-time faculty plus 61 faculty members from among the practicing surgeons in the community who participate fully in the medical student, intern and resident teaching programs. A major effort is now in progress toward choosing full-time chairmen for the divisions of Orthopedics, Opthalmology, and Otolaryngology.

The Department of Surgery is responsible for teaching medical students an understanding of those diseases that are best treated or investigated by operative means. As a part of such instruction, the medical student is taught the nature, value, limitations, and impact on the patient of the operative means employed. Instruction in actual operative techniques is minimized. The early treatment of trauma is one exception to this thesis, for it is felt that every medical student should be capable of the early treatment of the injured.

PROGRAM

First Year: Active participation in conjoint teaching, particularly in Anatomy and Physiology. A joint Physiology-Surgery laboratory teaching program has proven of great interest in correlating surgical methods in the more complex physiology laboratory experiments.

Second Year: Principles of Surgery—an elective course in second semester. Lecture-discussions, outside reading assignments, and simple surgical laboratory exercises.

A series of lectures are anticipated as an introduction to Surgery during the last semester of the sophomore year, designed to give the student an understanding of the general principles of surgery .

Third Year: During the junior year, each student spends six months on a basic clerkship, one-half devoted to adults, the other half to disease within the pediatric age group. The Department of Surgery shares equal responsibility with the Department of Medicine during the former, and the Department of Pediatrics in the latter three month rotations. Each student is responsible for the work-up of approximately five new patients per week during the period he is on the Surgical rotation. Major emphasis is placed on experience in general surgery with less emphasis on the surgical specialties. Didactic teaching is minimized in favor of small ward rounds with members of the Surgical faculty and participation with the interns and residents in patient care, both at the University Hospital and at the Veterans Hospital. During the Pediatric-Surgical rotation, experience at the Shrine Hospital affords additional experience in Pediatric Orthopedics.

Fourth Year: A three month rotation on Surgery includes ten-day "block" or full-time assignments largely in the Surgical specialties. During these rotations, the aim is not to produce accomplished clinical specialists, but to give each student, regardless of his ultimate clinical or pre-clinical interest, an appreciation of the clinical diagnostic methods used and the therapeutic potential of Surgical specialties. Emphasis is also placed on special diagnostic techniques and on the ability to manage the early treatment of injuries within each specialty area. A ten-day rotation through the Emergency Room and a similar Surgical elective period are included.

Electives: Throughout the years students are urged to pursue surgical electives either in the Surgical research laboratories or in the clinical areas, where additional exposure to general surgery or one of the specialties in desired. A six-week period is thus available during the junior year, and ten-weeks as a senior.

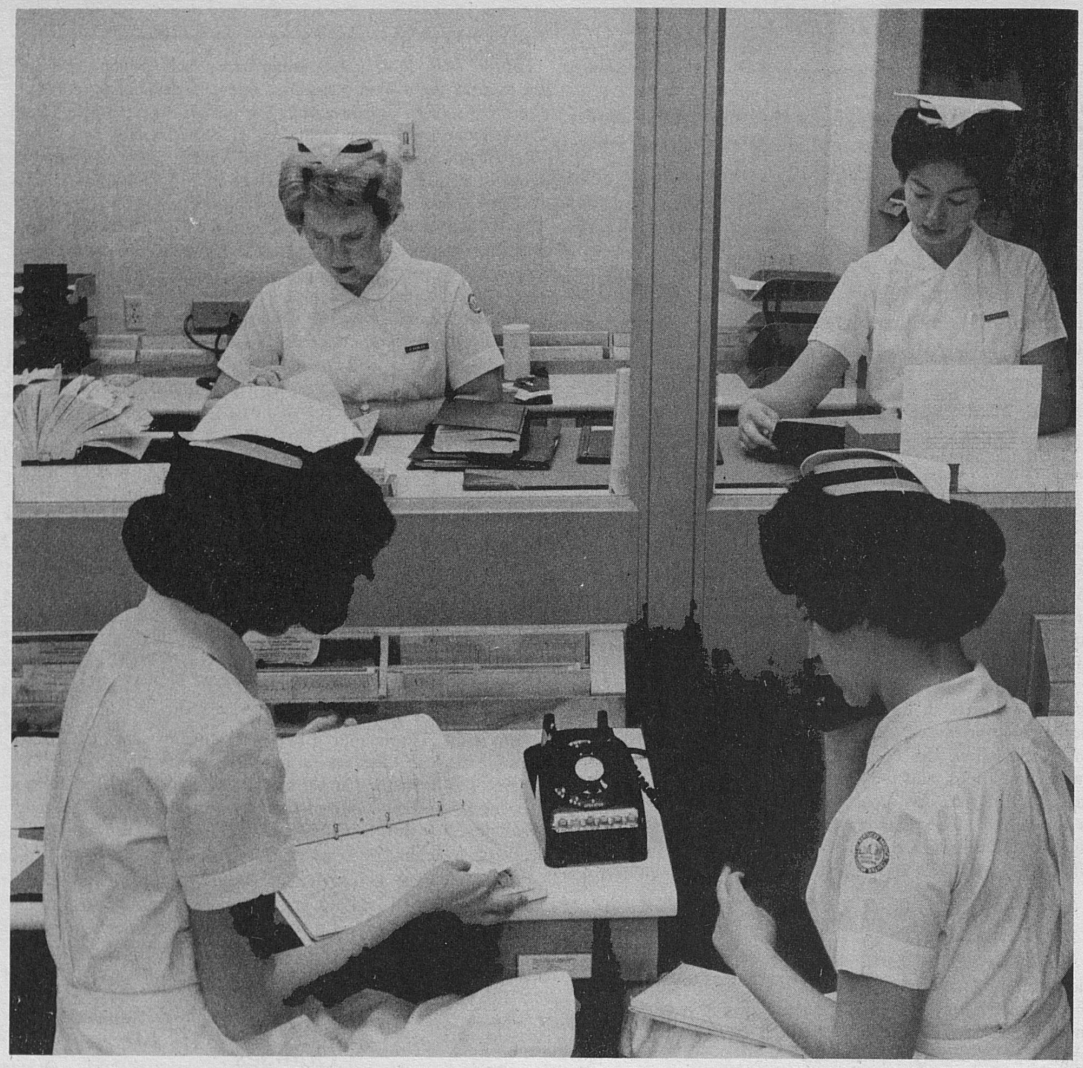
It is felt that every student, regardless of his ultimate goal, be it general practice, psychiatry, or a surgical specialty, should be exposed to a surgical program thus oriented, since such a large segment of disease is best treated by operative means.

Courses

Conjoint 331 *Basic Clerkship, Adults.* (20)

341 *Fourth Year Clerkship in Surgery.* (15)

Conjoint 345 *Fourth Year Clerkship for Medical Student.* (14)



Nursing

FACULTY

Professor: Marcia A. Dake (Ed.D., Columbia, 1958), DEAN. *Associate Professors:* May M. Sanders (Ed.D., Columbia, 1961), Assistant Dean, M. Sue Kern (M.N.A., Minnesota, 1956), Anna Virginia Lane (M.A., Chicago, 1951), Katherine C. Lutes (M.S., Maryland, 1958), Mae McPhetridge (M.A., Columbia, 1956), Margaret Todt (M.P.H., North Carolina, 1963), F. Grace Wallace (M.A., Columbia, 1955). *Assistant Professors:* Charlotte C. Denny (M.A., Kentucky, 1959), Greta I. Fraser (M.A., Colorado, 1960), Lois Merrill (M.S., Colorado, 1960), Mary F. O'Neill (M.A., Chicago, 1959), Muriel A. Poulin (M.S., Colorado, 1958), Judith D. Pratt (Ph.D., Duke, 1958). *Instructors:* Ruth Bishop (M.A., Columbia, 1962), Mary C. Dowe (M.A., Emory, 1961), Barbara Fox (M.A., Western Reserve, 1963), Anna E. Groff (M.S., Colorado, 1963), Alva Hardin (M.A., Emory, 1960), Jerry L. Hargadine (M.A., Cincinnati, 1963), Ella K. Harmon (M.P.H., Minnesota, 1963), Jane Heaton (M.A., Pittsburgh, 1957), Elizabeth Hellebusch (B.S., Nazareth, 1957), D. Lamar Jacks (B.A., Memphis State, 1956), Louise Jimm (M.S., Western Reserve, 1959), Reta Lubitz (M.S., Emory, 1963), Beverly McDermott (B.S.N., Keuka, 1959), Mary Lou Powell (M.A., Carver, 1962), Betty Tillery (M.S., Emory, 1963), Ann L. Wolfe (M.S., Colorado, 1964), Suzanne Zachary (B.S., Pennsylvania, 1960).

ASSOCIATE DEGREE NURSING EDUCATION

Coordinator—Marie Pickarski (M.S., Pennsylvania, 1957).

Henderson Community College—Dolores Higgins (M.A., Columbia, 1955), Administrator. *Instructors:* Virginia L. Chambliss (M.S., Indiana, 1959), Ruthann Lynch (M.S., Columbia, 1963).

Northern Community College—Virginia L. Bryan (M.A., Columbia, 1961), Administrator. *Instructors:* Nancy Segal (M.S., Boston University, 1964), Mary S. Sweeney (B.S.N., St. Louis, 1958).

Marcia A. Dake, M.A., Ed.D., is Dean of the College of Nursing.

THE COLLEGE OF NURSING, a unit of the University Medical Center, admitted its first class of students in September, 1960. The College grants the degree Bachelor of Science in Nursing to students who successfully complete its prescribed program. Graduates of approved schools of nursing who are licensed as registered professional nurses may qualify for this degree by successfully completing the requirements not fulfilled by previous education.

ACCREDITATION

The baccalaureate curriculum offered by the College of Nursing is approved by the Kentucky Board of Nursing Education and Nurse Registration. An accrediting survey by the National League for Nursing, the professional accrediting organization for schools of nursing, has been scheduled. The general accreditation of the University applies, of course, to all academic courses required by the College of Nursing.

PHILOSOPHY

The aims of baccalaureate education in nursing are to stimulate students to do analytical and deductive thinking, to seek further learning on their own, to deepen their understanding of themselves and other people, and to make individual personal and professional judgments through the synthesis of knowledge gained from liberal arts, basic and applied sciences, and nursing. A broad educational background is provided to assist students to prepare to assume responsibility as professional nurses and active citizens, and to increase their personal enjoyment of living. Graduates are able to rapidly develop a leadership role in the management of patient care which includes skills in planning, directing, evaluating, and in creating a climate which promotes effective and satisfying human relationships. They are able to function competently in a wide variety of settings and to work as constructive members of the health team with patients, families, personnel and community groups.

ADMISSION

Requirements: Requirements for admission to the College of Nursing are the same as those outlined for

the University; in addition, a course in physics is required.

Procedure for Admission: Application forms should be requested from the College of Nursing, preferably prior to the beginning of the senior year of high school. Students must be accepted for admission to the University before being considered by the College of Nursing. Rank in high school class, results of the American College Testing (ACT) examination, mental and physical health, and all available data are considered in the selection of students. Early submission of transcripts, application forms and ACT test scores is urged, since the number of students accepted for admission to the College is limited.

Registered Nurses: Registered nurses must meet all admission requirements of the College, including graduation from a state-approved School of Nursing and current licensure as a registered nurse. Transcripts of all completed college courses must be submitted.

Transfer students: Only in exceptional cases are students considered for admission after the beginning of the freshman year. In such cases, only those students who have completed all the prerequisites and have a cumulative grade point average of 2.5 or better are considered. Students desiring transfer should contact the Dean, College of Nursing, well in advance of the desired date of enrollment.

Interview: A personal interview with a member of the College of Nursing faculty is recommended for all applicants.

REQUIREMENTS FOR GRADUATION

The degree Bachelor of Science in Nursing is conferred upon students who successfully complete a minimum of 128 semester hours credit, exclusive of required physical education.

Curriculum

Approximately one half of the total program consists of general education courses which serve as a foundation for nursing. In the first year, courses in nursing include an introduction to the profession, and the legal and ethical principles involved. Beginning in the second year, nursing courses include laboratory experiences which provide opportunities to learn nursing in community agencies. Students obtain laboratory experiences locally in the Shriners Hospital, Central Baptist Hospital, St. Joseph Hospital, Veterans Administration Hospital, University Hospital, and the City of Lexington-Fayette County Health Department, under the direct supervision of College of Nursing faculty. Students completing the total program are qualified to write the state examination for licensure as registered professional nurses.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN NURSING

First Year

First Semester	Crs.
ENG 101—Freshman Composition	3
CHEM 102 or 110—College Chemistry	5
PSY 100—Introduction to Psychology	4
ENG 181—Basic Public Speaking	3
or MFL	
NUR 110—The Nursing Profession I	1
Physical Education	1
	16-17

Second Semester	Crs.
ENG 102—Freshman Composition	3
CHEM 104 or 112—College Chemistry	5
SOC 151—Introductory Sociology	3
ENG 161—Introduction to Literature or MFL	3
Elective	3
NUR 120	1
Physical Education	1
	16-19

Second Year

First Semester	Crs.
MB 200—Principles of Bacteriology	4
ANA 206—Elementary Anatomy	4
CON 212—(Conjoint) Human Growth and Development	4
NUR 210—Nursing I	4
	16

Second Semester	Crs.
HE 211—Foods and Nutrition	3
PGY 206—Elementary Physiology	3
BSC 221—Behavioral Science	3
NUR 220—Nursing II	7
	16

Third Year

First Semester	Crs.
NUR 310—Nursing III	10
PHI 200—Introduction to Philosophy	3
Elective	3
	16

Second Semester	Crs.
NUR 320—Nursing IV	10
Electives	6
	16

Fourth Year

First Semester	Crs.
NUR 330—Nursing V	11
Electives	6
	17

Second Semester	Crs.
NUR 344—Nursing VI	14
NUR 338—The Nursing Profession III	1
	15

Registered Nurse Student Nursing Courses:

NUR 316—Comprehensive Nursing	10
NUR 342—Community Health Science	2
NUR 326—Community Nursing	3
NUR 327—Community Nursing (Lab)	5
NUR 336—Leadership in Nursing	6
NUR 120—The Nursing Profession II	1
NUR 338—The Nursing Profession III	1

1. All electives must be approved by the faculty adviser.
2. Before being admitted to the second year, students must complete the first year requirements, remove all deficiencies and attain a cumulative grade point average of 2.5. College Algebra is required for students who score below the 50th percentile (College Bound Norms) numerical ACT. Physics 151, or its equivalent is required for students who did not take high school Physics; this is not credited to the 130 required credits for graduation.

Courses

106 *Basic Nursing.* (1) I
An introductory course designed to provide opportunities for the student to learn the basic knowledge, skill and concepts of nursing care which are common to all hospitalized patients. Not applicable to the Baccalaureate Nursing Program.

110 *The Nursing Profession I.* (1) I
Introduction to a profession: the purposes of a professional education, professional ethics, organizations, and legal implications.

120 *The Nursing Profession II.* (1) II
A continuation of Nursing 110 with emphasis on professional ethics and introduction to legal implications in nursing. Prereq: Registration in the College of Nursing or consent of instructor.

210 *Nursing I.* (4) I
A study of factors that influence individual, family, and community health. Focus on basic human needs with an introduction to the role of nursing and health agencies in meeting these needs on an individual, family, and community basis.

220 *Nursing II.* (7) II
Continuation of Nursing 210. Introduction to the hospitalized patient, focusing on nursing actions to meet the basic human needs of all age groups.

307 *Fundamentals of Administration.* (2)
Introduction to the basic principles of administration in leadership and management of a unit.

310 *Nursing III.* (10) I
The study of nursing in relation to the impact of selected health problems on the individual, family and community. Focuses on giving nursing care to people of varying ages in different settings based on understanding how health problems interfere with fulfillment of human needs and developmental tasks. Emphasizes the role of the nurse as a member of the health team in the promotion and/or restoration of health and prevention of illness.

316 *Comprehensive Nursing.* (10) I
Elements to be considered in planning and giving nursing care with application in the clinical setting.

320 *Nursing IV.* (10) II
Continuation of NUR 310. Prereq: NUR 210, 220, 310.

326 *Community Nursing.* (3) I
Principles, objectives and methods of nursing in community agencies. Prereq: Consent of instructor; concur: NUR 303.

327 *Community Nursing Laboratory.* (5)
Guided experience in the practice of comprehensive nursing with individuals and families in various community settings. Prereq: Consent of instructor; concur; NUR 302.

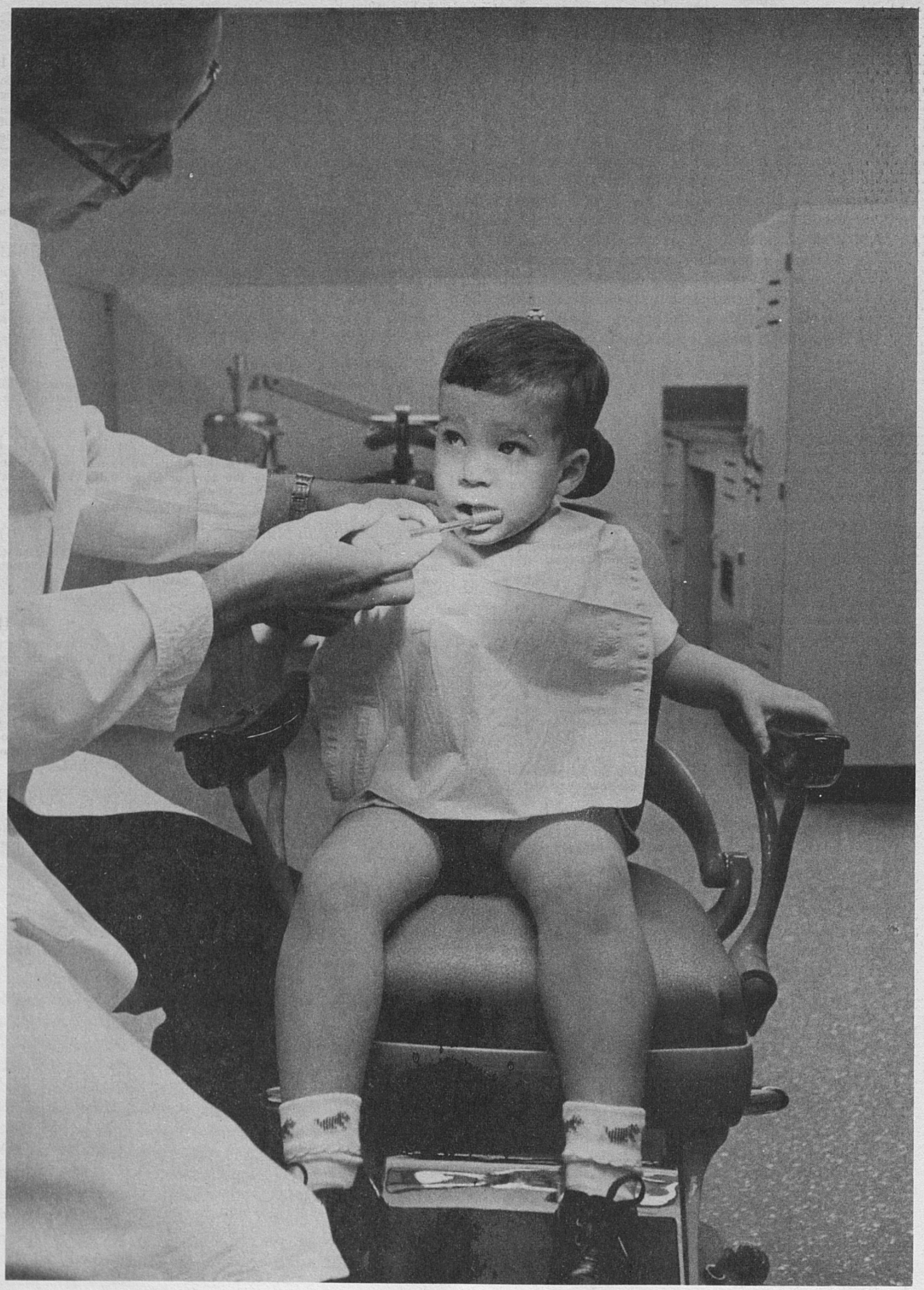
330 *Nursing V.* (11) I
Continuation of Nursing 320. Emphasis on application of concepts of comprehensive nursing in the care of individuals with physical and mental illness. Continued emphasis on the role of community agencies.

336 *Leadership in Nursing.* (6)
The professional nurse's responsibilities in directing nursing personnel in patient care. Course content includes principles of management, team nursing and legal aspects in patient care. Application of theory in the clinical setting.

338 *The Nursing Profession III.* (1) II
A continuation of NUR 110 and 120 with the focus on the graduate nurse: The privileges and responsibilities in participating in professional organizations; career opportunities; and legal rights and responsibilities.

342 *Community Health Science.* (2) I
Emphasizes community health science and its relation to the promotion of health in the community and the prevention and control of community health problems.

344 *Nursing VI.* (14) II
Emphasis on providing comprehensive nursing care, effectively utilizing material and personnel resources, and community services. Study of problems selected from concurrent laboratory experience plus selected health problems.



Dentistry

THE COLLEGE OF DENTISTRY at the University of Kentucky was authorized in 1954 by action of the Board of Trustees of the University. The physical facilities of the College of Dentistry were completed in 1961 and represent one wing of the new University Medical Center. Included in the Medical Center are the College of Medicine, College of Nursing and University Hospital.

The College of Dentistry admitted its first class in September of 1962. When in full development the school will admit approximately 50 students per year. In addition to the dental curriculum, the College also recognizes its responsibility for the training of auxiliary personnel.

The clinics of the College are designed so that each student is assigned to his own operating cubicle where he renders care to patients under conditions similar to those in a private office. He also contributes to the care of patients in the University Hospital. Other facilities of the Medical Center of importance to a student of Dentistry are the teaching laboratories in the Medical Science building and the excellent Medical Center Library.

AIMS AND OBJECTIVES

The major objective of the College of Dentistry is the development of biologically oriented, technically capable, socially sensitive dental practitioners who are keenly aware of the significance of their potential contribution to the total health of their patients. Thus, the educational philosophy of the College encompasses the concepts of integrated and comprehensive dental practice. Particular emphasis is placed upon the correlation between the technical phases of dental practice and the basic sciences. In addition to providing a thorough grounding in the principles and techniques of each major scientific and clinical subject, the curriculum stresses the relationship between dental problems and total patient health. The curriculum is so designed that each student is provided with ample opportunity for independent work in areas of special interest. Graduate and postgraduate education in the dental specialties will be an important facet of the expanding dental program. Opportunities are also available for those who wish to pursue special educational and research interests.

Alvin L. Morris, D.D.S., Ph.D., is Dean of the College of Dentistry.

FACULTY

DEAN: Alvin Leonard Morris (D.D.S., Michigan, 1951; Ph.D., Rochester, 1957).

COMMUNITY DENTISTRY

Associate Professor: Wesley O. Young (D.M.D., Oregon, 1947; M.P.H., Michigan, 1951), CHAIRMAN. *Instructor:* Sherwin Fishman (D.D.S., Michigan, 1956; M.P.H., 1964).

FIXED PROSTHODONTICS

Associate Professor: Harry C. Lundeen (D.D.S., Minnesota, 1952), CHAIRMAN. *Assistant Professor:* Arthur W. Aplin (D.M.D., Oregon, 1955, M.S.D., 1964). *Instructors:* William J. Carpenter (D.M.D., Louisville, 1949), Walter R. Teteruck (D.D.S., McGill University, 1961).

OPERATIVE DENTISTRY

Professors: Michael T. Romano (D.D.S., Temple, 1941), CHAIRMAN; Raymond C. Bard (Ph.D., Indiana, 1949). *Assistant Professor:* Donald E. Knapp (D.D.S., Michigan, 1958; Ph.D., 1962). *Instructors:* Warren E. Fischer (D.M.D., Louisville, 1952), Clair D. Reitz (D.D.S., Pennsylvania, 1955), Edward I. Scrivner, Jr. (D.M.D., Louisville, 1955), Robert M. Woods (D.D.S., Ohio State, 1960).

ORAL DIAGNOSIS AND ORAL MEDICINE

Professor: Alvin L. Morris (D.D.S., Michigan, 1951; Ph.D., Rochester, 1957). *Associate Professor:* Stephen F. Dachi (D.M.D., Oregon, 1956; M.S.D., Indiana,

1961), CHAIRMAN. *Assistant Professors:* Richard J. Burch (D.D.S., Washington, 1931), James W. Little (D.M.D., Oregon, 1958; M.S., 1963). *Instructors:* Richard C. Bartlett (D.M.D., Louisville, 1952), Charles L. Owsley (D.M.D., Louisville, 1962), William C. Reynolds (D.M.D., Louisville, 1954).

ORAL PATHOLOGY

Assistant Professors: Sheldon Rovin (D.D.S., Michigan, 1957; M.S., 1960), CHAIRMAN; Harmon C. Bickley, Jr. (D.D.S., Michigan, 1959; Ph.D., Rochester, 1963), Ernest R. Lalonde (D.D.S., Buffalo, 1962). *Instructor:* William John Begue (Ph.D., Minnesota, 1963).

ORAL SURGERY

Professor: Emmett R. Costich (D.D.S., Pennsylvania, 1945; Ph.D., Rochester, 1954), CHAIRMAN. *Assistant Professor:* Richard G. Topazian (D.D.S., McGill University, 1955). *Instructors:* Joe Wilson Daugherty (D.M.D., Louisville, 1951), William Caden Kranz (D.M.D., Louisville, 1951).

PEDODONTICS

Associate Professor: John R. Mink (D.D.S., Indiana, 1956; M.S.D., 1961), CHAIRMAN. *Assistant Professor:* Milton E. Gellin (D.D.S., Western Reserve, 1946). *Instructors:* Walter A. Doyle (D.D.S., Emory, 1959; M.S.D., Indiana, 1961), Robert Henry Spedding (D.D.S., Indiana, 1960; M.S.D., 1963).

PERIODONTICS AND ENDODONTICS

Professor: Harry M. Bohannan (D.M.D., Louisville, 1953; M.S.D., Pennsylvania, 1961), CHAIRMAN. *Associate Professors:* Ernest Hausmann (D.M.D., Harvard, 1956; Ph.D., Rochester, 1960), Clifford Ochsenbein (D.D.S., Baylor, 1945). *Assistant Professors:* Raymond G. Luebke (D.D.S., Michigan, 1951; M.S.D., Washington, 1964), Stanley R. Saxe (D.M.D., Harvard, 1958; M.S.D., Washington, 1960). *Instructors:* Donald K. Carman (D.M.D., Louisville, 1955), Robert K. Davis (D.D.S., Western Reserve, 1948), Andrew T. Polites (D.M.D., Louisville, 1955).

PROSTHODONTICS

Professor: Judson C. Hickey (D.D.S., Ohio State, 1950; M.Sc., 1955), CHAIRMAN. *Associate Professor:* William Ross Stromberg (D.D.S., Emory, 1938; M.S., Michigan, 1953). *Assistant Professors:* Davis Henderson (D.D.S., Northwestern, 1939), Paul J. Wehner (D.D.S., Marquette, 1944; M.S.D., Michigan, 1959). *Instructors:* Karl W. Lange (D.M.D., Louisville, 1960), Marvin R. Lutes (D.M.D., Louisville, 1949).

The basic science departments are Departments of the Colleges of Dentistry and Medicine. For the faculty listing see the section on College of Medicine.

Academic Preparation

In preparing for dental school, fundamental undergraduate college training in physics, chemistry, biology and English is essential. Minimal requirements are satisfied with the equivalent of two semesters of study in physics; two semesters in the biological sciences; three semesters in chemistry, including one semester of organic chemistry; and at least one year of English with emphasis on communication skills. All science courses must include both class and laboratory instruction. Advanced work in mathematics is highly recommended, as are courses in the humanities and behavioral sciences. Candidates who meet admission requirements and demonstrate excellence will be given equal consideration whether they major in one of the natural, social or behavioral sciences, or in the humanities.

The student should demonstrate his capacity for advanced work through the concentrated study of at least one subject in a major area of his interest by completing courses beyond the introductory level. Preferably, such courses should provide an opportunity for independent work. Subjects such as human anatomy, biochemistry, bacteriology and mammalian physiology will be covered in dental school and it is therefore suggested that they not be taken as part of pre-dental education. Undergraduate experience could more profitably include such courses as genetics and advanced chemistry. Courses which offer a better understanding of human behavior such as psychology and sociology can be recommended.

Admission

Applicants for the College of Dentistry are expected upon matriculation to have completed a minimum of two full academic years (60 semester hours) in an accredited college of arts and sciences. Applicants with this minimal college experience will be considered only if they present outstanding qualifications, indicating personal maturity as well as academic competence. Definite preference will be given to those students having completed three or four years of pre-dental education. Some colleges give credit for courses completed in the College of Dentistry, thus enabling three year applicants to qualify for the baccalaureate degree upon completion of the first year of professional education.

As a State-supported school, the College of Dentistry will give preference to qualified residents of Kentucky. A number of particularly well-qualified out-of-state candidates will be admitted each year, and are urged to apply.

For further information a bulletin entitled "How to Apply for Admission" is available from the Committee

on Dental College Admissions, Medical Center, Office of Student Services.

Courses

First Year

ANA 531, *Combined Gross and Neuroanatomy.* (6)

ANA 532, *Combined Histology and Embryology.* (4)

ANA 533, *Oral Histology.* (2)

BSC 310, *Concepts of Behavioral Science and Biostatistics.* (2)

Community Dentistry 310, *Practice Management.* (1)

Community Dentistry 311, *Dental Literature.* (1)

CDS 310, *Preventive Dentistry I.* (1)

CDS 311, *Dental Morphology.* (1)

CDS 312, *Principles of Occlusion.* (1)

CDS 313, *Preclinical Dental Physical Sciences.* (2)

CDS 314, *Dental Practice.* (3)

FPR 310, *Preclinical Fixed Prosthodontics.* (2)

OD 310, *Preclinical Operative Dentistry.* (4)

ODM 310, *Diagnosis.* (3)

PR 310, *Preclinical Removable Partial Prosthodontics.* (2)

Second Year

BCH 309, *Biochemistry for Dental Students.* (6)

CD 320, *History of Dentistry.* (0)

CDS 320, *Growth and Development.* (2)

CDS 321, *Anesthesiology.* (1)

CDS 322, *Occlusion-Development of Articular Patterns.* (2)

FPR 320, *Preclinical Fixed Prosthodontics.* (2)

OD 320, *Operative Dentistry.* (4)

ODM 320, *Oral Diagnosis and Oral Pathology.* (3)

OS 320, *Oral Surgery I.* (1)

PAT 324, *Human Pathology.* (4)

PDO 320, *Pedodontics I.* (2)

PEN 320, *Basic Peridontics.* (3)

PEN 325, *Endodontics I.* (2)

PGY 502,503, *Principles of Physiology.* (5)

PR 320, *Removable Partial Prosthodontics I.* (2)

PR 321, *Complete Denture Prosthodontics I.* (4)

Third Year

CD 330, *The Environment of Dental Practice.* (2)

CDS 330, *Preventive Dentistry II.* (1)

CDS 331, *Fundamentals of Microbiology and Infectious Diseases for Dental Students.* (4)

CDS 332, *Occlusion—Diagnosis and Treatment of Occlusal Disharmonies.* (1)

CDS 335, *Principles of Medicine and Pathology.* (5)

FPR 330, *Introduction to Esthetic Fixed Restorations.* (3)

OD 330, *Dental Practice (Operative).* (3)

ODM 330, *Clinical Oral Diagnosis.* (2)

OS 330, *Oral Surgery II.* (2)

ORT 330, *Introduction to Orthodontics.* (1)

PDO 330, *Pedodontics II.* (3)

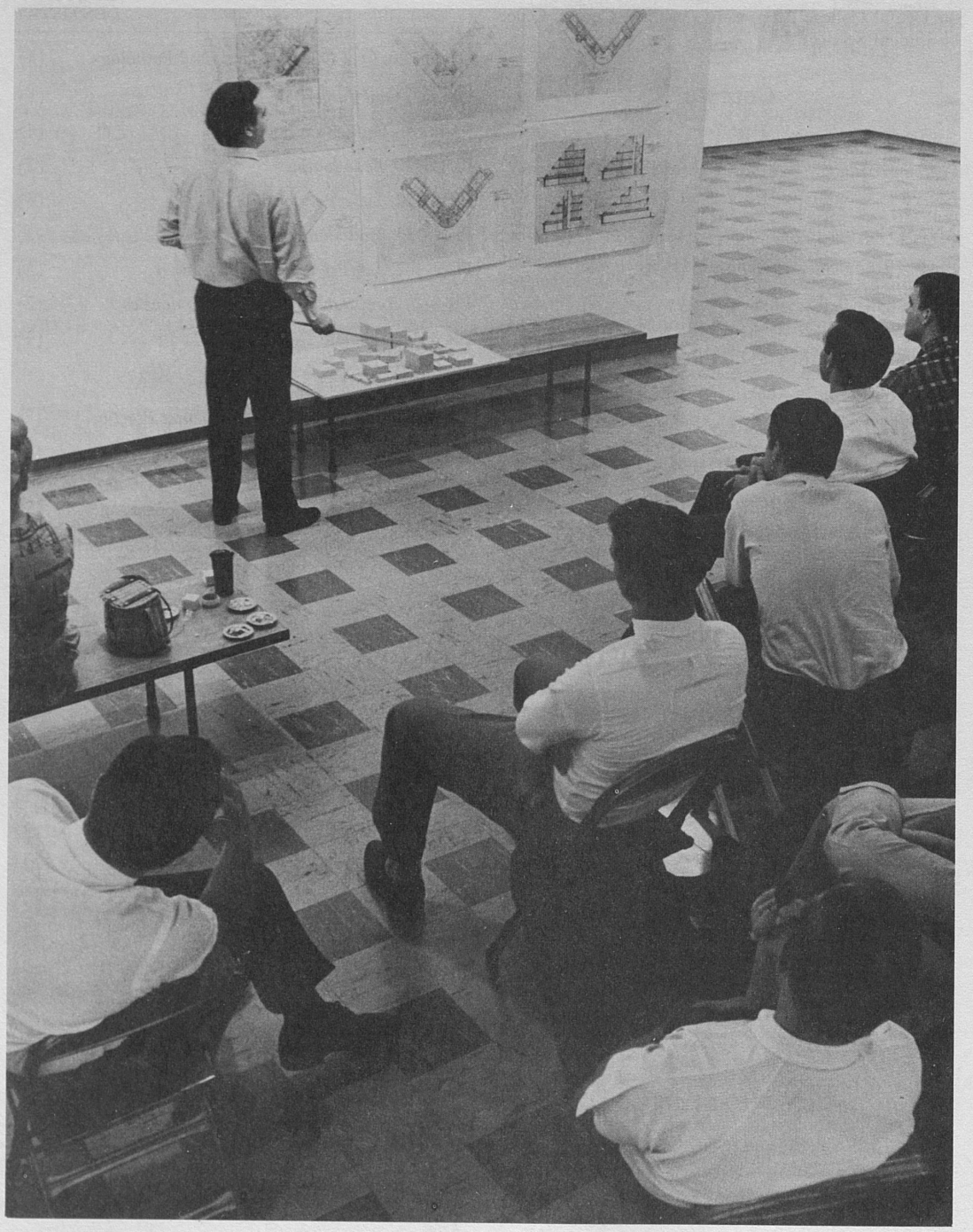
PEN 330, *Periodontics II.* (3)

PEN 335, *Endodontics II.* (2)

PHA 521, *General Pharmacodynamics.* (1)

PR 330, *Removable Partial Prosthodontics II.* (3)

PR 331, *Complete Denture Prosthodontics II.* (3)



Architecture

ARCHITECTURE is the art of creating spaces and structures which give shelter, form, and meaning to our environment. Since the beginning of civilization, architecture has been an expression and manifestation of humanity. It is the architecture of a people that ultimately remains as a testament of their spirit, their aspirations and their lives.

The traditional professional duties of the architect are to plan, design and supervise construction of buildings. In his practice, the architect must combine with his professional abilities the talents and skills of the artist, the engineer and the community planner. Today, the architect's responsibility is not limited to a single and isolated act of creation, but encompasses the achievement of the optimum physical environment for all activities of society, including not only individual buildings but also the total context of the neighborhood, city and region. Thus, it is necessary for the architect to attain knowledge and understanding of architecture, not only as a creative art, but also as an art reflecting human values, technological potentialities, and the diversity of society and its intellectual climate.

The objective of the School of Architecture and its curriculum is to promote the development of those qualities of professional skill, competence and social awareness which the architect must command if contemporary architecture is to be a valid and enduring expression of our society.

The Curriculum

A five year program in Architecture at the University of Kentucky was established in September, 1960, to meet the increasing need for professionally trained persons in the architectural profession and building industry of the Commonwealth of Kentucky and the nation.

The instructional program requires the successful completion of a minimum of ten semesters of work for the degree, Bachelor of Architecture. The program is dedicated to the provision of a foundation education in architecture upon which the graduate can build and expand his professional knowledge.

The central discipline of the program in Architecture is found in the sequence of courses in Architectural Design which is conceived as an inseparable unity of experiences, encompassing the skills, concepts and principles that the solution of contemporary problems in architecture demand. In the first years, the student receives a basic introduction to architecture, designed to encourage the development of creative thought, orderly vision and personal expression, and to provide him with the primary experiences, fundamental knowledge and technical skills with which he must encounter the problems of a more advanced nature in the later years. In the sequence of courses in Architectural Design, the student is exposed to a variety of experiences of increasing complexity incorporating in the last years, problems not only in architecture, but also in design of the total physical environment. In the final year of study, the student develops a thesis problem which is a terminal project of an independent nature, embracing all of his experience, knowledge and ability.

Concurrently augmenting and reinforcing the architectural design sequence are courses of a related and professional nature, including the areas of architectural practice, history and theory of architecture and planning, architectural construction, environmental controls, structural design and the fine arts. The student is encouraged to pursue other fields of knowledge which will develop an understanding of man and his world that will be vital and essential not only in his professional career but also in his role as a member of society; the curriculum is designed to permit the student to elect courses in the areas of the humanities and the sciences which are studied in parallel with the professional, technical and design courses, providing an educational experience of a broad and general nature.

Charles P. Graves, B.S., B.Arch., M.Arch., is Dean of the School of Architecture.

FACULTY

Professor: Charles P. Graves (M.Arch., Pennsylvania, 1957), DEAN. *Associate Professors:* Herbert Greene (B.Arch., Oklahoma, 1952), George W. Gunther (M.F.A., Indiana, 1950), John W. Hill (M.Arch.,

Pennsylvania, 1959), James P. Noffsinger (D.Arch., Catholic University of America, 1955). *Lecturers:* Clifford B. Slavin (B.Arch., Pennsylvania, 1953), Woodrow W. Wilkins (M.S. Arch., Columbia, 1953). *Instructors:* Clyde R. Carpenter (B.Arch., Pennsylvania, 1962), Sheldon F. Feinstein (M.S. Arch., Columbia, 1963), Herman C. Weber (M.S. Arch., Columbia, 1953). *Visiting Lecturers and Critics:* D. Lyle Aten (B.S.L.A., Illinois, 1951), Joseph H. Clark (M.L.A., Harvard, 1961, Certificate, Royal Academy, Copenhagen, 1962), Grady E. Clay, Jr. (M.S., Columbia, 1939, Neiman Fellow, Harvard, 1948), David P. Fogle (M.C.P., California, 1958), William A. Gray (M.Arch., Pennsylvania, 1949), James L. Leggett, Jr. (Ph.D., Purdue, 1953), J. Virgil Proctor (B.S., Kentucky, 1934), William H. Qualls (M.C.P., Georgia Institute of Technology, 1954), Donald Q. Wallace (B.S., Kentucky, 1959), Jasper D. Ward (B.Arch., Massachusetts Institute of Technology, 1948).

*FIVE-YEAR CURRICULUM LEADING TO THE PROFESSIONAL DEGREE OF BACHELOR OF ARCHITECTURE

Year I

First Semester	Crs.
ARC 001—The Architectural Profession	0
ENG 101—Freshman Composition	3
ARC 120—Architectural Graphics I	4
MA 110—College Algebra and Trigonometry	5
ANT 121—Introduction to Cultural Anthropology	3
—General Requirements	3
	18

Second Semester	Crs.
ARC 002—Architectural Profession	0
ENG 102—Freshman Composition	3
ARC 121—Architectural Graphics II	2
ARC 122—Basic Architecture	2
ARC 123—Architectural Descriptive Drawing	1
MA 113—Analytics & Calculus I	4
SOC 152—Modern Social Problems	3
—General Requirements	3
	18

The Elective Credits of the first and second years may be used for the purpose of taking Physical Education and Basic Military Science if the student so desires.

Year II

First Semester	Crs.
ARC 003—The Architectural Profession	0
ARC 210—Architectural Studio I	4
ARC 220—Materials & Construction	2
MA 211—Analytics & Calculus II	4
PHY 211—General Elementary Physics	5
ART 110—Beginning Drawing & Painting	2
	17

Second Semester	Crs.
ARC 004—The Architectural Profession	0
ARC 211—Architectural Studio II	4
ARC 221—Materials & Construction	2
ARC 361—Structures I	3
PHY 213—General Elementary Physics	5
ART 210—Intermediate Drawing & Painting	2
—General Requirements	2
	18

Year III

First Semester	Crs.
ARC 005—The Architectural Profession	0
ARC 330—Architectural Studio III	4
ARC 332—Theory & History of Architecture I	3
ME 401—Mechanical & Electric Equipment for Buildings	2
ARC 362—Structures II	3
ART 236—Beginning Sculpture	2
—General Requirements	3
	17

Second Semester	Crs.
ARC 006—The Architectural Profession	0
ARC 331—Architectural Studio IV	4
ARC 333—Theory & History of Architecture II	3
ME 402—Mechanical & Electric Equipment for Buildings	2
ARC 363—Structures III	3
ART 310—Intermediate Drawing & Painting	3
—General Requirements	3
	18

Year IV

First Semester	Crs.
ARC 007—The Architectural Profession	0
ARC 340—Architectural Studio V	5
ARC 342—Theory & History of Architecture III	3
ARC 345—Planning I	2
ARC 364—Structures IV	3
—General Requirements	5
	18

Second Semester	Crs.
ARC 008—The Architectural Profession	0
ARC 341—Architectural Studio VI	5
ARC 343—Theory & History of Architecture IV	3
ARC 347—Planning II	2
ARC 365—Structures V	3
—General Requirements	5
	18

Year V

First Semester	Crs.
ARC 350—Architectural Studio VII	6
ARC 351—Thesis Research	1
ARC 353—Theory of Architecture V	2
ARC 356—Professional Practice I	2
ARC 366—Structures VI	3
ARC 371—Seminar	1
—General Requirements	3
	18

* The five-year curriculum in Architecture is a requirement of the National Architectural Accrediting Board.

Second Semester	Crs.
ARC 352—Thesis	10
ARC 357—Professional Practice II	2
—General Requirements	6
	18

CREDITS REQUIRED FOR BACHELOR OF ARCHITECTURE DEGREE

Professional and Related	145
General Requirements (including Military and Physical Education)	33
Total	178

1. All elective courses must have approval of Architecture.
2. A minimum of six credits will be take in humanities or social studies.
3. The remaining elective credits may be used for a "minor" of the student's choice, with approval of his advisor.
4. All students will be encouraged to obtain at least one summer's employment in the office of a registered architect and at least one summer's employment on a construction site.

THE FACULTY

The full-time faculty is assisted by visiting critics and visiting lecturers who are local practitioners. The faculty is well qualified by diverse experience and formal training, maintaining a vital and continued relationship with the profession through practice and research. Staff members from other disciplines on campus offer several courses in the program. An annual visiting guest lecturer program has been established to include persons in related fields as well as nationally known architects and professionals. Each year a visiting foreign lecturer is in residence to serve as critic in the advanced design studios and to offer lectures and seminars.

PHYSICAL FACILITY

The facilities of the School of Architecture include accommodations for the many studio-laboratory courses in the program, exhibition galleries, lecture rooms and a model shop. The Architecture Library is also housed in this building and is available for use by students and staff.

STUDENT ACTIVITIES, SCHOLARSHIPS AND PRIZES

A student chapter of the American Institute of Architects has been chartered at the University of Kentucky. This student professional society participates in the many programs of the school and sponsors other activities throughout the year, including a required annual field trip for advanced students. The society provides liaison with the state as well as regional and national societies of the profession and contact with other schools of architecture.

Several scholarships, awards, and prizes are presented each year to qualified students. Information on scholarships and scholarship applications may be obtained by writing the Dean of the School of Architecture.

SUMMER SESSION

Summer courses in Architectural Design are not generally offered. However, the student may enroll in other academic subjects. Each student is strongly urged to spend at least one summer in the employment of a general contractor on a construction job site, and to spend at least one summer in the employment of a registered architect prior to graduation. This experience will be especially beneficial during the academic training of the student and should be obtained early in the curriculum.

ADMISSION

The following admission requirements will become effective for the entering class of September 1966. Students entering the School of Architecture prior to that time will be required to meet these insofar as possible.

Beginning architectural students are generally accepted in the School of Architecture only for the fall semester of the academic year. Applicants may register in the school during the second semester for academic work but may enter the architectural program only during the first semester. In addition to meeting the general requirements for admission to the University of Kentucky, the applicant for admission to the School of Architecture should meet the following:

1) HIGH SCHOOL CREDITS

As a prerequisite to admission, the applicant should present the following high school credits:

- 4 units of English
- 2 units of Science (1 unit in physics and 1 unit in either chemistry, biology or botany)
- 3½ units of mathematics (2 units of algebra, ½ unit of plane geometry, ½ unit of solid geometry and ½ unit of trigonometry)
- 2 units of social studies
- 2 units of modern foreign language and/or Latin (in one language)
- ½ units of other academic subjects, for a minimum total of 15 units.

Students who enter the University without offering ½ unit of solid geometry will be required to complete this course as a prerequisite to admission to the School of Architecture.

2) ARCHITECTURAL APTITUDE TEST

As a prerequisite to admission, the applicant is required to take the Architectural Aptitude Test, prepared by the Educational Testing Service, Princeton, New Jersey, under the auspices of the American Institute of Architects and the American Collegiate Schools of Architecture. This series of tests will not prevent acceptance in the school, but includes investigation of the student's aptitude for spatial relations, sensitivity of visual phenomena, interest in architecture and productivity of ideas, all of which will be useful additions to the high school rank in class and overall average for the prediction of academic success in an architectural curriculum. The test must be taken prior to March 15, the final date for submitting applications for admission. The test will be given twice per year at a cost of $8.00 per examination. Information concerning the Architectural Aptitude Test and testing dates may be obtained from the University Testing Center, University of Kentucky.

3) PORTFOLIO OF DRAWINGS, PAINTINGS, OTHER WORK

As a prerequisite to admission, the applicant is required to submit to the Dean of the School of Architecture a portfolio of drawings and/or paintings and/or other work

which will demonstrate the imaginative capability and technical facility of the applicant. A brief written statement concerning the work submitted should be included in the portfolio, which will indicate the interest of the applicant in architecture as an area of study.

4) OTHER REQUIREMENTS

Students who are not prepared to enroll in the first regular mathematics course of the program are encouraged and strongly urged to complete all necessary preparation and requirements before entering the School of Architecture. All requirements of the first year program must be completed before the student will be granted admission to the second year program.

In addition, each applicant should visit the campus of the University for a personal interview.

New freshman students must have taken the Architectural Aptitude Test and have their application forms completed and in the Office of the Dean of Admissions by March 15. Transfer students should have their application forms completed and in the Office of the Dean of Admissions 30 days prior to the beginning of the term in which the student plans to enroll.

THE DEGREE OF BACHELOR OF ARCHITECTURE

No student enrolled in the School of Architecture as a regular student will be admitted as a candidate for the professional degree of Bachelor of Architecture (B.Arch.) until he has successfully completed the requirements of the first four years of the five-year curriculum. Upon completion of the requirements and approval of the faculty, the student will be eligible for the degree upon successful completion of an undergraduate thesis, and a minimum of 178 semester hours of courses with an academic standing of 2.0 or better.

Course Descriptions

001-002 *The Architectural Profession* (1st Year) (0) I, II

003-004 *The Architectural Profession* (2nd Year) (0) I, II

005-006 *The Architectural Profession* (3rd Year) (0) I, II

007-008 *The Architectural Profession* (4th Year) (0) I, II

Lectures, seminars and discussion by visiting professionals with emphasis on the student's future responsibilities to his profession, clients and community. *Staff.*

120 *Architectural Graphics I.* (4) I

A basic course for Architectural students encompassing the theoretical exploration of color, aesthetic judgment and physical phenomena of two and three dimensional representation and introducing the various media and techniques inherent in freehand graphical representation. Lecture: two hours, studio, six hours. *Gunther.*

121 *Architectural Graphics II.* (2) II

Freehand drawing for architectural students that will develop an individual approach and expression using such diverse materials as pencil, ink, paint, etc. Studio: six hours. Concurrent: ARC 122. *Gunther.*

122 *Basic Architecture.* (2) II

An introduction to basic problems of architecture: natural forces and primary shelter; cultural convention and architectural response; structure and geometry through individual and team studies of contemporary and historic architectural, site planning, and urban design archtypes. Lecture, seminar, independent reading. Student presentation of analysis and criticism of assigned research problems utilizing drawings and models. Lecture: one hour, studio: six hours. Prereq: ARC 120. *Hill.*

123 *Architectural Descriptive Drawings.* (1) II

Descriptive Drawing, projections, shades and shadows, perspective drawing. Lecture: one hour, studio: two hours. Concurrent: ARC 122. *Hill.*

210 *Architectural Studio I.* (5) I, II

Architectural problems dealing with simple space and structural requirements. Instruction by problem method on an individual critic-student basis followed throughout the entire studio sequence. Lecture, one hour; studio, twelve hours. Prereq: ARC 111. *Staff.*

211 *Architectural Studio II.* (4) I, II

A continuation of ARC 210. Residential and small building design. Studio, twelve hours. Prereq: ARC 210. *Staff.*

220 *Materials and Construction Methods.* (2) I

Materials of construction; their sources and characteristics manufacture, use and size classification, limitations, standards of fabrication. Lecture, one hour; studio, three hours. Concurrent: ARC 210.

221 *Materials and Construction Methods.* (2) II

A continuation of ARC 220. Methods of construction and choices of systems. Lecture, one hour; studio, three hours. Prereq: ARC 220.

222 *Building Construction* (3) I, II

Analysis of the architectural process, investigation of materials and construction methods. Individual and group case studies in the drawing studio. Designed for Engineering Majors. Lecture, two hours; studio, three hours. Prereq: CE 301 and Junior standing. *Gray.*

330 *Architectural Studio III.* (4) I, II

Architectural problems with emphasis on materials and detail in the design process. Studio, twelve hours. Prereq: ARC 211. *Staff.*

331 *Architectural Studio IV.* (4) I, II

A continuation of ARC 330 with additional emphasis on building design related to site. Studio, twelve hours. Prereq: ARC 330 and approval of instructor. *Staff.*

332 *Theory and History of Architecture I.* (3) I

A study of the development of architecture in relation to world culture with emphasis on aesthetics, principles and philosophies of design, structure, use of materials and the social and political backgrounds. Illustrated lectures, parallel reading, discussion, sketching and research. Pre-historic through Greek. Lecture, three hours. *Noffsinger.*

333 *Theory and History of Architecture II.* (3) II

A continuation of ARC 332. Roman through Gothic Architecture. Lecture, three hours. Prereq: ARC 332. *Noffsinger.*

340 *Architectural Studio V.* (5) I

Collaborative and individual projects in community planning and design. Studio, twelve hours. Prereq: ARC 331. *Staff.*

341 *Architectural Studio VI.* (5) II

Advanced architectural problems in design. Collaborative work with Civil and Mechanical Engineering students. Studio, twelve hours. Prereq: ARC 340. *Staff.*

342 *Theory and History of Architecture III.* (3) I

A continuation of ARC 333. Renaissance through 19th Century Revival Architecture. Lecture, three hours. Prereq: ARC 333. *Noffsinger.*

343 *Theory and History of Architecture IV.* (3) II

A continuation of ARC 342. Modern Architecture. Lecture, three hours. Prereq: ARC 342. *Noffsinger.*

345 *Planning I.* (2) I

Seminar in urban planning; redevelopment and rehabilitation. Research related to project in studio course. Seminar, four hours. Prereq: Concurrent with ARC 340. *Staff.*

347 *Planning II.* (2) II

The design of cities through history to present. A discussion of effect of each culture on form of city with emphasis toward future forms derived from present society. Seminar: four hours. Prereq: Approval of instructor.

350 *Architectural Studio VII.* (6) I, II

Comprehensive problems in architectural design. Studio, fifteen hours. Prereq: Successful completing of first four years of curriculum and approval of design faculty.

351 *Thesis Research.* (1) I, II

Research and analysis for undergraduate thesis project. Thesis topic to be submitted for approval of design faculty prior to entering course. Lecture, one hour. Prereq: approval of design faculty. *Staff.*

352 *Thesis.* (10) I, II

Independent undergraduate thesis. Credit on acceptance following visual, oral and written presentation. Studio, twenty-five hours. Prereq: ARC 351. *Staff.*

353 *Theory of Architecture V.* (2) I

A continuation of ARC 343. Seminar, four hours. Prereq: ARC 343 and approval of instructor.

356 *Professional Practice I.* (2) I

Office administration, specifications, cost estimating, contracts, legal problems, insurance and professional ethics. Lecture, two hours. Prereq: ARC 331. *Staff.*

357 *Professional Practice II.* (3) II

A continuation of ARC 356. Lecture, two hours. Prereq: ARC 356. *Staff.*

361 *Structures I.* (3) II

A unified study of the statics and dynamics of particles and rigid bodies: Newton's Laws, forces, couples, moments of areas and masses, shear and moment diagrams, impulse and momentum, work and energy. Lecture, recitation: three hours. Prereq: PHY 211 and MA 211 or being taken concurrently.

362 *Structures II.* (3) I

Mechanical properties of materials. Idealized materials versus true materials. Stresses and strains, combination of stresses and strains due to various loading conditions, experimental measurements of loads and strains. Members of ideal materials in torsion, bending and axial load—deflections and buckling. Energy considerations, stress concentrations, dynamic loads and fatique. Lecture, recitation: three hours. Prereq: ARC 361.

363 *Structures III.* (3) II

Simply supported beams of actual materials—stresses and deflections. Columns of actual materials—short term and long term behavior, buckling, safety. Connections in statically determinate structures. Design of simple statically determinate trusses and frames in common structural materials. Lecture, recitation: three hours. Prereq: ARC 362.

364 *Structures IV.* (3) I

Soils, foundations and retaining structures. Determination of loads, design criteria, codes. Design of an actual simple structure. Lecture, recitation: three hours. Prereq: ARC 363.

365 *Structures V.* (3) II

Continuous beams, rigid frames and arches of ideal materials elastic and plastic, influence lines. Continuous beams, rigid frames and arches of actual materials. Truss deflections. Connections for continuity. Code design of two-way reinforced concrete slabs. Lamella roofs and arch trusses. Lecture, recitation: three hours. Prereq: ARC 364.

366 *Structures VI.* (3) I

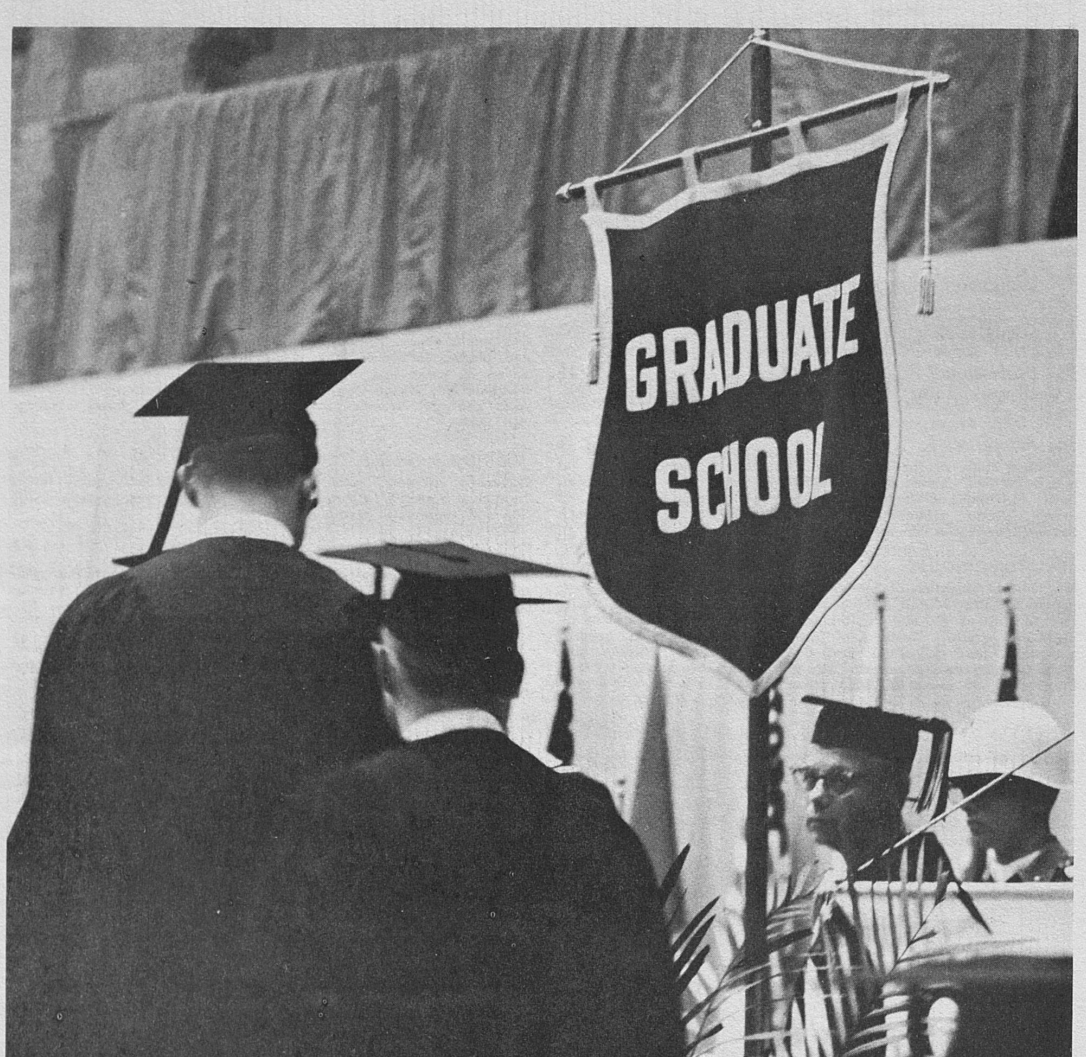
Advanced structural systems—irregular slabs, folded plates, shells. Individual research. Lecture, recitation: three hours. Prereq: ARC 365 and approval of instructor.

371 *Seminar.* (1) I

Design Seminar. A critical evaluation by each student of his principles and philosophy of Architecture. Seminar: two hours. Prereq: Approval of instructor.

432 *Seminar in Architectural History.* (2) I, II

A research seminar in special problems of architectural history and philosophy. Prereq: Approval of instructor.


GRADUATE
SCHOOL

Graduate School

THE UNIVERSITY OF KENTUCKY began offering graduate work in 1870, and awarding graduate degrees in 1876, although the Graduate School as a distinct unit was not organized until 1912.

The Graduate School is concerned with advanced study and research carried on by the faculty and students of all colleges and departments. Under it the total graduate resources of the University are merged in order to promote the achievement of knowledge in an atmosphere of free and lively inquiry.

Graduate work is offered in all colleges in the University.

The following advanced degrees are conferred:

MASTER OF ARTS
MASTER OF SCIENCE
MASTER OF SCIENCE IN AGRICULTURE
MASTER OF SCIENCE IN HOME ECONOMICS
MASTER OF SCIENCE IN AGRICULTURAL ENGINEERING
MASTER OF SCIENCE IN CIVIL ENGINEERING
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING
MASTER OF SCIENCE IN LIBRARY SCIENCE
MASTER OF SCIENCE IN MECHANICAL ENGINEERING
MASTER OF SCIENCE IN METALLURGICAL ENGINEERING
MASTER OF SCIENCE IN MINING ENGINEERING
MASTER OF SCIENCE IN NUCLEAR ENGINEERING
MASTER OF SCIENCE IN PUBLIC HEALTH
CHEMICAL ENGINEER (CH.E.)
CIVIL ENGINEER (C.E.)
ELECTRICAL ENGINEER (E.E.)
MECHANICAL ENGINEER (M.E.)
METALLURGICAL ENGINEER (MET.E.)
MINING ENGINEER (E.M.)
MASTER OF ARTS IN EDUCATION
MASTER OF SCIENCE IN EDUCATION
MASTER OF BUSINESS ADMINISTRATION
MASTER OF MUSIC
SPECIALIST IN EDUCATION
DOCTOR OF EDUCATION (ED.D.)
DOCTOR OF ENGINEERING (ENGR.D.)
DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is offered with major work in the following fields: Agricultural Economics, Anatomy, Animal Science, Biology, Biochemistry, Chemistry, Dairy Science, Diplomacy and International Commerce, Economics, Education, English, French, History, Mathematics, Microbiology, Pharmacology, Physics, Physiology and Biophysics, Political Science, Psychology, and in the combined fields of Sociology and Rural Sociology. Minor work may be carried in any department offering graduate courses.

Albert Dennis Kirwan, M.A., LL.B., Ph.D., is Dean of the Graduate School.

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 in the manner set forth below. 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 Faculty on such matters as require the approval of that body, and it may make recommendations on other matters to the President, or to other administrative officials. All rules affecting graduate work and the inauguration of new graduate majors must be approved by the Graduate Faculty.

New Graduate Faculty members may be proposed to the Dean of the Graduate School at any time by the college deans and department heads concerned, or in the case of persons not attached to a college faculty, by the Executive Vice-President 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 proposal.
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 and the Graduate Council have studied the credentials submitted in support of the proposed members.

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 Dean and His Office. The Dean of the Graduate School is charged with the administration of the policies adopted by the Graduate Faculty and the University Faculty relating to graduate studies. He presides over all meetings of the Graduate Faculty and calls meetings of this faculty whenever he thinks it advisable or whenever requested to do so by one fourth of the membership. He makes recommendations to the Graduate Faculty respecting the requirements for advanced degrees, the regulations necessary to insure a high standard of graduate work, the departments of colleges authorized to offer courses leading to graduate degrees, and all other aspects of the graduate program. He 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 is responsible for determining and certifying to the Registrar candidates who have fulfilled requirements for advanced degrees, and he reports annually to the President of the University on the work of the Graduate School ad its needs.

The President and the Dean of the Graduate School are members ex-officio of all committees of the Graduate Faculty.

The Graduate Council is composed of eleven members and the Dean of the Graduate School, who is chairman. There are eight elected representatives and three members appointed by the Dean of the Graduate School. One of the elected members is from the College of Agriculture and Home Economics, two from the College of Arts and Sciences, one from the College of Commerce, 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. The term of office of the elected and appointed members is three years, and no member may succeed himself until three years have elapsed since the completion of his 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 only 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 Study. A director of graduate study serves as advisor to each student majoring in his area until the student has a thesis director. The director of graduate study then recommends that this thesis director be appointed the student's advisor or committee chairman. In areas where these are not required, the director of graduate study is the advisor for all students not writing theses. All student classification schedules must be endorsed by the student's adviser.

If it is desirable, a director of graduate study may recommend that additional advisors in the area be appointed. A director of graduate study 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.

Directors of graduate study make annual reports to the Dean of the Graduate School on the progress and needs of graduate work in their areas in time to permit the Dean to use this information in his annual report to the President of the University.

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 Study for the various areas are recommended to the President of the University by the Dean of the Graduate School after he has conferred with the respective graduate staffs and college deans of the aeras concerned.

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 recommendations 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 Faculty.

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.

Admission

A student who is a graduate of a fully accredited institution of higher learning and has a grade-point standing of 2.5 on a basis of 4.0 may apply for admission to the Graduate School by submitting to the Dean of Admissions two official transcripts of his undergraduate courses and a written application at least a month before anticipated entrance. Application blanks may be obtained from the Dean of Admissions or from the office of the Graduate School. A student with a grade-point average of less than 2.5, or a graduate of a non-accredited institution, may be admitted only after entrance examinations and other evidence acceptable to the Department, the Dean of the Graduate School, and the Dean of Admissions indicate that he is capable of doing satisfactory graduate work. Individual departments may establish higher requirements.

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 desires. It may be necessary for him to demonstrate his ability to write accurate and effective English or he may have to satisfy certain prerequisites which he omitted in his 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 has a balanced undergraduate major or its equivalent.

Admission to the Graduate School by the Dean of Admissions entitles a student to take such courses as he desires, provided he has the necessary prerequisites. *However, admission does not automatically make a student a candidate for a graduate degree.*

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 of scholarship and character.

ADVANCED DEGREES FOR FACULTY MEMBERS

Members of the faculty of the University of Kentucky having a rank higher than that of instructor may not be considered as candidates for advanced degrees from this institution. They may take graduate courses, but these may not apply toward a degree from the University.

THE GRADUATE RECORD EXAMINATION

All students working for graduate degrees must take the Graduate Record Examination (the Area Tests, the Aptitude Test, and the Advanced Test in the major subject). This must be done no later than the first term of graduate work.

APPLICATION FOR FULL GRADUATE STANDING

A graduate student desiring to earn a graduate degree must be approved for full graduate standing by the department in which he intends to major and by the Graduate School. Application should be made as soon as scores on the Graduate Record Examination are available, and in any case prior to the beginning of the semester or term in which the degree is sought.

To be admitted to full graduate standing, a student (in addition to meeting the admission requirements) must have scores on the Graduate Record Examination satisfactory to the department concerned and to the Dean of the Graduate School, and a *B* average or higher on all graduate work completed at the University of Kentucky.

Graduate work taken before a student is admitted to full graduate standing will be evaluated by the Director of Graduate Study in the major area and by the Dean of the Graduate School at the time the application for full graduate standing is considered.

GRADUATING SENIORS AS PART-TIME GRADUATE STUDENTS

A senior in the University of Kentucky lacking no more than six credit hours for graduation and having an undergraduate average of at least 2.5 may register in the Graduate School with the consent of his college dean and the Dean of the Graduate School. Approval of the appropriate director of graduate study is required if the student is to be an applicant for a degree. The total load of such a student may not exceed twelve credit hours. The graduate residence assigned is one and one-half weeks for each credit hour of graduate work beyond the six or fewer credit hours needed to complete undergraduate requirements. The incidental fee is that of a full-time student in the school in which more than half of the work is taken. In cases where the load is evenly divided between the schools, the larger fee is assessed. Requirements for the undergraduate degree must be completed during the semester in which the student is allowed to register for part-time graduate work. Students desiring to enroll in the Graduate School under these conditions must fill out in duplicate a petition listing the course or courses to be taken in order to complete their undergraduate requirements. The petition must be approved by both deans concerned.

General Requirements for All Advanced Degrees

COURSES AND GRADES

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 graduate advisor or committee. Courses numbered 400 to 499 carry graduate credit for non-majors only. An over-all average of *B* on all work taken as a graduate student, as well as a *B* average on all work carrying graduate credit, must be attained before an advanced degree may be awarded. All work is to be counted and none of it may be omitted in computing the average except those grades in courses which do not give graduate credit may be omitted from a student's average by the Dean of the Graduate School on recommendation of the student's advisor. *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.

DROPPING OF COURSES

During the first ten 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 study, and the Dean. 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 be allowed to withdraw from a class within two 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 of graduate students 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 below
S—satisfactory	see explanation below

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 advisor 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.

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 advisor's approval of his proposed program.

STUDENT LOADS AND SHORT COURSES

The normal load of a graduate student during any semester is twelve credit hours, and under no circumstances may it exceed fifteen credit hours. In the summer session the normal load is six credit hours and the maximum nine. Graduate students serving in the University as assistants or part-time instructors should register for less than the normal load, as determined by their advisors. Persons holding full-time working or professional assignments, whether employed by the University or not, may not take for graduate credit toward a degree in any single semester or term more than 5 credit hours. A student may petition for a waiver of this rule if he 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; (3) and has appropriate employment facilities and conditions. Two short courses of 4 weeks or less, or two full-term courses and a short course, may not be taken simultaneously. A short course may not carry credit greater than the number of weeks during which it is offered.

"RESIDENCE" DEFINED

One of the requirements to be met by a candidate for an advanced degree is that of residence. Meeting this requirement does not, however, qualify a candidate for a degree. A longer time may be required to meet other requirements.

Full-time residence (18 weeks) requires a minimum of 9 credit hours of graduate course work, or the equivalent in thesis research during the regular academic term. In the summer session full-time residence (9 weeks) requires a minimum of 6 credit hours. Part-time residence is computed on the basis of one and one-half weeks of residence for each credit hour earned, except for short courses of less than eight weeks, in which case the number of residence credits may not exceed the actual number of weeks involved. If a full-time student becomes a part-time student by failing courses or dropping courses, he receives one and one-half weeks of residence per credit hour in courses completed with a satisfactory grade.

The summer school student is assigned full residence (9 weeks) provided he is taking courses which together require residence for the full eight weeks and provided he earns a minimum of six credit hours, whether in short courses alone or in a combination of short and full-term courses.

The Registrar makes the computations for short courses and recommends to the Graduate Office the amount of residence earned. The final evaluation of residence, as well as of course and other requirements, rests with the Dean of the Graduate School.

A master's candidate working on his thesis and in need of residence credit may register for a maximum of nine weeks of residence in course No. 768 in the appropriate department.

A doctoral candidate working on his thesis and in need of residence credit may register for course No. 769 in the appropriate department.

TIME LIMIT FOR DEGREES

No course or residence 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 degree unless such credit or residence is specifically validated by the Graduate Council on written recommendation of the appropriate director of graduate study. No course or residence credit may be validated in this manner if completed more than twelve years prior to the end of the semester in which the student expects to receive his 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. A student who is scheduled to receive his degree at the close of the academic year is expected to attend the commencement exercises unless he is excused in writing by the Dean of the Graduate School. Students who are eligible to receive degrees at the end of a first semester or a summer session may elect to defer their graduation and participate in the next commencement exercises. Appropriate academic costume must be worn. The graduation fee covers the cost of the diploma, the hood, and, in the case of the master's degree (with thesis), the binding of the thesis.

Students intending to graduate at the close of a given semester or term must make formal application (at the Graduate Office) for the degree within the first two weeks of the semester or term.

FEES

Registration fees per semester are $125 for residents of Kentucky, $310.00 for non-residents. Part-time graduate students who are legal residents of the state pay $15.00 per semester credit; non-residents pay $38.00 per semester credit. Students carrying full loads in the summer session pay approximately one-half the regular semester fee. Those taking less than full loads pay the regular semester credit fee. 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 Master's Degrees

TRANSFER OF CREDITS

With the approval of his graduate advisor, the dean, and the Registrar, a student may transfer up to six credit hours (but no residence) toward the satisfaction of the minimum requirements for masters' degrees, provided the work in question was taken while he was enrolled in residence in an approved graduate school.

EXTENSION AND CORRESPONDENCE WORK

Under certain conditions, up to six of the credit hours required for any master's degree may be earned in extension courses given in person by University of Kentucky instructors. No graduate credit is given for courses taken by correspondence.

M.A. OR M.S. DEGREE

Whether a candidate selects a Master of Arts or a Master of Science degree is left to the option of the candidate and his major department. In general it may be said that a candidate with major work in the natural sciences should take the M.S. degree; others the M.A.

COURSES AND CURRICULA

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

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

RESIDENCE

The minimum residence required for the M.A. and M.S. degrees is one academic year of 36 weeks. A portion of this residence may be earned in part-time work, but normally candidates for masters' degrees must spend at least two full summer terms or one semester in full-time residence at the University. For individual superior students the full-time residence requirement may be waived if recommended by the director of graduate study in the student's major area and approved by the Graduate Dean. Minimum eligibility for being so recommended includes: (1) the satisfactory completion of 12 credit hours of graduate work, (2) the attainment of national average scores on the Graduate Record Examination, and (3) the availability of employment facilities and conditions which make feasible satisfactory completion of degree requirements while the student is fully employed. A total graduate program may not be made up entirely of courses offered in short terms of 3 or 4 weeks each, and not more than one-third of the course work requirements for a degree may be taken in courses that meet only once a week.

This statement does not mean, however, that the work described for each individual can always be completed in the minimum length of time designated for the degree. Services performed as a graduate assistant or inadequate preparation for graduate work, for example, generally make a longer period of study necessary.

EXAMINATIONS

A final examination (oral and/or written) is given all candidates for masters' degrees not later than eight days before the close 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 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 study and appointed by the Dean of the Graduate School.

If the candidate fails his 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.

FEES

Before any master's degree may be conferred the student must pay a commencement fee of $22.50 at the Bursar's office.

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

The Graduate School authorizes all departments which are approved for graduate work and which wish to do so 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' degree (see above) 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 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 and Agriculture only one half of the work must be in the major area. When the setting up of major topics seems to require it, the Dean or (in unusual cases) the Graduate Council may, on recommendation of the appropriate director of graduate study, authorize courses taught outside the major to count on the major.

THESIS

Two typewritten, unbound copies of the thesis must be presented to the Graduate School Office not later than two weeks before the last day on which grades may be reported to the Registrar's office. These copies must be approved by

the thesis director and the appropriate director of graduate study, must be on 100 per cent rag or cotton fiber paper, and must be in a form acceptable to the Graduate School. Instructions for the preparation of theses should be obtained from the Graduate Office before the thesis is typed. The candidate must also submit an abstract of his thesis which does not exceed two hundred words and is suitable for publication. The final examination may not be taken before the thesis has been accepted by the Graduate School Office.

Theses must be developed under the direction of a member of the Graduate Faculty, except that in special cases the Graduate Dean may authorize a staff member not on the Graduate Faculty to serve as co-director. Collaborative group effort by two or more graduate students is not forbidden, but there must be enough independent effort to enable each student to make a separate contribution and to prepare an indivitdual thesis.

Each thesis must be acceptable to the examiing committee at the time of the final examination.

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.
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Foreign Language Requirement:

A reading knowledge of a modern foreign language is required. Ordinarily this language will be French, German, or Russian, but another language may be substituted if it can be shown to be pertinent to the student's program and is approved by the advisor and the Dean of the Graduate School. The language requirement must be satisfied by an examination given by the appropriate language department of the University or by such persons as the Graduate Dean may specify. A candidate for a degree in the language which is his native tongue must do a full minor (one third of his work) in areas in which English is the language employed.

Plan B

Plan B (which is not necessarily available in all departments that have Plan A) has the same minimum requirements as Plan A except that six or more credit hours of course work may be substituted for a thesis and that in some departments a reading knowledge of a foreign language may not be required. A student may follow this plan only with the approval of the department concerned.

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

Specialized Master's Degrees

Special requirements concerning the Master of Science in Agriculture, the Master of Science in Home Economics, the Master of Science in Library Science, the Master of Arts in Education, the Master of Science in Education, the Master of Science in Public Health, the Master of Music, the Master of Business Administration, and the Masters' Degrees in Engineering are explained in the section of this Bulletin which outlines departmental offerings.

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 thesis, passes a comprehensive examination on his 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 evidenced both by the student's grasp of subject matter and by his capacity to do research.

THE STUDENT'S ADVISOR AND SPECIAL COMMITTEE

The director of graduate study in the student's major area serves initially as the student's advisor and signs his schedule before it is presented to the Dean. When the thesis director has been chosen, the student's special committee is set up by the Dean after he has conferred with the student, the director of graduate study, and the thesis director.

The special committee consists of the thesis 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 may be admitted to the qualifying examination. The 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 one major area of study and no more than two minor areas, at least one of which must be outside the major area. The major area is one in which the student intends to concentrate his efforts.

The minor area(s) must be approved by the representative of the major area and by the Graduate Dean, and the subjects to be taken in the minor area(s) by the representative of the minor(s) on the special committee. Normally, at least one-sixth of a student's time should be devoted to an outside minor, but if the student appears already to have an adequate degree of proficiency in an acceptable area, he may, with the approval of his special committee (including the representative of the minor area), be permitted to proceed to this portion of his qualifying examination without taking additional course work.

RESIDENCE

A minimum of three collegiate years of resident graduate work is required for the doctorate. At least two semesters (exclusive of summer sessions) of the required residence above the master's degree (or its residence equivalent) must be earned at the University of Kentucky in full-time devotion to graduate study, or to a combination of graduate study, research, and not more than half-time assignment as a research or teaching assistant. "Residence equivalent" to the master's degree is interpreted as thirty-six weeks of official residence. The amount of residence to be transferred on account of prior graduate work at some other institution is determined jointly by the director of graduate study in the area, the Dean of Admissions, and the Dean of the Graduate School. Ordinarily, however, graduate students may be allowed only one year of residence toward the doctorate for earlier study which has been used to satisfy the requirements for a master's degree or masters' degrees.

A year of residence is required after the qualifying examination before the degree is conferred. If an examination is completed within the first six weeks of a semester, that semester will count as half of the year. If a student has passed his qualifying examination but has earned less than one year of residence after the qualifying examination, he may petition the Graduate Dean for a waiver of this requirement in order to complete his dissertation in absentia. Even if the petition is granted, however, a minimum of one academic year must elapse between the time of the qualifying examination and the conferring of the degree.

While it is expected that a well-prepared student of good ability may secure the degree upon completion of three years of full-time study, it should be understood that this requirement is a minimum and is wholly secondary to scholarly accomplishment.

LANGUAGE REQUIREMENTS

An applicant must have a reading knowledge of at least two modern foreign languages, normally to be chosen from French, German, and Russian. With the approval of the student's special committee, the director of graduate study in the area, and the Graduate Dean, however, certain substitutions may be made:

1. Some other language may be substituted for one of those normally required if it can be demonstrated that the student's scholarly needs will be better served thereby.
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 must have the special approval of his advisor and the Graduate Dean before registering for further work. The language requirement must be satisfied before the applicant may be admitted to the qualifying examination. Proficiency in foreign languages is determined by examinations conducted by the appropriate language department or by such persons as the Graduate Dean may suecify.

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 and should be taken during or after the student's fourth semester of full-time graduate study, or the equivalent. This examination is both written and oral and covers both the major and the minor areas. The special committee reports to the Dean the result of the examination. 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 six 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. This examination must be completed and the result reported to the Graduate Dean within sixty days of the beginning of the examination. A third examination may not be allowed.

THE THESIS

Each candidate must present a thesis which is the result of original research and adds to or otherwise modifies what was previously known on the subject. Unless the director of the thesis specifically recommends departures, the thesis must be in conformity with the instructions prepared by the Graduate School, must be on 100 per cent rag or cotton fiber paper, and must be satisfactory in style and composition.

Before the thesis is formally submitted, the student must bring it to the Graduate Office to have it checked for form. Two typewritten copies of the thesis (unbound) and two typewritten copies of an abstract, usually of not less than 400 words nor more than 600 words, must be presented to the Dean of the Graduate School at least two weeks before the final date on which the Registrar's Office will receive grades of candidates for degrees at the next commencement. An approval sheet signed by a majority of the special committee (including the director of the thesis) must accompany the thesis. When theses are submitted, a standard form containing RULES FOR THE USE OF THESES must be prepared and must be included with the manuscript, before the title page.

It is expected that every doctoral thesis will be worthy of publication either in its entirety in book form or as articles in the leading journals and periodicals of the field. The candidate is urged to make every reasonable effort to obtain such publication for his own sake and in the interest of the Graduate School, and is required to make a deposit of

$50.00 in order to guarantee publication. If within five years after the degree is received a substantial portion of his thesis has been published, the director of graduate study in his area may recommend that the deposit be refunded. Failing to meet the publication requirement, he will forfeit his deposit and the thesis will be microfilmed and copyrighted by the University in the name of the author. One positive microfilm copy will be deposited in the University Library and will be available for inter-library loan. Microfilm copies of theses may be purchased at cost. The abstract of each microfilmed thesis will be printed in an issue of Microfilm Abstracts (published by University Microfilms, Ann Arbor, Michigan).

THE FINAL EXAMINATION

After the acceptance of the thesis by the special committee and the Dean of the Graduate School, the candidate is given a final oral, or, if the examining committee elects, an oral and a written examination. The examining committee consists of a minimum of five persons, appointed by the Dean of the Graduate School, after he has conferred with the director of graduate study for the area. The director of graduate study (or his delegate) serves as chairman of the committee. Other members include the thesis 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 area. (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 thesis 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 will be recommended for the degree at the next commencement, provided one academic year has elapsed since the qualifying examination.

Before any doctor's degree may be conferred, a fee of $27.50 must be paid at the Bursar's office. The graduation fee covers the cost of the diploma and the hood.

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, at least one third and not more than one half of which must be in departments outside the College of Education.

Applicants for the Ed.D. degree, who are required to do at least one third of the minimum requirements outside of areas of the College of Education, must declare at least one area other than Education when their special committees are appointed. Two members must be chosen from areas outside the College of Education.

The Dean of Admissions, the Graduate Committee 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 fit into the graduate program of the student.

Requirements for the Degree of Specialist in Education

The degree of Specialist in Education is conferred upon a candidate who satisfactorily completes a sixth-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 graduate work, (3) meet the requirements for a teaching certificate or have credentials appropriate to his field of specialization, and (4) have at least 30 credit hours in courses in education (undergraduate and graduate).

A student must file an application with the Dean of the College of Education. The application will be considered by an admissions committee of the College of Education and each student must be recommended to the Graduate School by the division or department in which he plans to major.

PROGRAM

The student must earn a minimum of 24 credit hours of graduate work beyond the master's degree (of which at least 12 must be in courses numbered 600 or above) with a limit of 12 credit hours per semester for a full-time student, 6 credit hours per summer session, and 3 credit hours for a three-week intensive course.

The division or department in which the student majors is responsible for helping the student plan a program to meet his 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 3 but not to exceed 6 credit hours) and submit a written report, a copy of which is to be filed with the division or department directing the research.

With the approval of the Graduate Dean and of the division or department in which he is to major, the student may transfer a maximum of 6 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 advisor and the director of graduate study 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 major or minor subjects,

but 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 work with a view to obtaining a degree subsequently desire to become an applicant for a degree, the number of credit hours he is to receive for work already done will be determined at the time he applies for admission as applicant for the degree.

Research Program at Oak Ridge Institute of Nuclear Studies

The University is one of the Sponsoring Universities of the Oak Ridge Institute of Nuclear Studies located at Oak Ridge, Tennessee. Through this association, the University of Kentucky Graduate Research Program has at its disposal all of 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 Institute of Nuclear Studies, Box 117, Oak Ridge, Tennessee.

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, with 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.

Graduate School Fellowships

Kentucky Research Foundation Fellowships: The Kentucky Research Foundation supports several graduate fellowships of $1,800 to $2,400, each carrying with it waiver of out-of-state fees.

Haggin Fellowships: The Haggin fellowships, endowed by Margaret Voorhies Haggin in memory of her father, George Voorhies, carry a stipend ranging from $1,500 to $2,400, plus remission of out-of-state fees.

Both Haggin fellowships and Kentucky Research Foundation fellowships are open to all students who hold a bachelor's degree or higher from any college or university of recognized standing. All fellows are expected to devote their entire time to graduate work, and no teaching or other departmental work may be required of them; nor are they permitted to perform any duties for extra pay. The award is paid in nine equal monthly installments.

The Dr. Paul I. Murrill Memorial Scholarship: This scholarship was set up by Mrs. Paul I. Murrill in honor of her husband, who was a graduate of the University of Kentucky. It pays a variable stipend of approximately $2,500 a year to a student who possesses outstanding qualities of character and aptitude for fruitful graduate work. Preference shall be given to scholars in the field of Chemistry.

Forms for making application may be secured from the office of the Dean of the Graduate School and must be submitted not later than March 1 of each year.

Other Fellowships

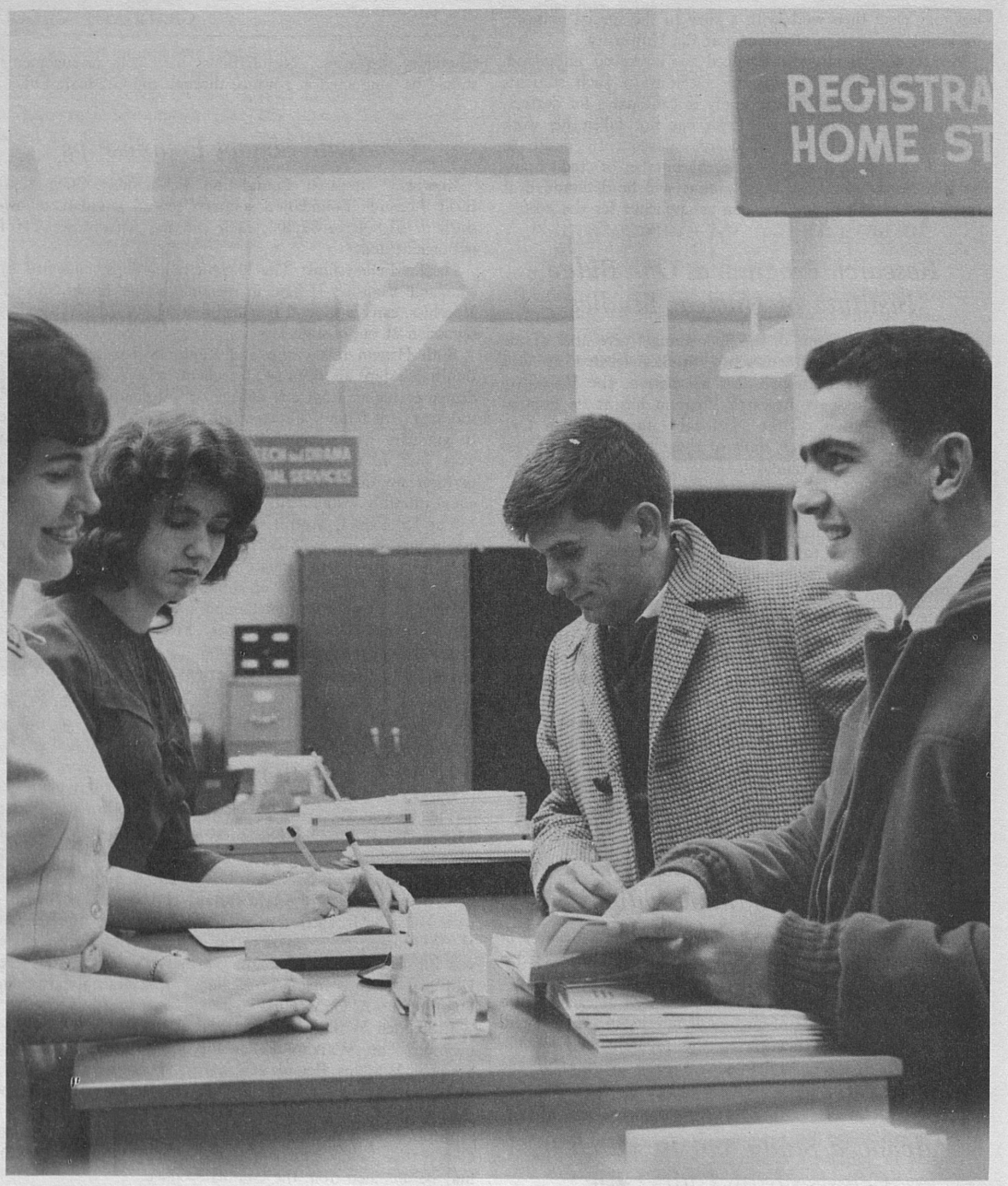
The George W. Pirtle Fellowship in Geology: A grant of $500 a year is given by George W. Pirtle to a graduate student in geology upon the recommendation of the faculty of the Department of Geology. The award is made upon the basis of need and promise of future achievement in the geological field. Mr. Pirtle has set up this grant in appreciation of the training he received in the Geology Department. He was the first student to obtain the master's degree from the University with a major in Geology. The grant is given in honor of Dr. A. C. McFarlan.

J. Stephen Watkins Foundation Fellowship for Civil Engineering: The Watkins Fellowship, contributed by the J. Stephen Watkins Foundation, carries a stipend of $2,400, plus remission of out-of-state fees, and will be offered every other year beginning in 1965.

Information concerning other fellowships (National Science Cooperative Fellowships, National Defense Fellowships, etc.) may be obtained from the Graduate Office.

Research and Teaching Assistantships

Most departments employ part-time teaching and research assistants at stipends ranging up to $3,000, plus waiver of out-of-state fees. Information concerning assistantships may be obtained from the various departments.


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University Extension

UNIVERSITY EXTENSION is the successor to the University of Kentucky Extended Programs, established in 1957. The Department of University Extension was organized in 1919, but was changed to the College of Adult and Extension Education in 1954. The present organization came into existence by act of the Board of Trustees in 1964. The basic purpose of University Extension is to extend the resources and facilities of the University by means of various services and programs.

Correspondence Study Program

Correspondence study, which was organized at the University of Kentucky in 1919, is one of the oldest methods of extension instruction of the University. It combines the essence of classroom work—guidance of a University instructor—with the advantage of individual instruction and the convenience of studying and learning at home. The program is primarily designed for students who wish to continue their formal education, but for various reasons do not find it practicable to do residence work or attend organized classes.

Correspondence courses cover essentially the same subject matter as the same or parallel courses offered to resident students on the campus. The student is brought in contact with the instructor for a course through a syllabus, supplementary reference materials, research assignments, and a final examination. Correspondence courses are prepared, assignments corrected and graded, and syllabi kept current by some of the outstanding faculty members of the University. The Correspondence Study Program encompasses curricular offerings in five of the ten colleges and in twenty different departments of the University. The high school program encompasses thirty-eight different courses in the subject areas of English, social studies, mathematics, commerce, foreign languages, history, health and psychology. With a few exceptions in the area of practical engineering, all courses are available for credit. A student, however, may pursue any course on a non-credit basis at his discretion.

R. D. Johnson, M.A., Ed.D., is Dean of University Extension.

Students must meet the enrollment requirements for a course, including any prerequisites specified for a particular course. An official transcript, however, is not required as a requisite to enrollment.

Some of the regulations governing Correspondence Study are as follows:

1. Not more than twenty-five percent or 32 semester hours of the requirements for a baccalaureate degree at the University of Kentucky may be earned by correspondence.
2. A student may enroll for a correspondence course any time during the calendar year.
3. A student has one year from the date of enrollment in which to finish a correspondence course.
4. Three-fourths of the total amount of credit required for the issuance of any certificate in Kentucky must be in residence credit.
5. A student in residence at the University of Kentucky must have the permission of his dean to register for a correspondence course.
6. Students who have been dropped by the University must be reinstated before they will be allowed to enroll for a correspondence course.
7. A student who has failed a course in residence at the University of Kentucky will not be permitted to repeat the course by correspondence without the permission of his dean.
8. The credit hours assigned to a correspondence course will be considered in determining the load of a resident student at the University of Kentucky. Credits earned by correspondence will be credited to the term in which the course is completed.
9. Graduate credit is not granted by the University of Kentucky for work taken by correspondence. Graduate students, however, may do correspondence work, and the credit earned can be applied toward undergraduate major and/or minor fields for certification purposes.

The tuition fee for a correspondence course is $10.00 per semester hour, plus a $2.00 service charge per course. The fee for a high school course is $17.00 per one-half unit, or one semester's work, plus a $2.00

service charge per course. The service charge for all correspondence courses is non-refundable.

Extension Class Program

The Extension Class Program serves students off-campus who are unable to attend the University, or find it more helpful to work in a particular group on research problems. This program includes credit and non-credit courses for teachers, administrators, business personnel, and others who qualify for admission. Credit courses by extension require the same type of work from the students as on-campus courses.

Location: Courses are offered in each Community College and in communities throughout the state when requested by a school official or an administrator in industry, business, or agriculture. The University sends a representative to the community to register and counsel with the students. Courses may be on a high school, college, or graduate academic level. They are usually conducted in a public building in the local area approved as an adequate classroom.

Class Organization: A list of courses to be offered by extension is available to you. In the case of teachers, it is suggested that the supervisor, principal, and superintendent assume the responsibility for submitting a list of the students who desire a particular course to University Extension, University of Kentucky. Groups other than teachers desiring courses should contact University Extension, University of Kentucky, directly.

Number Required in Class: A minimum of approximately 20 students is required for a class within a radius of 50 miles of Lexington, and a minimum of 25 students for classes at a greater distance.

Residence Requirements: A minimum of 30 of the last 36 credits presented for the baccalaureate degree must be completed on the campus in residence at the University. In the College of Arts and Sciences the last 30 credits must be completed while registered in the College.

Student Load: Persons holding full-time working or professional assignments may not take for graduate credit toward a degree in any single semester or term more than 4 credits.

Transfer of Credit: Credit earned by extension may be transferred to another institution at the request of the student. Each extension student is responsible for checking with the institution where he is taking his degree to be sure the extension courses will be accepted.

Extension Credit: A maximum of 32 credits taken by extension and/or correspondence may be counted toward the baccalaureate degree. Not more than half of the credits required for the major may be gained by extension.

Time Required: The number of clock hours for extension classes is the same as on campus. It is recommended that classes organized in communities a long distance from the University meet for two sessions on alternating week-ends. Others are to meet once per week. All three hour classes are required to meet a minimum of 16 sessions for 2½ clock hours. It is recommended that each class meet a minimum of 45 clock hours for a three hour course to include the organizational and the examination sessions.

Auditor: Any student may be admitted to a class as an auditor by payment of the required fee. No credit can be given for a course audited. An auditor is not eligible for a special examination for credit.

Tuition and Fees: The tuition for undergraduate credit is $10.00 per semester hour. The fee for graduate credit is $12.00 per semester hour. A student auditing a course will pay the regular fee. An out-of-state student will pay $23.00 per semester hour for undergraduate credit and $31.00 per semester hour for graduate credit. A $2.00 service fee is charged for each course.

Late Registration: Students registering after the first class session will pay a late registration fee of $3.00. No person will be permitted to register after the second class session except on approval of the instructor.

Payment of Tuition: It is preferred that all students pay the tuition by check, made payable to the University of Kentucky. However, cash is acceptable.

Withdrawal and Refund of Fees: A student may withdraw from an organized class and have refunded one-half of his tuition. Requests for refunds should be made at the office of Extension Class Program, University Extension. No refund will be made after mid-semester. All refunds must be claimed before July 1 of each year.

Admission to the Graduate School: Students who have never applied for admission to the University of Kentucky Graduate School, and plan to work toward a graduate degree, must arrange to have two official transcripts of their undergraduate work sent to the Registrar's Office. Students who have never applied for admission and do not intend to seek a graduate degree at the University must arrange to have a transcript of their bachelor's degree sent to the Registrar's Office by the school from which they received their degree. Admissions are not official until transcripts and applications for admission have been received and accepted. Arrangements should be made to have transcripts sent immediately, as a delay may mean loss of credit. The necessary application blanks will be available during registration. Those desiring credit toward a graduate degree should write to the Graduate School for a graduate catalogue, and become familiar with the requirements for graduate degrees.

Credit Toward the M.A. Degree: Under certain conditions, up to six hours of the credits and nine weeks of the residence required for any master's degree may be satisfied by extension courses given in person by University of Kentucky instructors.

Evening Class Program

The University's Evening Class Program provides an opportunity for continuing education to everyone in the Central Kentucky area. This program includes credit and non-credit classes in many fields taught by University staff members and qualified business and professional leaders of the community. Credit courses are offered under the same conditions as similar daytime campus classes. Non-credit classes are designed to meet specific needs of business and professional people and all persons desiring to broaden their intellectual and cultural horizons.

Enrolling as a Non-credit Student: Non-credit classes are open to anyone desiring to enroll in them. Any person may enroll as a non-credit student in a credit class. However, the work in some credit classes, especially those numbered 300 through 599, is of an advanced nature, and non-credit students should consult with the instructor before enrolling.

Non-degree Students: Any person over 21 may enroll as a non-degree student provided he is not currently enrolled as a degree candidate and is eligible for admission. Non-degree students may apply for admission as degree candidates at a later date, at which time they must meet regular admission requirements as given in the University General Catalogue. Credit earned as a non-degree student may be counted toward a University degree provided the student was eligible for admission to the University and for the course at the time of enrollment. Generally speaking, the typical Evening Class student should enroll as a non-degree student.

Degree Candidate Students: Degree candidate students taking one or more daytime classes must register with the Registrar's Office according to the Regular University Schedule. They may enroll in an Evening Class only after completing this registration.

Full-time University Students: Full-time University students who have paid the full fee may enroll in an Evening Class which carries University credit provided they have the permission of their dean and advisor. Full-time students may enroll in classes listed as "non-credit" by paying the stated fee.

Academic Standing of Evening Students: Evening Class non-degree students are subject to University regulations concerning academic standing (grade point averages), academic probation, and dropping for low scholarship. Each student is responsible for familiarizing himself with these regulations and maintaining the proper grade point average.

Students who have been dropped by the University of Kentucky may not enroll for credit in the Evening Class Program until they have been reinstated.

Students from other institutions desiring to enroll for credit must meet all University conditions for admission. These include good standing in every respect in the institution last attended and a grade point average of 2.0, or C, in all previous college work.

Students who plan to transfer credit to another institution must be eligible in all respects for admission to the University of Kentucky. It is the responsibility of the student to ascertain whether or not the work will be accepted by another institution.

Library Privileges: Evening Class students are entitled to use the University Library while they are officially enrolled. Present your receipted card at the main desk on the second floor of the Margaret I. King Library.

Fees: The fee for college credit Evening Classes is $10.00 per semester hour for undergraduates and $11.00 per semester hour for graduates. The fee for non-credit classes is on a proportional basis. Some courses will require a laboratory fee based on the type of materials required. A $2.00 service fee will be added to the total amount of class registration fees. All fees must be paid at the time of enrollment.

Non-resident Fees: Students who have not resided in the state for twelve consecutive months next preceding enrollment must pay out-of-state student fees if they register for college credit: $23.00 per semester hour for undergraduate credit, and $31.00 per semester hour for graduate credit.

Conferences and Institutes

The Conference and Institute Program serves as the centralized agency through which the University's academic, administrative and operational facilities are co-ordinated to extend continuing educational service to citizens throughout the state.

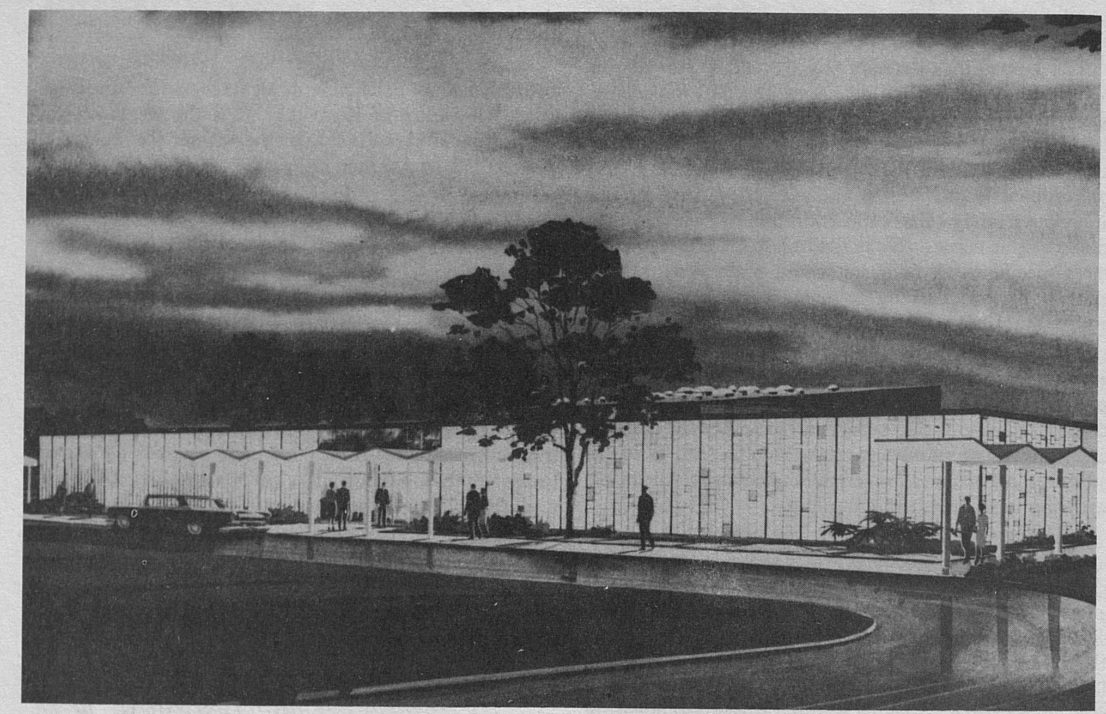
In co-operation with the academic colleges, conferences, institutes and similar short-course study programs can be organized for business and professional groups.

Each program is specifically designed to include selected topics that are of greatest practical interest to the participants. The teaching staffs are composed of both University staff members and visiting lecturers and consultants.

The classroom and cafeteria facilities, and when possible, the housing facilities of the University are made available to visiting groups participating in these programs. The University's Carnahan House Conference Center, located near the main campus, also provides adequate conference accommodations for certain groups and is operated by the Office of Conferences and Institutes for this purpose.

Other Services

High School Speech and Drama: The University of Kentucky Division of University Extension sponsors the Kentucky High School Drama and Speech Festivals for the high schools of the state. This program includes regional and state festivals, and speech and drama clinics, workshops, and conferences for teachers and students.





Community Colleges

Community College Administrative Personnel

Ellis F. Hartford (Ed.D., Harvard, 1942), Dean; Edsel T. Godbey (Ed.D., Kentucky, 1959), Assistant Dean; Albert J. Hauselman (M.A., Kentucky, 1961), Program Assistant.

University Community College System

There are seven community colleges: Northern Community College, Covington, established 1948; Ashland Community College, Ashland, established 1957; Fort Knox Community College, Fort Knox, established 1958; Southeast Community College, Cumberland, established 1960; Henderson Community College, Henderson, established 1960; Elizabethtown Community College, Elizabethtown, established 1964; and Prestonsburg Community College, Prestonsburg, established 1964. Two additional community colleges, at Somerset and Hopkinsville, will open in 1965.

The purpose of these Community Colleges is threefold:

1. To provide the first two years' program of academic work up to a maximum of 67 hours' residence credit.
2. To offer certain terminal programs of a non-degree, technical, or pre-professional nature.
3. To provide courses of a cultural or personal improvement nature to adults served by each Community College.

Each Community College is an integral part of the University with the same standards of admission and operation as apply to the parent campus. A Director is responsible for general administration of each Community College. He is assisted by a Bursar-Recorder, and a full-time staff and faculty. Appointments of teaching staff are a joint responsibility of the Department Chairman, Dean of the respective College, and Community College Director.

Ellis Ford Hartford, A.B., M.A., Ed.D., is Dean of Community College System.

Ashland Community College

Assistant Professors: Robert L. Goodpaster (Ed.D., Kentucky, 1961), Director; Opal Scaggs Conley (M.S., Kentucky, 1943), Anatomy and Physiology; Klara Rosa Cook (Dr. Theol., Zurich, 1946), Geography, German; Henry Jackson Daily (M.A., Kentucky, 1946), Engineering; George J. Edwards (M.A., Minnesota, 1948), English; George William O'Brien (Ph.D., Kentucky, 1958), Chemistry, Bacteriology; William Godfrey Wheeler (LL.B., Kentucky, 1940), Commerce. *Instructors:* Edward R. Buchanan (M.M., Chicago, 1961), Music; Woodrow Deaton (B.S., Kentucky, 1951), Librarian; Robert D. Halladay (M.S., Ohio University, 1953), Physics; Dorothy Seaberg Hope (M.S., North Carolina, 1947), Commerce; Jeannette Hill Jennings (A.B., Kentucky, 1957), Modern Foreign Languages; Leonard Jack LeRoy (M.A., Marshall, 1960), English, Journalism; George Livingston (M.S., West Virginia University, 1963), Mathematics; Ann Elizabeth McCall (M.A., Marshall, 1961), English; Nancy Turman McClellan (A.B., Kentucky, 1954), English; Sandra L. Noe (M.M., Kentucky, 1962), Music; Dirck M. Parkin (M.A., Penn. State, 1956), History; Sarah P. Pyles (M.A., Kentucky, 1963), Commerce; John Buckingham Sowards (A.B., Marshall, 1951), English, Speech and Dramatic Arts; Kenneth H. Shaner (M.A., 1962), Chemistry; Elizabeth Ann Walthall (M.A., Marshall, 1953), Biological Sciences; Martha L. Tate (A.B., Morehead), Bursar-Recorder.

Elizabethtown Community College

Assistant Professor: James S. Owen (Ed.D., Auburn, 1956), Director. *Instructors:* Linda Nell Alvery (M.S., Kentucky, 1964), Mathematics; Phyllis P. Brandenburg (M.A., Kentucky, 1964), Commerce; Charles Deusner (M.A., Kentucky, 1962), History; John C. Douglass (M.S., New Mexico State University, 1964), Chemistry; C. Thomas Easterly (M.A., Kentucky, 1964), Modern Foreign Language; Margaret M. Heinen (M.A., University of North Carolina, 1964), English; Charles J. Isbell (M.S., Kentucky, 1962), Biology; James W. Stephens (M.A., Kentucky, 1964), English; Thomas L. Updike, Jr. (ASCed., University of Louisville, 1963,

M.A., Kentucky, 1959), Education; Donald F. Wallace (M.A., Georgia State College, 1964), English; Betty Jane McFarland (M.A. in L.S., George Peabody College, 1964), Librarian; Robert Keen (M.A., Eastern, 1957), Bursar-Recorder.

Fort Knox Community College

Assistant Professor: James Allison Jones (M.A., Georgia, 1949), Acting Director. *Instructors:* Thomas Elmer Gaston (M.A., Kentucky, 1960), English; Fred Marshall Kimmey, Jr. (M.A., Indiana, 1961), History.

Henderson Community College

Assistant Professor; Marshall Arnold (Ed.D., University of Missouri, 1956), Director. *Instructors:* Carl Best Boyd, Jr. (M.A., University of Kentucky, 1963), History; Ronald W. Butler (M.A., University of Kentucky, 1957), English; Doris Elouise Cave (M.B.E., University of Kentucky, 1959), Commerce; Virginia Chambliss (M.S., Indiana University, 1960), Nursing; Joe Douglas Darling (M.S., Ohio State University, 1964), Physics; Ira Dean Elkins (M.S., Oklahoma University, 1950), Chemistry; Delores Higgins (M.A., Columbia University, 1955), Nursing, Administrator of Nursing Education; Arch Sanders Lacefield (M.A., University of Kentucky, 1950), Modern Foreign Languages; Ruth Anne Lynch (M.A., Columbia University, 1962), Nursing; Kendall Lee McDonald (M.S., Southern Illinois University, 1964), Mathematics; Ernest L. Overfield (M.A., Vanderbilt University, 1954), English; Dorothy Rothrock Tapp (M.S., University of Chicago, 1948), Biology; Maralea Arnett (B.S. in L.S., Peabody, 1937; M.R.E., S. Baptist Theological Seminary, 1944), Librarian; Robert B. Gray (M.S., Southern Mississippi, 1958), Bursar-Recorder.

Northern Community College

Associate Professors: Thomas Lee Hankins (M.S., Kentucky, 1940), Education, Director; Edna Caroline Miller (Ed.D., Cincinnati, 1947), Modern Foreign Languages, Education; Charles G. Talbert (Ph.D., Kentucky, 1952), History. *Assistant Professor:* Walter G. Inman (Ph.D., Clark, 1937), History. *Instructors:* William M. Byron (M.A., Kentucky, 1957), English, Administrative Assistant; Virginia L. Bryan (M.A., Columbia, 1962), Nursing Administrator; Eva B. Mills (M.A., Wisconsin, 1951), English; James L. Perkins (M.S., Kentucky, 1964), English; Robert M. Rankin (A.B., Kentucky, 1939), Journalism, Public Relations; Paul R. Schott (B.S., Kentucky, 1959), Bursar-Recorder; Nancy Lee Segel (M.S., Boston, 1964), Nursing; Marion F. Smith (B.S., Simmons College, 1939), Librarian; Clifford J. Stone (M.B.A., Xavier, 1956), Commerce; Clifford J. Swauger (M.S., Kentucky, 1962), Mathematics; Mary S. Sweeney (B.S., St. Louis, 1958), Nursing.

Prestonsburg Community College

Assistant Professor: Henry A. Campbell, Jr. (Ph.D., University of Texas), Director. *Instructors:* Larry E. Askins (M.A., University of Tennessee), Mathematics; Robert D. Blackledge (M.S., University of Georgia), Chemistry; Thomas P. Collins (M.A., Eastern Kentucky State College), English; Jasper R. Cummings (M.A., Duke University), English; Walter Frasure (M.A., Morehead State College), Education and Psychology; Thomas C. Knuckles (M.A., University of Maryland), English; Clyde L. Lewis (M.S., Louisiana State University), Biology; Randall Sipes (M.A., University of Michigan), Modern Foreign Languages; Larry D. Stanley (M.A., University of Kentucky), History; Robert J. Wallace (M.S. in L.S., University of Kentucky), Librarian; Rondell Lawson (M.S., Morehead State College), Bursar-Recorder.

Southeast Community College

Assistant Professor: Paul A. Clark (Ed.D., Kentucky, 1959), Director. *Instructors:* Roger Bailey (M.A., Indiana, 1962), English; Thomas M. Bowen (B.S., Lincoln Memorial, 1959), Anatomy and Microbiology; Janice Provins Brooks (M.A., Peabody, 1962), English; Betty Anne Chambers (M.A., Kentucky, 1961), Music; Larry N. Craft (B.S., Lincoln Memorial, 1959), Botany and Zoology; K. M. George (M.A., Kentucky, 1961), Sociology; Walter P. Gerlach (M.A., Kentucky, 1963), Mathematics; Joanne Hogue (M.B.A., Indiana, 1950), Commerce; David L. Hughes (M.S., Wisconsin, 1953), Chemistry; Richard J. Lindstrom (M.A., Louisville, 1962), History; Johanna M. Plaut (M.A., Columbia, 1960), Modern Foreign Languages; Dean Cadle (M.A., State University of Iowa, 1950; M.S., Kentucky, 1957), Librarian; Jo D. Cadle (B.S., Tennessee, 1949), Bursar-Recorder.






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Contract Teams Abroad

THE UNIVERSITY OF KENTUCKY provides assistance to the Institute of Technology at Bandung and to the Institute of Agricultural Science at Bogor under a contract with the Agency for International Development (AID), U.S. Department of State. The program at Bandung was started in 1956 and was expanded to include Bogor the following year.

Under the arrangement, the University of Kentucky provides a team of professors and administrators to assist the Bandung and Bogor faculties in organization, curriculum planning and the teaching of courses in important areas where they need qualified faculty members. In addition, promising young professors and graduate students of the Indonesian institutions are sent to the University of Kentucky and other American institutions for advanced training. Upon return, they replace the University of Kentucky professors. The end result will be an all-Indonesian faculty.

FACULTIES

BANDUNG

Professors: Robert C. Barnett (Ph.D., Chicago, 1951), Biochemistry, Ralph L. Dunckel (M.E., Cornell, 1925), Production Industrial Engineering, Ivan A. Flodin (M/E., Hogre Tekniska Laroverhlt, Malmo, Sweden, 1925), Mechanical Engineering, Carl E. Henrickson (Ph.D., Ohio State, 1948), Botany, Harry F. McFarland (B.S., Colorado School of Mines, 1932), Mining Engineering, Robert L. Slobod (Ph.D., Northwestern, 1939), Petroleum Engineering, Earl P. Slone (M.A., Columbia, 1951), Pharmacy, Chief of Party, Gordon L. Vandervort (Ph.D., University of Virginia, 1958), Astro-Physics. *Associate Professor:* W. Stanley Heath (Ph.D., Syracuse, 1958), Chemical Engineering. *Administrative Officer.* Nicholas M. Rice (B.A., University of Kentucky, 1953; M.Ed., Xavier University, 1956). *Administrative Assistant:* Jean Northcutt.

BOGOR

Distinguished Professor: Howard W. Beers (Ph.D., Cornell, 1935), Rural Sociology, CHIEF OF PARTY. *Professors:* Harold B. Clark (Ph.D., Kentucky, 1950), Agricultural Economics; James B. Cooper (M.S., Kentucky, 1938), Poultry Husbandry, David R. Long (M.S., Oregon State, 1951), Agricultural Engineering, Donovan D. Moss (Ph.D., Georgia, 1961), Zoology, Dale J. Richey (Ph.D., Michigan State, 1953), Virology, Roy E. Sigafus (Ph.D., Cornell, 1951), Agronomy. *Associate Professors:* Harry C. Haines (M.E., Duke, 1939), Forestry, Aly M. Lasheen (Ph.D., Texas A. & M., 1954), Plant Physiology, Bayard H. McConnaughey (Ph.D., California, 1948), Marine Biology, James W. Skaggs (D.V.M., Ohio State, 1955, M.P.H., California-Berkeley, June, 1959), Veterinary Public Health. *Specialist in Home Economics:* Elizabeth Paulina Speckels (B.S., South Dakota, 1960). *Administrative Officer:* William A. Dunlap, Jr. (B.A., Kentucky, 1963). *Administrative Assistant:* Regina Douds.



Statistics

Introductory and advanced courses in statistics are offered by a number of departments to meet the particular needs and interests of students working in various disciplines. It should be noted that some of these courses list prerequisites; descriptions of the required courses may be found under the appropriate departments.

Agricultural Economics

530 *Agricultural Statistics.* (3) I, II
Principles and methods involved in the analysis, interpretation, and use of agricultural statistics including variation, correlation, standard errors, and simple analysis of variance.

590 *Introduction to Mathematical Economics.* (3)
A review of mathematical approaches to economic theory. Models applicable to production, marketing and pricing problems. Prereq: ECO 515 or equivalent (same as ECO 590.)

630 *Statistics for Agricultural Research: Social Sciences.* (3) I
Multiple and partial correlation, test of reliability, sample surveys, and other techniques for agricultural research. Prereq: AEC 530 or equivalent.

631 *Statistics for Agricultural Research: Plant and Animal Sciences.* (3) II
Analysis of variance and covariance; statistical considerations in the design of experiments; tests of significance and confidence limits. Prereq: AEC 530 or equivalent.

Behavioral Science

421 *Biological Statistics I.* (2)
An introduction to probability, sampling, and confidence interval estimates, testing hypotheses, linear regression, design and analysis of simple experiments, data processing.

422 *Biological Statistics II.* (2)
Analysis of variance for single and multiple classifications, covariance, randomized block and crossover designs, factorial systems, split plot designs, individual contrasts, analysis of growth curves.

Business Administration

571 *Statistical Quality Control.* (3) I, II
Elementary probability theory, control charts, acceptance sampling plans including single, double and sequential sampling.

572 *Sampling Techniques.* (3) I, II
Application of sampling theory and significance testing in economic research, practical problems in sample design.

573 *Automatic Data Processing.* (3) I, II
Examination of the role of high speed data processing equipment in the solution of business and economic problems. The study of computer fundamentals; input, arithmetic and logical units, control, storage, and output. Includes digital computer programming.

720 *Statistics in Business Decisions.* (3) I
Statistical analysis as applied to business decisions. Includes waiting line theory. Monte Carlo method, and sampling as applied to inventory control, quality control, and simple business problems. Prereq: ECO 207.

Economics

207 *Statistical Method.* (3) I, II
Introduction to the sources of business data, the use of calculating machinery, tabulation, simple charts and graphs, the averages, dispersion, correlation, and the time series analysis.

550 *Advanced Business and Economic Statistics.* (3) I, II
Advanced time series analysis, multiple and partial correlation, elementary analysis of variance and experimental design. Prereq: ECO 207.

590 *Introduction to Mathematical Economics.* (3)
A review of mathematical approaches to economic theory. Models applicable to production, marketing and pricing problems. Prereq: MA 201 and ECO 515 or equivalent. (Same as AEC 590.)

650 *Research Statistics I.* (2) I, II
The place of statistics in research method, the theory of statistical averages, the application of advanced statistical methods to economic data; the testing of economic theory. Prereq: an elementary course in statistics.

651 *Research Statistics II.* (3) I, II
Inferences involving linear transformations of random variables; individual degrees of freedom; complex analysis of covariance. Applications to economic and business data. Prereq: Economics 650 or Agr. Econ. 630.

691 *Econometrics.* (3) I
The application of statistical methods to problems of economic analysis. Building and measuring relationships among economic variables. Econometric models of the economy as a whole and of individual sectors. Prereq: ECO 618 and AEC 630 or ECO 550, or equivalent.

Education

657 *Educational Statistics.* (3) I, II
A non-mathematical study of the applications of statistical and graphical methods to educational data.

Mathematics

421 *Elementary Computational Methods.* (3)
Study of number systems, matrices, determinants, and Boolean Algebra with applications to electrical networks, machine computation, automatic electronic digital computors, and other engineering problems. Prereq: MA 212.

521 *Mathematical Statistics.* (3) II
Averages, coefficients of dispersion and skewness, correlation and regression lines, curve fitting, Bernouli Theorem, DeMoivre-Laplace Theorem, generating functions, sampling. Prereq. MA 212.

522 *Actuarial Mathematics.* (3)
Theory of mortality tables, life annuities, premiums, terminal reserve, joint-life annuities and insurance. Prereq: MA 211.

523 *Probability.* (3)
Theorems of total and compound probability, Bernoulli's Theorem, Bayes' Theorem. Poisson Law, Expected value, Law of large numbers. Distribution functions and characteristic functions. Prereq: MA 212.

538 *Elementary Numerical Analysis.* (3)
Approximate computation, approximate roots of equations, numerical curve fitting, interpolation formulas, numerical differentiation and integration solutions of systems of linear equations, introduction to numerical solutions of ordinary differential equations. Prereq: MA 431.

621 *Mathematical Statistics.* (3)
Theory of sampling, the Chi-square distribution, testing statistical hypotheses. Prereq: MA 521.

Chemistry

744 *Statistical Thermodynamics.* (2)
The study of chemical thermodynamics from the viewpoint of the statistical treatment of systems rather than from the empirical classical approach. Prereq: CHE 542 and MA 431.

Sociology

502 *Laboratory in Methods of Demographic Analysis.* (1) II
Application of statistical techniques employed in the analysis of census and vital statistics data, including methods of population standardization, life table construction, and preparation of population estimates. Three hours weekly. Prereq: an introductory statistics course and SOC 501.

582 *Measurement of Attitudes and Public Opinion.* (3) II
Attention is focused upon measurement procedures in the study of public opinion and attitudes. Prereq: Introductory Statistics or SOC 581.

681 *Research Design and Analysis.* (3) II
Problem definition and delimitation, design appropriate to problem and data, and selection of appropriate analysis techniques; critical examination of representative research studies and students' designs. Prereq: Elementary Statistics and SOC 581 or equivalents.

Psychology

336 *Applications of Statistics in Psychology.* (3) II
An introduction to statistical procedures used in making decisions based on psychological data. Not available for credit to students who have had a previous statistics course. Prereq: PSY 100.

610 *Psychometrics.* (3) I
Analysis and interpretation of human measurements. The course deals with the computation and interpretation of simple, partial, and multiple correlations, regression equations, and reliability of measures. Prereq: A course in statistics.

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1 In each instance the first named member is chairman. All appointments are effective January 1, 1965 to December 31, 1965.

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Sources of Information

PUBLICATIONS

Several publications are issued by the University of Kentucky to give prospective students and others information about the institution.

Bulletins of the various colleges may be requested from either the college dean or the University Registrar's Office. These are:

Agriculture and Home Economics Bulletin

Architecture Bulletin

Arts and Sciences Bulletin

Commerce Bulletin

Dentistry Bulletin

Education Bulletin

Engineering Bulletin

Extension Programs Bulletin

Graduate School Bulletin

Law Bulletin

Medicine Bulletin

Nursing Bulletin

Pharmacy Bulletin

The following bulletins are also available from the Registrar's Office:

Catalogue

Summer Session Bulletin

Viewbook

Questions and Answers About the University

Information on the University Community Colleges at Ashland, Covington, Cumberland, Elizabethtown, Fort Knox, Henderson, and Prestonsburg, is available from the Community College System Office. For information on extension, evening, and correspondence courses, write to the Division of University Extension.

OTHER INFORMATION

Persons wishing special information about some part of the University's program may direct inquiries to members of the administrative staff listed below. In each case the University of Kentucky, Lexington, Kentucky, is the post office address.

The general policies of the University—President of the University

General information, all admissions, and transcripts of credits—Dean of Admissions and Registrar

Living accommodations, student activities, student services—Dean of Men or Dean of Women

A particular college and its program—Dean of the College

Community Colleges—Dean of Community Colleges

Graduate work—Dean of the Graduate School

Summer Session—Director of the Summer Session

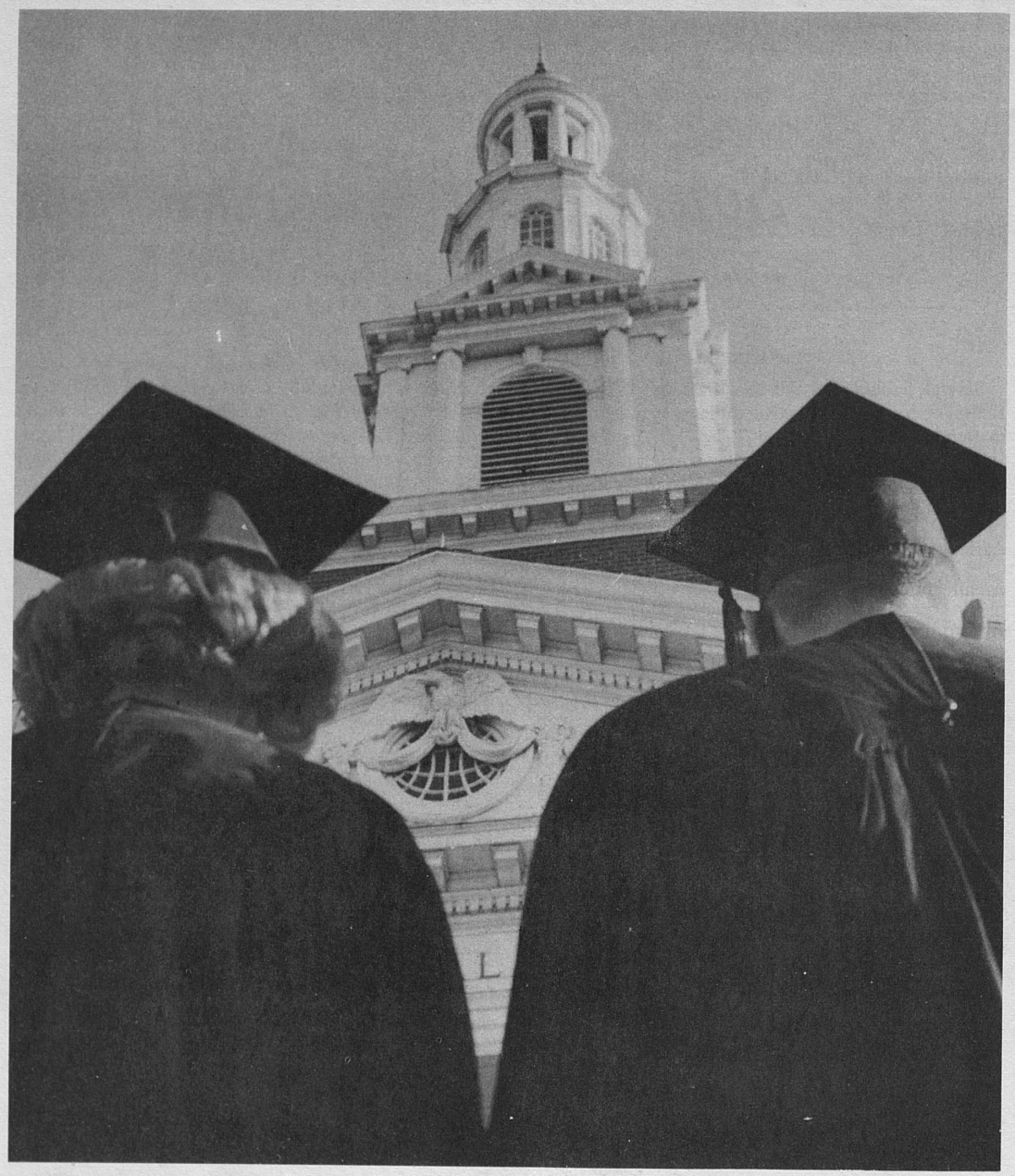
Class extension and correspondence study—Dean of University Extension

Agricultural extension—Director of Agricultural Extension

Facilities for veterans—University Counseling Office

Scholarships and Loans—Director of School Relations

General information about the University—Vice President—University Relations



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COURSE NUMBERING SYSTEM

01 to 99—Non-credit and/or non-degree courses
100 to 199—Open to freshmen; undergraduate credit only
200 to 299—Sophomore classification required; undergraduate credit only
300 to 399—Junior classification required; undergraduate credit only
400 to 499—Junior classification required; undergraduate credit; graduate credit for non-majors only
500 to 599—Junior classification required; undergraduate and graduate credit
600 to 799—Graduate classification required

Courses may be approved for variable credits, e.g. (1-3), (2-6), etc. In no case, however, may the total credits exceed the maximum number authorized for the course.

Repeated registration in a course may be allowed if the course description carries the statement: "May be repeated to a maximum of ..... credits."

Number in parenthesis indicates the number of credit hours allowed for the course. "I, II, and S" indicate the fall semester, spring semester, and summer session, respectively.

ABBREVIATIONS

The University of Kentucky has established the following set of standardized abbreviations for its academic departments. These abbreviations should be used in making out class schedule cards and at other times when referring to specific course offerings.

Standardized Departmental Abbreviations
(alphabetical by abbreviation)

AEC—Agricultural Economics
AEN—Agricultural Engineering
AEX—Agricultural Extension
AGE—Agricultural Entomology
AGR—Agronomy
ANA—Anatomy
ANS—Anesthesiology
ANT—Anthropology
ARC—Architecture
ART—Art
AS—Aerospace Science
ASC—Animal Science
BA—Business Administration
BIL—Biology (Centers only)
BOT—Botany
BCH—Biochemistry
BSC—Behavioral Science
CBI—Cell Biology
CD—Community Dentistry
CDS—Conjoint Dental Science
CE—Civil Engineering
CHE—Chemistry
CL—Classics
CM—Community Medicine
CME—Chemical Engineering
COM—Commerce
CON—Conjoint
DIP—Diplomacy
DS—Dairy Science
ECO—Economics
EDU—Education
EE—Electrical Engineering
EM—Engineering Mechanics
ENG—English
FOR—Forestry
FPR—Fixed Prosthodontics
FPS—Fire Protection and Safety Engineering
GEN—General Agriculture
GEO—Geography
GLY—Geology
HE—Home Economics
HIS—History
HON—Honors
HOR—Horticulture
HUM—Humanities
HYG—Hygiene
JOU—Journalism
LAW—Law
LS—Library Science
MA—Mathematics and Astronomy
MB—Microbiology
ME—Mechanical Engineering
MED—Medicine
MET—Metallurgical Engineering
MFL—Modern Foreign Languages
MIN—Mining Engineering
MM—Materia Medica
MS—Military Science
MUS—Music
NUR—Nursing
OBG—Obstetrics and Gynecology
OD—Operative Dentistry
ODM—Oral Diagnosis and Oral Medicine
OP—Oral Pathology
ORT—Orthodontics
OS—Oral Surgery
PAT—Pathology
PCH—Pharmaceutical Chemistry
PDO—Pedodontics
PE—Physical Education
PED—Pediatrics
PEN—Periodontics and Endodontics
PGY—Physiology and Biophysics
PHA—Pharmacology
PHI—Philosophy
PHR—Pharmacy
PHY—Physics
PPA—Plant Pathology
PR—Prosthodontics
PS—Political Science
PSC—Psychiatry
PSY—Psychology
PTY—Poultry Science
RAD—Radiology
RTF—Radio, TV, & Films
RS—Rural Sociology
SOC—Sociology
SUR—Surgery
SW—Social Work
VS—Veterinary Science
ZOO—Zoology